

Performance Indicators for Benchmarking of Internal Supply Chain Management

Kailash, Rajeev Kumar Saha, Sanjeev Goyal

Abstract—Each and every manufacturing industry has a goal that describes its purpose and destination. The goal of any industry may be achieved by team work and managerial skills of all departments. However, achieving goals and objectives is not enough to improve the internal supply chain management performance of manufacturing industries therefore proper identification of performance indicators for benchmarking of internal supply chain management is essential for the growth of manufacturing industry. The identification of benchmarking performance indicators and their impact on internal supply chain management performance is vital for productivity and performance improvement. This study identifies the benchmarking performance indicators to improve internal supply chain performance of Indian manufacturing industries through literature review.

Keywords—Benchmarking, Internal supply chain management, performance indicators, scenario of Indian manufacturing industries.

I. INTRODUCTION

IT appears that much of the literature has focused on performance indicators with very limited perspective. For a scheme execution team, a more clearly perceptible of performance indicators of different groups would make it likely to consider the project scheduling phases and establish the concerns of these significant groups possible. This will enhance the probability of achieving higher success levels and resulting in saving time and cost along with the improvement in the internal supply chain management system. Emerging technologies have much impact on the internal supply chain of manufacturing industry around the world [1]. The rapid changes in the business environment and finally in the industry could lead to changes in business benchmarking and performance measures. So, this research focuses only on critical reviews of the available literature on benchmarking performance indicators identification process. The performance indicators should be fruitful in improving the internal supply chain performance of Indian manufacturing industries. The critical performance indicators have been used significantly. The result of this concept should present that the manufacturing industries should continuously focus on successful competitive performance [2], [3]. It is further suggested that in order to achieve efficient implementations, focus should be made on those vendors who do not perceive the implementation towards being successful [4]. The manufacturing groups view the new technology as a decision

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support tool or a method by which they can increase their competitiveness. Some of the performance indicators are critical to the successful performance of any type of manufacturing industry. These performance indicators exist at different stages within an industry [5]. In sense, if objectives associated with the performance indicators are not achieved, industry will fail.

II. INDIAN MANUFACTURING INDUSTRIES

Globally, Indian manufacturing industry has been changed over the world due to day to day competition and customer demand. As per the concept of “Make in India”, “Made in India” and “Make for India” started by Indian Prime Minister honorable Sh. Narendra Modi, manufacturing industry is more helpful in the improvement of business in Indian economy. Every country supports a string of manufacturing products of all kinds and sizes. Factors like changing lifestyle, economy growth, migration to urban areas have contributed much towards the demand for products which in turn lead to the growth of the manufacturing industry as a whole. The Indian manufacturing industries are producing and selling a wide range of products related to automobile, power plants, agriculture, office, medical sectors, house, garden, construction work, school, college etc. Manufacturing groups have been found to be important in economy of any country all over the world. In India they contribute up to 60% of India’s manufactured exports. They also have a significant workforce and have a high share in the employment generation. But many middle and small scale industries are lagging behind in this scenario of growth. The internal supply chain networking into competitive groups would lead to:

- Faster decision making among industry members.
- A cost effective team.
- Higher responsiveness to industry demands.
- Faster information diffusion.
- Overcoming weak capital base and low scale potential.
- A more flexible structure.

A. Major Problems Faced by Indian Manufacturing Industries

1. Human Resource Issues
 - Lack of skills development center/Institute facilities.
 - Lack of educated, certified and professionally trained/skilled work force.
2. Technology issue
 - Lack of modern and efficient processing and hand carving tools/ equipment.
3. Financial issues

- Inaccessibility to financial institutions for financial support results in loan credits from informal sectors at high cost of capital.
- 4. Marketing issues
 - Stake holders are unaware of quality control and standards.
 - Unawareness of international trade trend, markets due to poor marketing skills and lack of access
 - Unawareness of international certifications and non-tariff barriers [95].

B. Characteristics of Indian Manufacturing Industries

- The manufacturing industries are in both, an organized and a non-organized sector.
- Utilization of tools, techniques, equipment, machines and CAD/CAM for manufacturing and designing.
- Source of employment for rural workers. Identification of critical indicators for internal supply chain performance.
- Employment spread across many sectors showing the diverse nature of the industry and a broad product range.
- Utilization of skilled and unskilled workers.

C. Hypothesis of the Work

In the proposed research following hypothesis shall be tested:

- Groups shall facilitate adoption of innovative technology in the manufacturing industry.
- Manufacturing group will bring about positive changes in the work culture.
- Group quality shall determine internal supply chain performance of the manufacturing industry.
- Groups shall promote competitive cooperation among manufacturing industries.
- Groups will improve specialized local suppliers of inputs and services.
- Identified performance indicators have effect on benchmarking of internal supply chain performance of manufacturing industry.

III. RESEARCH METHODOLOGY

The goal of this study is to gain the understanding of various critical benchmarking performance indicators for internal supply chain performance improvement of manufacturing industries. It calls for thorough examination and review of group's quality performance indicators. The literature review is very helpful for data collection where various methods are contemplated. The critical performance indicators are defined as reference to any condition or element that was necessary in order to improve the performance. The methodology of this research proposal consists of the following steps.

A. Proposed Data Collection Procedure

Data collection is done with the help of literature survey, discussions, interviews, databases, seminars and conferences, etc. The data compilation has been carried out by thorough reviewing the research articles published in several national

and international journals of repute having information relevant to the subject content.

B. Data Analysis

The authentic investigation stage implies reviewing the conception in terms of frequency as well as identification of the critical factors approach. Quality performance of manufacturing groups and the quality problems faced by them will form the focus of data collection. The data will be scrutinized and analyzed using various statistical and quantitative techniques. The analysis will help in identification of critical benchmarking performance indicators for improving internal supply chain performance of manufacturing industries. This research work integrates the critical indicators to develop quality improvement framework for manufacturing group. The developed framework will be tested in a manufacturing group and this study will be used to validate the framework [96]. The above collected data will be analyzed using various statistical and quantitative techniques like: Multivariate analysis, Hypothesis testing, Multiple regression analysis, etc. as necessary.

C. Proposed Software Packages

Computer software packages like – SPSS, Minitab, etc. shall be used extensively in further research work.

D. Proposed Model

The proposed model shall be executed in case studies of manufacturing industries.

IV. RESULT

TABLE I
BENCHMARKING PERFORMANCE INDICATORS FOR IMPROVEMENT OF
INTERNAL SUPPLY CHAIN MANAGEMENT OF INDIAN MANUFACTURING
INDUSTRIES

Serial no.	Performance Indicators	References
1	Benchmarking performance indicators- Financial Performance, Plan Performance, Source performance, Make performance, Delivery performance, Sales performance, Customer service and satisfaction	[6]-[23]
2	Ideal time of inventory	[24]-[26]
3	Distance of suppliers and dealers from manufacturing industry	[27]-[29]
4	Different sections productivity	[30]-[35]
5	Performance and Comparative analysis	[36]-[38]
6	Human Resources Orientation- Education training and development, team work, organizational learning, provision of public goods, export market assistance, importance of capital and finance, inter firm relationship	[39]-[68]
7	Inbound logistics- Information flow & analysis, Inventory level & control, Integration of group companies, Vendor development in nearby region, Underutilization of software facilities, Scientific methods for forecasting, Orientation & customer service, Market penetration, Flexibility to change, Ineffective transportation, Integrated planning, Vendor rating	[69]-[95]

After successful completion of critical review of literature, authors have come across some of the performance indicators like: sale performance, make performance, delivery performance, human resource orientation, financial

performance, product delivery, production programming, inventory management, inbound logistics, operational logistics and outbound logistics, purchase performance etc. as shown in Table I. These performance indicators are helpful in creating benchmarking of internal supply chain management as well as improving internal supply chain performance of manufacturing industries.

V. CONCLUSION AND FUTURE RESEARCH DIRECTIONS

Research on critical benchmarking performance indicators can be a valuable step towards enhancing chances of implementation improvement of internal supply chain performance in Indian manufacturing industries. The critical performance indicators lead to an environment of positive competition in the manufacturing industry. We have come across the review of literature and found performance indicators for benchmarking of internal supply chain management. In this research, we have mentioned only those indicators which have already come out during literature review. But after completion of this paper, we found some more indicators which are: Operational logistics, Economies of scale, Logistics strategies, New product development system, Material follow up and procurement, Production operation process, Production programming, Quality system, Products delivery, Foreign trade and service management, and Transport-reception-custom decision. The work shall address specific issues of manufacturing industries in the counseling as under:-

- Support the creation of providers, specialized technical, administrative and financial services.
- Give rise to collective benefits, for example with the continuous inflow of raw materials supply, apparatus and equipment or the accessibility of workforce with segment precise skills.
- Build a healthy environment for the growth of inter-firm collaboration as well as of support among private and public institutions to support local manufacturing and combined learning.
- Focus on critical factors and their control may cut down the efforts and resources spending on non-critical factors. Also provide the scope of research for researchers in the field of benchmarking in internal supply chain management.

REFERENCES

- [1] Umble, E. J., Haft, R. R., & Umble, M. M., "Enterprise resource planning: Implementation procedures and critical success factors", *European Journal of Operational Research*, vol. 146, pp. 241-257, 2003.
- [2] Rockart, J., "Chief Executives Define Their Own Information Needs", *In: Harvard Business Review*, pp. 81-92, March/April 1979.
- [3] Bullen C V and Rockart J F, "A Primer on Critical Success Factors", *Sloan School of Management*, June 1981.
- [4] Welti, N., "Successful SAP R/3 Implementation: Practical Management of ERP projects", *Addison Wesley Longman Limited, USA*, 1999.
- [5] Bruno, A.V. & Leidecker, J.K., "Identifying and using critical success factors", *Long Range Planning*, vol. 17, pp. 23-32, 1984.
- [6] Jeffrey M. Bacidore, John A. Boquist, Todd T. Milbourn, and Anjan V. Thakor, "The Search for the Best Financial Performance Measure", *Financial Analysts Journal*, pp.11-20, 1997.
- [7] Lings, Ian, "Internal marketing and supply chain management", *Journal of Services Marketing*, vol.14, no. 1, pp. 27-43, 2001.
- [8] Bartlett, Paul A; Julien, Denyse M and Baines, Tim S, Improving supply chain performance through improved visibility, *The International Journal of Logistics Management*, vol. 18, no.2, pp.294-313, 2007.
- [9] Mario Sacomano Neto, Silvio R. I. Pires, Fernando Bernardi de Souza, "Performance Measurement in Supply Chains: A Study in the Automotive Industry", *Proceeding of the POMS 20th Annual Conference held at Orlando, Florida, USA*, May 1-4, 2009.
- [10] C. Madhusudhana Rao, K. Prahlada Rao and V.V. Muniswamy, "Delivery performance measurement in an Integrated supply chain management: case study in batteries manufacturing firm", *Serbian Journal of Management*, vol. 6, no. 2, pp. 205 – 220, 2011.
- [11] Giovanni, P.D., "Do Internal and External Environmental Management Contribute to the Triple Bottom Line?", *International Journal of Operations and Production Management*, vol. 32, no. 3, pp. 265-290, 2012.
- [12] Nenad Stefanovic and Dusan Stefanovic, "Supply Chain Performance Measurement System Based on Scorecards and Web Portals", *Com SIS*, vol. 8, no. 1, pp. 167-192, January 2011.
- [13] Alexander Fianko Otchere, Jonathan Annan, Emmanuel Quansah, "Assessing the Challenges and Implementation of Supply Chain Integration in the Cocoa Industry: a factor of Cocoa Farmers in Ashanti Region of Ghana", *International Journal of Business and Social Science*, vol. 4, no.5, pp.112-123, May 2013.
- [14] Hanaa El Sayed, "Supply Chain Key Performance Indicators Analysis", *International Journal of Application or Innovation in Engineering & Management*, vol. 2, no 1, pp. 201-210, January 2013.
- [15] Pratima Mishra and Rajiv Kumar Sharma, "Benchmarking SCM performance and empirical analysis: a case from paint industry", *Logist. Res.*, vol. 7, no. 113, pp.1-16, 2014.
- [16] Alexandre Oliveira and Anne Gimeno, "Customer Service Environment, in Supply Chain Management, Models for Achieving Customer, Satisfaction, Supply Chain Performance, and Shareholder Value", *Pearson Publications*, New York, 2014.
- [17] Oliveira, A. and Gimeno, "A Guide to Supply Chain Management: The Evolution of SCM Models, Strategies, and Practices", *New York: Pearson*, 2014.
- [18] SiddigBalal Ibrahim, Abdelsalam Adam Hamid, "Supply Chain Management Practices and Supply Chain Performance Effectiveness", *International Journal of Science and Research*, vol. 3, no. 8, pp. 187-195, 2014.
- [19] Ravinder Kumar, Rajesh K Singh, Ravi Shankar, "Critical success factors for implementation of supply chain management in Indian small and medium enterprises and their impact on performance", *IIMB Management Review*, vol. 27, pp. 92-104, 2015.
- [20] Harjit Singh, Anish Sachdeva, Gurpreet Kaur, "Benchmarking Internal Supply Chain Performance: Development of A Frame Work", *International Journal of Mechanical Engineering and Technology*, vol. 6, no. 6, pp 119-126, 2015.
- [21] Mohammad Taghipour, Mehrnaz Bagheri, Mahbube Khodarezaei & Farjad Farid, "Supply Chain Performance Evaluation in the it Industry", *International Journal of Recent Research and Applied Studies*, vol. 23 no. 2, pp. 144-156, 2015.
- [22] Vishal Parmar, H.G. Shah, "A literature review on supply chain management barriers in manufacturing organization", *International Journal of Engineering Development and Research*, vol. 4, no. 1, pp. 26-42, 2016.
- [23] C. Chandra, J. Grabis, "Supply Chain Configuration: Concept, Solutions and Applications, Scope of Supply Chain Configuration Problem", *Springer Science Business Media New York*, pp.17-40, 2016.
- [24] Sunil Chopra, "Designing the distribution network in a supply chain", *Transportation Research Part E Logistics and Transportation Review*, vol. 39, no. 2, pp. 123-140, 2003.
- [25] Leroy B. Schwarz, "The Economic Order-Quantity (EOQ) Model, in Building Intuition: Insights from Basic Operations Management Models and Principles", *D. Chhajer and T.J. Lowe (eds.)*, *Springer Science, Business Media, LLC*, pp. 135-154, 2008.
- [26] Manoj Kumar Mohanty, P. Gahan, "Buyer supplier relationship in manufacturing industry - findings from Indian manufacturing sector", *Business Intelligence Journal*, vol. 5, no. 2, pp. 319-333, 2012.
- [27] Avinash G Mulky, "Distribution challenges and workable solutions", *IIMB Management Review*, vol. 25, no. 3, pp.179-195, 2013.
- [28] P. Vrat, "Basic Concepts in Inventory Management in Materials Management: An integrated systems approach", *Springer Texts in Business and Economics*, pp. 21-36, 2014.

- [29] Andy Hill, "12 Best Practices of Inventory Optimization, Minimize Costs, Maximize Uptime with MRO Inventory Control", *Executive summary, Oniqua Intelligent MRO*, 2016.
- [30] Robert E. Hall and Charles I. Jones, "Why do some countries produce so much more output per worker than others?", *The Quarterly Journal of Economics*, vol.114, pp. 83-116, 1999.
- [31] Stefan Tangen, "Understanding the concept of productivity", *Proceedings of the 7th Asia Pacific Industrial Engineering and Management Systems Conference, Taipei*, 2002.
- [32] Erin Leahey, "Gender Differences in Productivity", *Gender & Society*, vol. 20, no. 6, pp.754-780, 2006.
- [33] Harvey Armstrong, Dimitris Ballas and Adreene Staines, "A Comparative Analysis of the Economic Performance of Greek and British Small Islands", *proceedings of the 36th Regional Science Association International (British and Irish section) Conference, Jersey*, 2006.
- [34] R. Wieser, "Automated Route Control boosts productivity", *An executive summary, Process – Worldwide*, vol. 2, pp. 26-28, 2009.
- [35] Nicholas Bloom, John Van Reenen, "Human Resource Management and Productivity", *National Bureau of Economic Research Working Paper 16019*, pp. 1-88, 2010.
- [36] Anurag B Singh, Priyanka Tandon, "A Study of Financial Performance: A Comparative Analysis of SBI and ICICI Bank", *International Journal of Marketing, Financial Services & Management Research*, vol.1, no.11, pp. 56-7, November 2012.
- [37] John G. Fernald, "Productivity and Potential Output Before, During, and After the Great Recession", Working Paper Series, *Federal Reserve Bank of San Francisco*, pp. 1-50, 2014.
- [38] Ambreen Zeb Khaskhelly, "Comparative Analysis of performance of Islamic Vis a Vis Conventional Banking of Pakistan during Global Financial Crisis 2007-2010", *Revista Romana de Statistica – Supplement*, vol. 3, pp. 29-42, 2015.
- [39] A. Diamantopoulos, B.B. Schlegelmilch, K.Y. Katy Tse, "Understanding the Role of Export Marketing Assistance: Empirical Evidence and Research Needs", *European Journal of Marketing*, vol. 27, no. 4, pp.5-18, 1993.
- [40] Michael J Stevens, "The knowledge, skill and ability requirements for team work: Implications for Human Resource management", *Journal of Management*, vol. 20, no. 2, pp. 503-530, 1994.
- [41] Geert Bekaert, Campbell R. Harvey, "Research in emerging markets finance: looking to the future", *report published by Columbia Business School*, 2002.
- [42] Sally Rao, Chad Perry & Lorelle Frazer, "The Impact of Internet Use on Inter-Firm Relationships in Australian Service Industries", *Australasian Marketing Journal*, vol. 1, no. 2, pp. no. 10-22, 2003.
- [43] Lages, Luis Filipe & Montgomery, David B, "The Relationship among Export Assistance, Pricing Strategy Adaptation to the Foreign Market, and Performance Improvement", *Research Collection Lee Kong Chian School of Business*, 2004.
- [44] Luis Filipe Lages, David B. Montgomery, "The relationship between export assistance and performance improvement in Portuguese export ventures", *European Journal of Marketing*, vol. 39, no. 7/8, pp. 755-784, 2005.
- [45] Aurelia Lefaix – Durand, Diane Poulin, Robert Kozak, "Interfirm relationships and value creation: A synthesis, Conceptual model and implications for future research", *Network Organization Technology Research Centre, Quebec, Canada*, Working paper DT-2005 – DP – 1.
- [46] Schlosser, F. K., Templer, A., Ghanam, D., "An Integrated Agenda for Understanding the Impact of HR Outsourcing on Organisational Learning Orientation.", *Journal of Labor Research, Special issue on Outsourcing Management*, vol. 27, no.3, pp. 291-303, 2006.
- [47] Jelena Vemic, "Employee Training and Development and the Learning Organization", *Economics And Organization*, vol. 4, no. 2, pp. 209 – 216, 2007.
- [48] Jawad Syed, "A Dyadic Perspective of Knowledge - Oriented Human Resource Management", *Working Paper No.157, University of Kent Canterbury, Canterbury*, 2007.
- [49] Anne Delarue, Geert Van Hootegeem, Stephen Procter and Mark Burridge, "Team working and organizational performance: A review of survey-based research", *International Journal of Management Reviews*, vol. 10, no. 2 pp. 127–148, 2008.
- [50] Mahdi Salehi, "The role of financial intermediaries in capital market", *Zagreb International Review of Economics & Business*, vol. 11, no. 1, pp. 97-109, 2008.
- [51] Haslinda Abdullah, "Major Challenges to the Effective Management of Human Resource Training and Development Activities", *The Journal of International Social Research*, vo. 2, no. 8, pp. 11-25, 2009.
- [52] Sheely, R., "The Role of Institutions in Providing Public Goods and Preventing Public Bads: Evidence from a Public Sanitation Field Experiment in Rural Kenya," 2009.
- [53] Xin Chen, Suggestions on Effective Corporate New Employee Orientation Program for Human Resource Specialists, vol. 4, no.3, pp.1-11, 2010.
- [54] Ramon Rico, Carlos Maria Alcover De La Hera & Carmen Taberner, "Work team effectiveness", *A review of research from the last decade (1999-2009), Psychology in Spain*, vol. 15, no.1, pp. 57-79, 2011.
- [55] Alyahya Mohammed Saad, Norsiah Binti Mat, Alharbi Mohammad Awadh, "Review of Theory of Human Resources Development Training (learning) Participation" , *The West East Institute, WEI International Academic Conference Proceedings, Antalya, Turkey*, pp. 85-93, 2013.
- [56] Fapohunda, Tinuke M, "Towards Effective Team Building in the Workplace", *International Journal of Education and Research*, vol. 1, no.4, pp. 1-12, 2013.
- [57] A. Anuja, A. Anton Arulrajah, "Team Working Practices and Team Orientation of Employee: A Comparative Study between the State and Private Banks in Sri Lanka", *Sri Lankan Journal of Human Resource Management*, vol. 4, no.1, pp. 49-61, 2013.
- [58] Alexandra Luciana Guța, "Organizational Learning and Performance. A Conceptual Model", *Proceedings of the 7th International Management Conference, New Management for the New Economy*, Bucharest, Romania, pp. 547-556, 2013.
- [59] Vinesh, "Role of Training & Development in an Organizational Development", *International Journal of Management and International Business Studies*, vol. 4, no.2, pp. 213-220, 2014.
- [60] Norashikin Husseina, Amnah Mohamad, Fauziah Noordina, Noormala Amir Ishak, "Learning Organization and its Effect on Organizational Performance and Organizational Innovativeness: A Proposed Framework for Malaysian Public Institutions of Higher Education", *Procedia - Social and Behavioural Sciences* vol.130, pp. 299 – 304, 2014.
- [61] Kimberley Scharf, "Private Provision Of Public Goods And Information Diffusion In Social Groups," *International Economic Review, Department of Economics, University of Pennsylvania and Osaka University Institute of Social and Economic Research Association*, vol. 55, pp.1019-1042, November, 2014.
- [62] William R. Kerr, Ramana Nanda, "Financing Innovation", *Harvard Business School*, working paper 15-034, November 5, 2014.
- [63] Astuty Mulang, "The Importance of Training for Human Resource Development in Organization", *Journal of Public Administration and Governance*, vol. 5, no. 1, pp. 190-197, 2015.
- [64] Surekha Rana, Priyanka Chopra, "Transition Approach in Analyzing Organizational Learning Capability: From Employer Perspective to Employee Concern", *The International Journal of Business & Management*, vol. 3, no. 8, pp. 90-97, 2015.
- [65] Anisur R. Faroque, Yoshi Takahashi, "Export marketing assistance and early internationalizing firm performance: Does export commitment matter?", *Asia Pacific Journal of Marketing and Logistics*, vol. 27, no. 3, pp.421-443, 2015.
- [66] Flavia de Holanda Schmidt Jorge Ferreira da Silva, "Export assistance: A literature review and challenges for future research", *Discussion paper 191, published by Institute of Applied Economic Research, Brasilia*, 2015.
- [67] Natalya Martynova, "Effect of bank capital requirements on economic growth: a survey", *De Nederlandsche Bank, NV, Amsterdam*, The Netherlands, DNB Working Paper No. 467, pp. no. 1-21, March 2015.
- [68] Po Li Chia, Khulida Kirana Yahya, Tan Fee Yean, "The Relationship between Commitment-based HR Practices and Organizational Performance: The Role of Organizational Learning Capabilities as a Mediator", *Information Management and Business Review*, vol. 8, no. 2, pp. 63-75, 2016.
- [69] Paul Domjan, "The Supplier Development in the Oil and Gas Sector of Kazakhstan, in Getting Competitive", *Staying Competitive: The Challenge of Managing Kazakhstan's Oil Boom*, Background Paper No. 5, 2004.
- [70] Report by ARC Advisory group, "Operational Excellence in Inbound Logistics: A Strategy for Profitable Growth in Retail", *Thought Leaders for Logistics & Supply Chain Management*, 2004.
- [71] Yung-yu Tseng, Wen Long Yue, Michael A P Taylor, "The Role of Transportation in Logistics Chain", *Proceedings of the Eastern Asia Society for Transportation Studies*, vol. 5, pp. 1657 - 1672, 2005.
- [72] Tuncdan Baltacioglu, Melike D. Kaplan (eds.), "The Era of

- Collaboration Through Supply Chain Networks”, *Proceedings of 4th International Logistics and Supply Chain Congress*, Izmir Turkey, 2006.
- [73] Pankaj Chandra Nimit Jain, “The Logistics Sector in India: Overview and Challenges”, *Research and Publications*, W.P. No.2007-03-07, 2007.
- [74] Xiaohui Liu, Youwang Sun, “Information Flow Management of Vendor Managed Inventory System in Automobile Parts Inbound Logistics Based on Internet of Things”, *Journal of Software*, vol. 6, no.7, pp.1374-1380, 2011.
- [75] Reza A. Maleki and Jonathan Reimche, “Managing Returnable Containers Logistics - A Case Study Part 1 - Physical and Information Flow Analysis”, *International Journal of Engineering Business Management*, vol. 3, no. 2, pp.1-8, 2011.
- [76] C. N. Ray, Assem Mishra, “Vendors and Informal Sector A Case-Study of Street Vendors of Surat City”, *Centre for Urban Equity (An NRC for Ministry of Housing and Urban Poverty Alleviation, Government of India) CEPT University*, Working Paper – 15, 2011.
- [77] Jirsak, P., Kolar, P., “Customer Orientation and Marketing in Containerized Freight Distribution and Logistics – Perspectives of the Czech Republic”, *Central European Business Review*, vol. 1, no. 3, pp 46-50, 2012.
- [78] Takyi Harriet, Kofi Poku, Emmanuel KwabenAnin, “Logistics Inefficiencies of Urban Transportation System in Ghana”, *International Journal of Humanities and Social Science*, vol. 3, no. 6, pp. 308-314, 2013.
- [79] Xu Yang, “A Review of Distribution Related Problems in Logistics and Supply Chain Research”, *International Journal of Supply Chain Management*, vol. 2, no. 4, pp.1-8, December 2013.
- [80] Martin Hart, Xenie Lukoszova and Jana Kubikova, “Logistics Management Based on Demand Forecasting”, *Research in Logistic and Management*, vol. 3, no. 1, pp. 71-80, 2013.
- [81] Rohit Kr. Singh, P. Acharya, “Supply Chain Flexibility: A Frame Work of Research Dimensions”, *Global Journal of Flexible Systems Management*, 2013, vol. 14, no. 3, pp. 157-166.
- [82] Xiang Li, “Operations Management of Logistics and Supply Chain: Issues and Directions”, *Discrete Dynamics in Nature and Society*, pp. 1-7, vol. 2014.
- [83] G.Santosh Kumar, P.Shirisha, “Transportation The Key Player In Logistics Management”, *Journal of Business Management & Social Sciences Research*, vol. 3, no.1, pp. 14-20, January 2014.
- [84] Rohit Kumar Singh and Padmanav Acharya, “Identification and Evaluation of Supply Chain Flexibilities in Indian FMCG Sector Using DEMATEL”, *Journal: Global Journal of Flexible Systems Management*, vol. 15, no. 2, Page 91-100, June 2014.
- [85] Graham Moore, “How paper and digital integration is shaping the future of communications”, *Article published through Ricoh Europe*, 23rd Sep, 2015.
- [86] Abu Raihan Bhuiyan Albarune, Dr Md. Mamun Habib, “A Study of Forecasting Practices in Supply Chain Management”, vol. 4, no. 2, pp. 55-61, June 2015.
- [87] John T. Mentzer, William DeWitt, James S. Keebler, Soonhong Min, Nancy W. Nix, Carlo D. Smith, Zach G. Zacharia, “Defining Supply chain Management”, *Journal of Business Logistics*, vol.22, no. 2, pp.1-25, 2001. James Macaulay, Lauren Buckalew, Gina Chung, “Internet of Things in Logistics”, *A collaborative report by DHL and Cisco on implications and use cases for the logistics industry*, 2015.
- [88] Hamid Jafari, “Logistics flexibility: a systematic review”, *Journal: International Journal of Productivity and Performance Management*, 2015, vol. 64, no. 7, Page 947-970.
- [89] Martin Dornhofer, Falk Schroder, Willibald A. Gunthner, “Logistics performance measurement system for the automotive industry”, *Logist.Res*, 9:11, pp.1-26, 2016.
- [90] OmurTosun and FahriyeUysal, “Physical Distribution Flexibility in Logistics Systems and Its Impact on Productivity”, *Journal of Advanced Management Science*, vol. 4, no.1, pp. 53-56, January 2016.
- [91] Caixia Liu, Jinhwan Hong, “Strategies and service innovations of Haitao business in the Chinese market: A comparative case study of Amazon.cn vs Gmarket.co.kr”, *Asia Pacific Journal of Innovation and Entrepreneurship*, vol. 10, no.1, pp. 101-112, 2016.
- [92] J. Paul Dittmann, Kate Vitasek, “Selecting and Managing a Third Party Logistics provider Best Practices”, *The second in the innovations in supply chain series of UT's Haslam college of business supply chain management white papers*, 2016.
- [93] Martin Hart, Xenie Lukoszova and Jana Kubikova, “Logistics Management Based on Demand Forecasting”, *Research in Logistic and Management*, vol. 3, no. 1, pp. 71-80, 2013.
- [94] Katsunori Kume and Takao Fujiwara, “Production Flexibility of Real Options in Daily Supply Chain”, *Global Journal of Flexible Systems Management*, vol. 17, no. 3, pp 249-264, 2016.
- [95] Kailash, Saha, R.K. and Goyal, S., “Systematic literature review of classification and categorisation of benchmarking in supply chain management”, *Int. J. Process Management and Benchmarking*, vol.7, no.2, pp. 183-205, 2017.
- [96] Kailash, Saha, R.K. and Goyal, S., “Benchmarking framework for internal supply chain management: a case study for comparative analysis”, *Int. J. Manufacturing Technology and Management*, (in press), 2017.

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