

# A Evaluation on the Market Potential of Freight Forwarding Business with Special Reference to Pentagon Logistics

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**Abstract:** *Abstract An attempt has been made in the present paper to see is there long run equilibrium relationship between the improvement of universal transportation, cargo forwarders have turned out to be increasingly more significant in global transportation. Worldwide transportation is a procedure of work and a task completed in collaboration with numerous gatherings. Shippers, transporters, cargo forwarders, traditions and traditions intermediaries are associated by the payload development. A cargo forwarder goes about as the fashioner of global transportation, which assumes a significant job in universal transportation. Cargo forwarders orchestrate the entire transportation from the shipper's place to the end goal, since cargo forwarders can configuration proper transportation answers for clients. With the assistance of cargo forwarders, the transportation is increasingly solid and cargo forwarders can assist clients with cutting additional expenses. The aim of this research was to explain the procedure for global transit, the benefits of the use of delivery companies in global shipping and the benefits that the radius server can bring to the buyer..*

**Keywords :** *Pentagon logistics, Freight forwarding.*

## I. INTRODUCTION

FREIGHT FORWARDER is The entity or business that helps organize the delivery for people or other companies and may also function as a carrier. A web host is often not successful as a company and acts only as an advisor, in other words, as a third party.

The freight forwarder was a committee officer performing routine duties on behalf of the exporter / importer, such as loading / emptying of products, storing products, organizing local transport, receiving payment for his duties, etc..[1][2][3] However, the development of global trade and the growth of distinct transport options over the ensuing years broadened the range of its services. Today, freight forwarders play an significant role in world trade and haulage.. The services rendered by the shipping company can often range from routine and fundamental duties such as space trying to book or customs clearance to a extensive of set benefits encompassing the overall freight and delivery process. There is no internationally accepted definition of the word ' dropshipper.' Freight forwarders' are known by distinct names in distinct

nations, such as ' treasury house officer,' screening agent,' customs broker,' shipping and forwarding officer' and, in some instances, ' primary operator,' which is the primary airline. But one part of their operations, which is prevalent to all of them, whatever their name, is that they all sell services only.

Unless the consignee, the individual trying to send the goods or the addressee, the person offering the goods, wishes to attend any constitutional and documentary legalities, it is usually the freight radius server who proposes, on his behalf, to process the resistance of the goods. Through the different phases engaged. The freight forwarder may provide these facilities directly or by general contractors or other organizations recruited by the freight forwarder. It is also anticipated to use the services of its foreign agents in this correlation..[4]

## II.NEED OF THE STUDY

The project titled “A STUDY ON MARKET POTENTIAL OF FREIGHT FORWARDING BUSINESS WITH SPECIAL REFERENCE TO PENTAGON LOGISTICS”, CHENNAI, was chosen because this study gives a wide exposure of areas like Industry awareness, company, competitors, market position, customer expectations and market demands in Freight Forwarding.

1. To know the current trends in the freight forwarding business and their application and also scope of improvement in the company.[5]

2. It also gives me a deep understanding of the logistics industry about both domestic as well as foreign market.

### A.Primary objective

- To study the market potential of freight forwarding business with special reference to Pentagon logistics.

### B.Secondary objectives

- To study about the freight forwarding market.
- To analyze the current situation of the firm.
- To set up brand image of Pentagon logistics in segmented market.
- To analyze the current services and their application by the company.[6]

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- To study about Import & Export industry very well.
- To know the requirement of the customers.
- To know the pitfalls in freight forwarding.

The study sought to investigate the potential customers for the company and to find out the factors hindering the success of the freight forwarding firms in facilitating imports and exports. This briefly defines the study's introduction. As an introductory section of the study, this section involves an extensive overview of the research as it focuses on the context of the studies and obviously identifies the rationale for conducting the research. A description survey design has been applied to clients.. The researcher used convenience sampling to select firms for the study. Questionnaires were used as data collection instruments. [7]

### III.LITERATUE REVIEW

#### C..Definition of key concepts freight forwarding agents

Coyle JJ This briefly describes the implementation of the study. As an introduction chapter of the study, this chapter includes a comprehensive summary of the survey as it relies on the nature of the surveys and clearly defines the reason for undertaking the studies. The design of the description study was applied to customers.

Legal Dictionary Defines a freight forwarder as an person who, as a periodic company, composes and incorporates tiny deliveries into one lot and assumes liability for transporting such goods from the location of delivery to the location of residence.

According to Wikipedia 'A freight web host, forwarder or forwarding officer is a group or business that organizes deliveries for people or companies to bring products from the retailer or supplier to the market, the client or the final point of delivery.

Firm having some expertise in masterminding stockpiling and sending of product in the interest of its shippers. It for the most part gives a full scope of administrations including: following inland transportation, arrangement of delivery and fare archives, warehousing, booking payload space, arranging cargo charges, cargo union, load protection, and recording of protection claims.

QFINANCE characterizes a cargo forwarder as an 'association that gathers shipments from various organizations and solidifies them into bigger shipments for economies of scale. A cargo forwarder frequently additionally manages course determination, value arrangement, and documentation of circulation, and can go about as a dispersion operator for a business.

### IV.LOGISTICS

Coordinations is characterized by Fearson (2006), It is the way toward overseeing both the development and capacity of merchandise and materials from the source to the point of extreme utilization and the related data stream.

As indicated by Wikipedia, Logistics is the administration of the progression of assets between the purpose of cause and the purpose of goal so as to meet a few prerequisites, for instance, of clients or companies. [16-19]

Helsinki (1996), Logistics is characterized as a business arranging structure for the administration of material,

administration, data and capital streams. It incorporates the inexorably intricate data, correspondence and control frameworks required in the present business condition.

Canadian Association of Logistics Management (1998), The way toward arranging, actualizing, and controlling the productive, savvy stream and capacity of crude materials, in-process stock, completed merchandise and related data from purpose of root to purpose of utilization to meet client necessities.

Walter Cooke (1993), Logistics is the study of arranging and executing the securing and utilization of the assets important to continue the activity of a framework.

Coordinations World (1997), the study of arranging, sorting out and overseeing exercises that give products or administrations.

Webster's Dictionary, The acquirement, upkeep, dissemination, and substitution of staff and materiel.

#### D.Statistical surveying

The way toward get-together, investigating and deciphering data about a market, about an item or administration to be offered available to be purchased in that advertise, and about the past, present and potential clients for the item or administration; examination into the qualities, ways of managing money, area and necessities of your business' objective market, the industry all in all, and the specific contenders you face. [7-15]

A statistical surveying examines the engaging quality and the elements of an exceptional market inside a unique industry. It is a piece of the business examination and this thusly of the worldwide ecological investigation. Through these investigations the chances, qualities, shortcomings and dangers of an organization can be recognized.

As indicated by American Marketing Association (AMA), "Promoting Research is the deliberate assembling, recording and breaking down of information about issues identifying with the showcasing of merchandise and enterprises."

As per Philip Kotler, Marketing exploration is an orderly issue investigation, model structure and actuality finding with the end goal of improved basic leadership and control in the promoting of merchandise and enterprises."

As per Paul Green and Donald Tull, "Promoting exploration is the deliberate and target look for, and investigation of, data important to the recognizable proof and arrangement of any issue in the field of showcasing."

As indicated by David Luck, Donald Taylor and Hugh Wales, "Advertising Research is the utilization of logical techniques in the arrangement of promoting issues."

## V. RESEARCH

Meaning of research by Creswell - "Exploration is a procedure of steps used to gather and break down data to expand our comprehension of a point or issue".

## VI. RESEARCH DESIGN

The examination configuration is a strategy that aides the whole hunt.

### E. Engaging Research Design

The exploration configuration utilized here is enlightening examination structure which is worried about depicting the attributes of specific individual or gathering. Likewise considering the way that the subject of the investigation is absolutely subjective and quantitative in nature, the structure is by and large worries with portrayal of actualities with explicit expectation of concern gathering or circumstance. [20]

In the present investigation, a broad utilization of both essential and optional information was made. The investigation has been made in expressive and scientific way.

### F. Test size

The example size taken for the examination is 100.

### G. Sampling method

Practicality sampling is a semi-probability testing procedure in which topics are chosen because of their easy access and closeness to the investigator.

### H. Questionnaire design

Quiet often questionnaire is considered as the heart of the survey operation. Hence it should be very carefully constructed. Questionnaire was prepared with the combination of various types of questions in two fields of trade which have been listed below:

[21-27]

TABLE:1

SL NO.	TYPE OF QUESTIONS	NO. OF QUESTIONS
1	IMPORTS	13
2	EXPORTS	13
	TOTAL	26

## VII. METHOD OF DATA COLLECTION

The data collection for the study includes both primary and secondary data in order to attain the objective of the study.

### Primary Data

Primary data has been collected from the importers and exporters in Chennai. Telephonic interview survey method and mail interview survey method was used to collect the primary data.

### Secondary Data

The secondary data has been gathered from the different related articles and information collected from the internet. The questionnaire has been prepared on the basis of the points collected from the different articles related to the importers and exporters in Chennai. [28]

## VIII. TOOLS FOR DATA ANALYSIS

The data collected were analyzed with various methods. The types of methods used for the data analysis are:

1. Percentage analysis
2. Bar charts
3. Pie diagrams

The statistical tools used for the analysis are:

### I. Percentage analysis

Proportion assessment is the technique used to portray raw information flows as a ratio (100-percent portion) for a clearer comprehension of the information gathered. [29]

## IX. SCOPE OF THE STUDY

- The study is limited to the customers who are in Chennai. The scope is limited to the opinion of the importers and exporters in Chennai
- • The study gives me wide exposure to areas such as industry awareness, company, content providers, market presence, service levels and market wants in transport uploading. To know the current trends in the freight forwarding business and their application and also scope of improvement in the company.
- It also gives me a deep understanding of the logistics industry about both domestic as well as foreign market. [30]

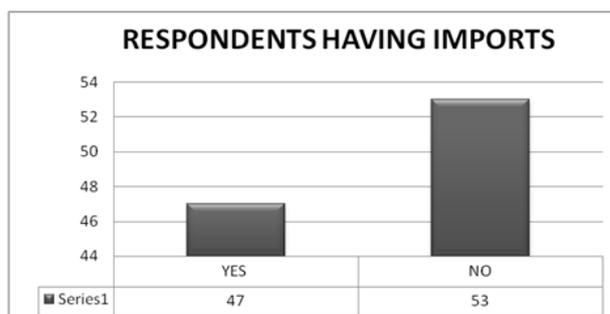
## X. LIMITATIONS OF THE STUDY

1. The customers are busy while collecting the information so there may be inaccuracy in information given by customers.
2. The information given by customers may be biased.
3. The study confines itself to the information from the customers in Chennai.
4. Most of the respondents were indifferent to give their suggestions for the survey.
5. The study is going to be conducted and concluded considering the prevailing conditions, which may subject to change in future.
6. The participation of the respondents in providing the information may be found difficult as they are quiet busy with their schedules.
7. The respondents may spend little time in responding to the questionnaire; hence some of the information may not to be accurate information.

TABLE NO. 2. SHOWING RESPONDENTS HAVING IMPORTS

SL NO.	PARTICULARS	NO. OF IMPORTERS	PERCENTAGE
1	YES	47	47
2	NO	53	53
TOTAL		100	100

Fig.1. SHOWS RESPONDENTS HAVING IMPORTS



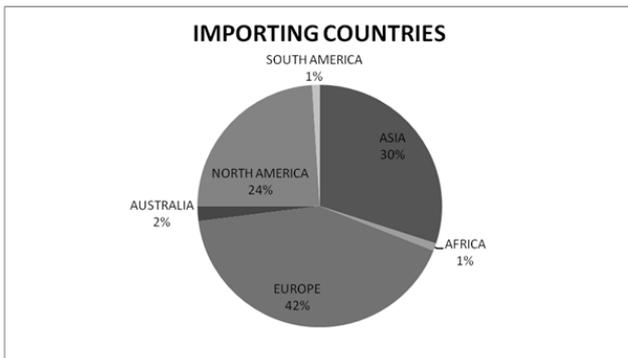
INTERPRETATION

From the above table, it is interpreted that 47% of respondents are undertaking import business and 53% are not undertaking import business.

TABLE NO. 3. SHOWING RESPONDENTS IMPORTS FROM DIFFERENT COUNTRIES

SL. NO.	PARTICULARS	NO. OF IMPORTORS	PERCENTAGE
1	ASIA	30	30
2	AFRICA	1	1
3	EUROPE	42	42
4	AUSTRALIA	2	2
5	NORTH AMERICA	24	24
6	SOUTH AMERICA	1	1
TOTAL		100	100

Fig.2. SHOWS RESPONDENTS IMPORTS FROM DIFFERENT COUNTRIES



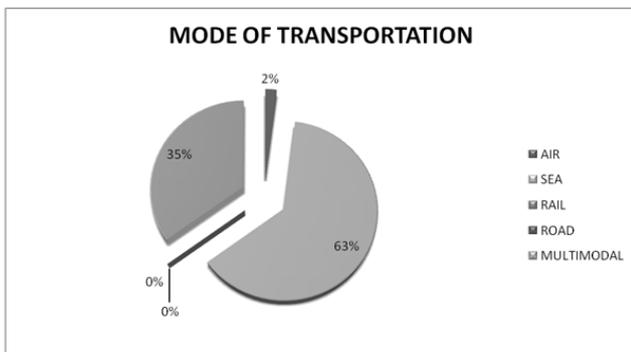
INTERPRETATION

From the above table, it is interpreted that 30% of respondents are importing from Asia, 1% from Africa, 42% from Europe, 2% from Australia, 24% from North America and 1% from South America.

TABLE NO. 4. SHOWING MODE OF TRANSPORTATION USED BY THE RESPONDENT IN THE TRADE

SL. NO.	PARTICULARS	NO. OF IMPORTERS	PERCENTAGE
1	AIR	1	2
2	SEA	41	63
3	RAIL	0	0
4	ROAD	0	0
5	MULTIMODAL	23	35
TOTAL		65	100

Fig.3. SHOWS MODE OF TRANSPORTATION USED IN THE TRADE BY THE RESPONDENTS



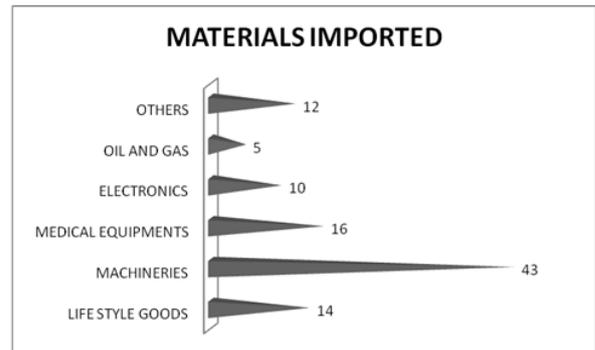
INTERPRETATION

From the above table, it is interpreted that 2% of respondents are using air transport for importing, 63% are using sea transport, 35% are using multimodal transport and 0% are using road as well as rail transport for importing goods.

TABLE NO. 5. SHOWING MATERIALS IMPORTED BY THE RESPONDENTS

SL. NO.	PARTICULARS	NO. OF IMPORTERS	PERCENTAGE
1	LIFE STYLE GOODS	10	14
2	MACHINERIES	30	43
3	MEDICAL EQUIPMENTS	11	16
4	ELECTRONICS	7	10
5	OIL AND GAS	3	5
6	OTHERS	8	12
TOTAL		69	100

Fig.4. SHOWS MATERIALS IMPORTED BY THE RESPONDENTS



INTERPRETATION

From the above table, it is interpreted that 14% of respondents are importing life style goods, 43% different types of machines, 16% medical equipments, 10% electronics, 5% oil and gas and 12% are importing others materials.

TABLE NO. 6 SHOWING SHIPPING TERMS USED IN TRADE BY THE RESPONDENTS

SL. NO.	PARTICULARS	NO. OF IMPORTERS	PERCENTAGE
1	FOB	43	43
2	EXWORKS	37	37
3	CIF	0	0
4	DIFFERS	20	20
5	OTHERS	0	0
TOTAL		100	100

Fig.5. SHOWS SHIPPING TERMS USED IN TRADE BY THE RESPONDENTS



## INTERPRETATION

From the above table, it is interpreted that 43% of respondents are using FOB as their shipping term, 37% are using EXWORKS, 20% are using different shipping terms as per the trade. [33]

## XI.FINDINGS OF THE STUDY

1. It was found that 47% of respondents are undertaking import business and 53% are not undertaking import business.

2. It was inferred that 30% of respondents are importing from Asia, 1% from Africa, 42% from Europe, 2% from Australia, 24% from North America and 1% from South America.

3. It was found that 2% of respondents are using air transport for importing, 63% are using sea transport, 35% are using multimodal transport and 0% are using road as well as rail transport for importing goods.

4. It was found that 14% of respondents are importing life style goods, 43% different types of machines, 16% medical equipments, 10% electronics, 5% oil and gas and 12% are importing others materials.

5. 46% of respondents are using FOB as their shipping term, 35% are using EXWORKS, and 19% are using different shipping terms as per the trade.

6. It was inferred that 64% of respondents are importing around 0-10 tons of commodities, 21% are importing around 10-20, 3% are importing around 30-40 and 6% are importing around 20-30 and 40-50 tons of commodities.

7. It was found that 94% of respondents are importing through 0-5 TEU's of containers and 6% are importing through 5-10 TEU's of containers.

8. 13% of respondents have future plan for imports, 69% don't have any plan for imports and 18% may have plan for imports in future.

9. 60% of respondents will take more than 6 months to start their imports and 40% of respondents will take more than 1 year to start their imports.

10. 7% of respondents will give an opportunity to the company if they offer best services and quotes best rates and 39% won't give opportunity, 31% may give opportunity and 23% can't say about the opportunity to import. [31]

11. If the respondents are giving an opportunity to handle goods then 3% of respondents will offer the company to handle their freight forwarding business, 4% will offer for customs clearance and 93% will offer to give both freight forwarding and customs clearance.

12. 7% of respondents had a good response about the conversation done, 68% of them had a fair response and 25% had a negative response.

13. 57% of respondents are undertaking exports business and 43% are not undertaking export business.

14. 30% of respondents are exporting from Asia, 2% from Africa, 41% from Europe, 2% from Australia, 20% from North America and 5% from South America.

15. 70% are using sea transport, 30% are using multimodal transport and 0% are using road, rail as well as air

transport for exporting goods.[32]

## XII.RESULTS

### CONCENTRATING ON CONTINENTS

As most of respondents are trading from continents like Asia, Europe and North America. The company will get more trade to or from these continents and it was found that only a few are trading from other continents like Africa and South America. So the company can start trading to Africa as it has abundant natural resources and the continent is believed to have 90% of the world's cobalt, 90% of its platinum, 50% of its gold, 98% of its chromium, 70% of its tantalite, 64% of its manganese and one-third of its uranium. It has started extracting from its petroleum reserves and is going to expand • their ability to collect petroleum.

The South American continent is also not behind as they has major mineral resources in gold, silver, copper, iron ore, tin, and petroleum.

## XIII.DISCUSSION

From the study conducted I found that most of the exporters and importers are using air and sea as their mode of transportation. As the company is having such service it will be very helpful for them to continue in that. Another point I found was that few of them are using rail transport as mode of transportation. So the company can expand their operations by using rail transport. The company has a great scope of doing trade through rail transport.

### J.Bulk materials

From the study conducted, it is very clear from the study that most of the respondents are importing and exporting 0 - 20 tons of goods and materials. The company can concentrate on these respondents for future growth.

The company can approach the importers and exporters who are having bulky trading business that is who are having a trading business above 20 tons.

### K.Shipping terms

The respondents are mostly using FOB and EXWORKS. So the company can concentrate on other shipping terms for convenience.

The importers and exporters may not be knowing about different shipping terms used in the trade, so the company has the responsibility to make their customer knowledgeable about the same the shipping terms used in the trade. The company can start a separate department for customer grievances i.e. making the customers know the easiest and cheapest way for trading.

### L.Teu's handled

The company can handle for more TEU's i.e. more than 10. Most of the respondents are handling below 10, as they are small importers and exporters.

The company revise its marketing strategy by retaining the old customers and expanding in the market research.

### M.Future prospects

Most of the importers and exporters who don't have imports and exports presently are having plans to import and export in their future. So the company can target these customers through their specialized sales department for their future growth.

### G. Best rates and services

Most of the respondents are willing to do business with the company if the company is offering best services and quotes best rates. So the company can bargain with them get business from them in future.

### H. Area of operation

The company have future in both freight forwarding and customs clearance as most of the respondents wants the company to handle in both. So the company can improve or innovate in services which is provided to the customers.

### I. Customer response

The overall response of the respondents is FAIR. So the company has to know the satisfaction level of the customers through contacting them constantly and making them realize that the company is giving importance to their suggestions. The company can try to improve their services as per the customer's suggestion.

### J. Attracting new customers

I recommend that the company should bring out new concepts to attract new customers. By bringing new concepts or ideas, this will also help to retain the exiting customers. As the competition level is increasing day- by-day, the company has to stand out among the companies so that they can attract new customers. There may be many problems faced by a freight forwarder which will hinder their daily routine

## XIV. CONCLUSION

It is concluded that most of the importers and exporters prefer international freight forwarders for doing business. It is also found that the shipping terms are not affecting the trade and it is helping them to decide what service to select.

Most of the respondents are willing to do business if the company is providing best services in best rates and most of the respondents who are not doing exports and imports are planning to do exports and imports in future, so the company has great future in freight forwarding business.

Through this study we learnt the customer point of view over the company. Also we learnt the drawbacks faced by the freight forwarders and got some solutions to rectify those drawbacks.

Towards their business growth along with the customer support.

## REFERENCES

- 1) BharthVajan R., Ramachandran S., Psychographic dimensions of training, 2016, International Journal of Pharmacy and Technology, V-8, I-4, P-23727-23729
- 2) Balakrishnan P., Bharthvajan R., A study on human resource planning in hospitals in Chennai City, 2014, International Journal of Applied Engineering Research, V-9, I-22, P-7503-7507
- 3) Priyadarsini P., Bharthvajan R., Role of emotional intelligence training programme in reducing the stress of the nurses, 2014, International Journal of Applied Engineering Research, V-9, I-22, P-7411-7421
- 4) Kerinab Beenu G., Bharthvajan R., Empirical analysis on the cosmetic buying behavior of young women in South India, 2014, International Journal of Applied Engineering Research, V-9, I-22, P-7361-7366
- 5) Balakrishnan P., Bharthvajan R., Whistling in the wind, 2014, International Journal of Applied Engineering Research, V-9, I-22, P-7586-7593
- 6) Krishnan B., Peter M., Health hazards of Indian Bpo employee-an alarming issue, 2014, International Journal of Applied Engineering Research, V-9, I-22, P-7336-7341
- 7) Kerinab Beenu G.H., Peter M., Role of insurance in economic development, 2014, International Journal of Applied Engineering Research, V-9, I-22, P-7532-7539
- 8) Balakrishnan P., Peter M., Priyadarsini P., Efficiency of safety measures for wellbeing of employees in manufacturing industry, 2014, International Journal of Applied Engineering Research, V-9, I-22, P-7376-7382
- 9) Anbarasi M., Praveen Kumar S., Online sales promotions of herbal products and its effectiveness towards tanisha.com, 2019, Indian Journal of Public Health Research and Development, V-10, I-1, P-195-200
- 10) Anbarasi M., Praveen Kumar S., Various online marketing and promotions strategies to improve the validation towards the organic products in the pharmaceutical sectors, 2019, Indian Journal of Public Health Research and Development, V-10, I-1, P-263-269
- 11) Loganathan R., Praveen Kumar S., Grievance handling a key factor for solving issues of employees in an organization, 2014, International Journal of Applied Engineering Research, V-9, I-22, P-7483-7491
- 12) Loganathan R., Praveen Kumar S., Study on preference of private label brands in super and Hypermarkets, 2014, International Journal of Applied Engineering Research, V-9, I-22, P-7327-7335
- 13) Smitha M., Praveen Kumar S., Understanding stress and its management among the nurses in Chennai city, 2014, International Journal of Applied Engineering Research, V-9, I-22, P-7560-7565
- 14) Kerinab Beenu G.H., Praveen Kumar S., A study on the investment behavior of Chennai investors in mutual fund schemes, 2014, International Journal of Applied Engineering Research, V-9, I-22, P-7520-7525
- 15) Loganathan R., Praveen Kumar S., Retention strategies key for organizational productivity, 2014, International Journal of Applied Engineering Research, V-9, I-22, P-7443-7447
- 16) Pavithra J., Ganesan M., Brindha G., State wise analysis of microfinance sector in India, 2016, International Journal of Pharmacy and Technology, V-8, I-4, P-23417-23432
- 17) Pavithra J., Ganesan M., A comparative study on microfinance in India and abroad, 2016, International Journal of Applied Business and Economic Research, V-14, I-8, P-5471-5476
- 18) Pavithra J., Ganesan M., A study on awareness and impact of micro-financial schemes, 2016, International Journal of Applied Business and Economic Research, V-14, I-8, P-5449-5460
- 19) Senthilmurugan P., Pavithra J., Consumer preference towards organised retailing with reference to Big Bazaar, 2014, International Journal of Applied Engineering Research, V-9, I-22, P-7469-7475
- 20) Senthilmurugan P., Pavithra J., Implication of social media marketing in growing healthcare industry, 2014, International Journal of Applied Engineering Research, V-9, I-22, P-7448-7456
- 21) Loganathan R., Pavithra J., Consumer perception towards private label brand over other brands in super markets and hypermarkets, 2014, International Journal of Applied Engineering Research, V-9, I-22, P-7355-7360
- 22) Kerinab Beenu G., Pavithra J., Trade-off between liquidity and profitability in logistics industry, 2014, International Journal of Applied Engineering Research, V-9, I-22, P-7398-7401
- 23) Kerinab Beenu G., Pavithra J., A study on the prospective consumer's perception towards utility cars in Chennai city, 2014, International Journal of Applied Engineering Research, V-9, I-22, P-7526-7531
- 24) Pavithra J., Dilli Babu P., Ambuli T.V., A study on budgetary control at Maruti Service Masters, Chennai, 2014, International Journal of Applied Business and Economic Research, V-12, I-2, P-151-161
- 25) Pavithra J., Dilli Babu P., Ambuli T.V., A study on customer satisfaction of retro Garments Pvt Ltd, Chennai, 2014, International Journal of Applied Business and Economic Research, V-12, I-2, P-381-391
- 26) Kerinab Beenu G.H., Pavithra J., Senthilmurugan P., A study on the influence of promotional activities for TATA ARIA among consumers in Chennai, 2014, International Journal of Applied Engineering Research, V-9, I-22, P-7572-7578

- 27) Vijayaragavan S.P.,An investigative expert that's general FBG sensors,International Journal of Mechanical Engineering and Technology,V-8,I-8,PP-1500-1505,Y-2017
- 28) Vijayaragavan S.P.,Equalization routing protocol for Wi-Fi sensor strategy,International Journal of Mechanical Engineering and Technology,V-8,I-8,PP-1662-1666,Y-2017
- 29) Karthik B., Kiran Kumar T.V.U., Vijayaragavan P., Bharath Kumaran E.,Design of a digital PLL using 0.35 $\mu$ m CMOS technology,Middle - East Journal of Scientific Research,V-18,I-12,PP-1803-1806,Y-2013
- 30) Kanniga E., Selvamarathnam K., Sundararajan M.,Kandigital bike operating system,Middle - East Journal of Scientific Research,V-18,I-12,PP-1803-1806,Y-2013
- 31) Jasmin M., Vigneshwaran T., Beulah Hemalatha S.,Design of power aware on chip embedded memory based FSM encoding in FPGA,International Journal of Applied Engineering Research,V-10,I-2,PP-4487-4496,Y-2015
- 32) Jasmin M.,Optimization techniques for low power VLSI circuits,Middle - East Journal of Scientific Research,V-20,I-9,PP-1082-1087,Y-2014
- 33) Jasmin M., Vigneswaran T.,Fuzzy controller for error control of on - Chip communication,2017 International Conference on Algorithms, Methodology, Models and Applications in Emerging Technologies, ICAMMAET 2017,V-2017-January,I-1,PP-1-5,Y-2017

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