CHAPTER : VIII
FINDINGS, SUGGESTIONS AND CONCLUSION

8.1 INTRODUCTION

Organizations are in increasing levels of global competition, demanding customers and employees, shrinking product life cycles and decreasing acceptable response times. Competition in many industries is based on strategic assets and on the ability to deploy these assets. To overcome this competition the companies are strengthening their supply chain management practices by using their innovative ideas. The HLL Life care Ltd is effectively concentrating in their health care products to meet out the expectations of all levels of people in national and international level.

The researcher has presented the entire findings into two forms namely summary form and list form. Theoretical frame work of SCM and profile of HLL Life care Ltd are in the summary form, because these are theoretical in nature. Demographic profile of the respondents and software packages for the effectiveness of SCM operations, benefits, problems and impact of SCM in HLL Life care Ltd., factors influencing the SCM practices are presented in the list form, because these are analytical in nature.

8.2 THEORETICAL FRAMEWORK OF SCM

In 1980’s the term SCM was developed to express the need to integrate the key business processes from the end user through original suppliers. SCM is a network of facilities and distribution options to perform the functions of procurement of materials, transformation of materials into intermediate and finished products and the distribution of these finished products to customers. The primary objective of SCM is to fulfill the customer demands through the most efficient use of resources, including distribution capacity, inventory, production and transportation. There are
three phases of SCM namely supply chain strategy, supply chain planning and supply chain operations. The SCM process consists of four cycles namely customer order cycle, replenishment cycle, manufacturing cycle and procurement cycle. The supply chain process cycle consists of six sub processes such as, supplier stage markets, products, buyer stage places order, supplier stage receive order, buyer returns reverse flows to supplier, buyer stage receives supply and supplier order. The supply chain process can be classified into three macro processes namely customer relationship management, internal supply chain management and supplier relationship management. These macro processes manage the flow of information, product and funds required to generate, receive and fulfill a customer request. Number of drivers support to measure the supply chain performance such as technology, inventories, transportation, information, sourcing and pricing.

8.3 PROFILE OF HLL LIFE CARE LTD

HLL Life care is an Indian public sector company under the ministry of health and family welfare, started in the year 1996. They are manufacturing health care products, especially the male and female condoms. HLL life care Ltd has many units in India. The regional office is in Trivandrum, Kerala. The primary production plant is based on Japanese technology which consists of three stages namely compounding, moulding and vulcanisation. The major department in HLL are purchasing, information technology, human resource, finance and marketing department and so on. The quality of the products increases the performance of the HLL Life care all over the world. Clearing and forwarding agencies are distributing the HLL products all over India. The quality testing process used are half product testing process, electronic testing process, finished product testing process. This research helps to understand the importance of SCM in health care industry. It also focus on the various performance metrics used to increase the effectiveness in SCM practices of HLL Life care Ltd.
8.4 DEMOGRAPHICAL PROFILE

1. Majority (86.02%) of the respondents are males and only 13.98 percent of them are females.

2. Nearly 36.56 percent of the respondents are between 40 and 45 years, 33.66 percent of them are in the age group of 35 to 40 and 21.5 percent of the respondents are in the age group is 45 and above.

3. Majority (89.25%) of the respondents are technical based and only 10.75 percent of them are non-technical based employees.

4. About 41.94 percent of the executives are middle level managers, 36.55 percent of them are operational level employees and 21.51 percent of them are top level executives.

5. About 4.30 percent of the respondents’ monthly income is below Rs.15,000, 13.98 percent of them are drawing Rs. 15,000 to 20,000, 19.35 percent of the respondents are getting the salary of Rs.20,000 to 25,000, while 27.96 percent of them are getting Rs.25,000 to Rs.30,000 and 34.41 percent of the respondents are drawing Rs.30,000 and above.

6. 38.71 percent of the respondents have above ten years of experience, 37.63 percent of them have five to ten years of experience and 23.66 percent of the executives completed nearly five years of service.

7. About 11.82 percent of the respondents belong to purchase department, 32.26 percent of them are working in the production department, 10.75 percent belong to packing department, 21.52 percent are under the customer relationship department, 15.05 percent of them are connected with marketing department and 8.6 percent are in human resource development department.
8. Majority (84.9%) percent of the respondents suggested for separate logistics department and only 15.1 percent of them felt that they did not want to have separate logistics department.

9. 75.3 percent of the respondents view that HLL has a logistic strategic plan and rest of them inform that it does not have logistic strategic plan.

10. Majority (64.5%) of the respondents said that they had a procedure for non-conformities regarding SCM and the rest of them viewed that they did not have procedure for non-conformities regarding SCM.

11. About 43 percent of the respondents prefer custom made software, 36.6 percent of them use standard form and 20.4 percent of them prefer either custom made or standard package for material requirement planning.

12. Regarding manufacturing resource planning 38.7 percent of the respondents use standard form package, 36.6 percent of them prefer custom made and 24.7 of them use either custom made or standard package.

13. Nearly 38.7 percent of the respondents prefer custom made form and the standard form software package is used by 36.6 percent of the employees and 24.7 percent of them prefer either custom made or standard package for enterprise resource planning operations.

14. Nearly 51.6 percent of the respondents use custom made, 30.1 percent of them prefer standard form and remaining of them prefer either custom made or standard packages for warehouse management system.

15. Regarding customer relationship management, 49.5 percent of the respondents prefer custom made, 33.3 percent of them prefer standard package and meagre percent of 17.2 of them prefer either custom made or standard package.
16. Nearly 43 percent of the respondents prefer custom made form, 36.6 percent of them use standard form and 20.4 percent of them prefer either custom made or standard package for supplier relationship management.

17. Advanced planning system is a software used for production, about 48.4 percent of the respondents use custom made software, 34.4 percent of the respondents prefer standard package and rest of them prefer either custom made or standard package software.

18. JIT software is used in manufacturing industry. Nearly 43.0 percent of the respondents prefer custom made software, 35.5 percent of them prefer standard form and the remaining 21.5 of them prefer either custom made or standard package software.

19. About 39.8 percent of the respondents prefer custom made software, 35.5 percent of them choose standard form software and rest of them prefer either custom made or standard package for monitoring E-commerce activities.

20. Closely 48.4 percent of the respondents prefer custom made package, 33.3 percent of them prefer standard package and 18.3 percent of them prefer either custom made or standard package for the best practice of decision support system.

21. About 41.9 percent of the executives prefer custom made software for radio frequency identification activities, 34.4 percent of them prefer standard package and the rest of them prefer either custom made or standard package.

22. 44.1 percent of the respondents prefer custom made packages, 41.9 percent of them use standard package and 14 percent of them prefer either custom made or standard package for the Electronic data interchange activities.

23. As per the survey made regarding transport management system, 44.1 and 41.9 percent of the respondents prefer the standard form and custom made software.
respectively and the rest of them prefer either custom made or standard package.

24. About 89.2 percent of the respondents have said that they have adequate transport facilities and only a meager percent of 10.8 of them have said that they do not have adequate transport facilities in the logistic department.

25. For boosting production of HLL, 61.3 percent of the respondents like to follow the current programming activities, 33.3 percent of them prefer tactical activities and the rest of them prefer operational activities.

26. As per the investigation made by the researcher, 2.2 percent of the respondents face problem during storage of the raw material, 7.5 percent of them feel problems during packaging, 23.7 percent of them feel problem in testing of packages and 66.7 percent face problems during inspection of raw materials.

27. Almost 50.5 percent of the respondents have an excellent opinion about delivery performance, 43 percent of them view that delivery performance is good, 5.4 percent of them feel that delivery performance is average and only 1.1 percent of them view that delivery performance of the logistics department is below average.

28. About 80.6 percent of the respondents opined that the aggregate planning department were effective and only a small portion of them said that this was not effective. It is however clear that a vast majority of them said that this planning was effective.

8.5 BENEFITS, PROBLEMS AND IMPACTS OF SCM

1) There are 13 basic SCM elements identified by the researcher. The mean value of the 13 elements range from 4.21 to 4.52. The standard deviation and standard error ranges from 0.60 to 0.89 and 0.062 to 0.092 respectively.
2) Through t test it is found that all 13 variables are significant at 1 percent level because the p value of all variables are less than 0.001. So that all the 13 elements are useful for better SCM operations.

3) Regarding the benefit of SCM, the researcher has identified 13 benefits, the parametric values for all 13 benefits ranges from 4.32 to 4.54 which is above the test value 3.

4) It is found through the t test that all 13 benefits of SCM are significant at 1 percent level because the p values are 0.001. So that the SCM practices generate benefits in HLL Life care.

5) The researcher has used Kaiser Meyor Olkin (KMO) and Barttelets test in order to examine the shape of normal distribution and smoothness of the curve. The KMO reveals that there is common variance among all the 13 variables and the KMO value is 0.830.

6) The researcher has used factor analysis because the KMO value is greater than 0.50. It is found through principal component analysis that the value of all 13 benefits have more than 0.50. It is also identified that the rotation of sum of square value is more than 50 percent. As per the rotated component matrix, all 13 benefits of SCM are brought under three heads namely efficiency increasing factors, best inventory management factors, rapid sales increasing factors.

7) In order to find the KMO value, the researcher has identified 17 predominant problems of SCM. The KMO value is 0.83 with chi-square value of 1048.50 at 1 percent significant level. It is found that all 17 variables are more appropriate and suitable to reduce the problem of SCM. The extraction values of all 17 variables are more than 0.50 and the rotated sum of square value is 65 percent. It is found through rotated component matrix that all the 17 variables are
grouped into three factors namely confused strategies, poor supply flow and co-ordination of value.

8) The researcher has identified 17 impacts of SCM. The KMO value is 0.811 which lead to use factor analysis. From the extracted value of impacts of SCM for 17 variables range from 0.545 to 0.770 and rotated sum of square value is 69.25 percent, which is greater than the bench mark of 50 percent. The 17 impact variables are grouped into five factors like competency increasing factors, technology augmentation factors, infrastructural development factors, human resource derivation factors and periodic review factors.

9) In order to know the supporting measures of effective SM, the researcher has identified eight variables and the mean values of these variable ranges from 4.32 to 4.54 which is above the bench mark of test value 3.

10) In order to assess the significant level of supporting measures for the effectiveness for SCM, the t-test has been used. The t-value indicates that it is statistically significant at 1 percent level.

11) The researcher has identified eight parameters for aggregate planning in SCM the mean value of these variables lies between 4.32 and 4.53. The t-value indicates that, it is statistically significant at 1 percent level, because the p value is 0.000

12) To know the supplier and vendors management for better SCM practice, the researcher has identified 13 variables and the mean value of these variables range from 4.30 to 4.51. This shows that the respondents strongly agree with the 13 variables.
13) It is found through ‘t’ test that all 13 variables in connection with the supplier and vendor measurements to better SCM are significant at 1 percent, because the p value is 0.000.

14) There are 15 cost management metrics which are used to assess the operational, financial and social performance of the company. The mean value of 15 metrics range from 4.22 to 4.50 therefore, all the 15 variables are important to improve the operational, financial and social performance of HLL Life care.

15) The t value of 15 variables in connection with cost management range from 13.339 to 19.84. the p value for all the 15 metrics are statistically significant at 1 percent level.

16) In order to know the operational, financial and social performance of the company 12 customer service metrics are used. The mean values for 13 variables range from 4.21 to 4.52, which shows that all 13 variables are important to improve the operational financial and social performance of the company.

17) The p values of 12 customer service metrics are 0.000 which is statistically significant at 1 percent and the t values ranges between 12.28 and 26.14.

18) For quality metrics eight variables are used and the mean value of eight variables range from 4.408 to 4.52, which shows that quality metrics are useful to measure operational, financial and social performance of the company.

19) It is found through the t-test that, the eight quality metrics are statistically significant at 1 percent, because all the p values of an these variables are 0.000
20) In order to know the importance of productivity metrics which can improve the operational, financial performance of the company, 10 variables are used. The mean values lies between 4.22 and 4.51 which is above the test value 3. Therefore selected variables are important to study the operational, financial and social performance of the company.

21) It is found that the p value of all 10 productivity metrics are 0.000, which is statistically significant at 1 percent and all the t values are in positive.

22) The researcher has used seven asset management metrics to measure operational, financial and social performance of the company. The mean values of all seven variables lies between 4.34 and 4.50 and the t- values ranges from 16.76 to 21.09. The p values for these variables are 0.000, which is statistically significant at 1 percent level. Hence it is concluded that, all the seven asset management metrics are important to improve operational, financial and social performance of the company.

8.6 FACTORS INFLUENCING THE SCM PRACTICES

1) It is found through correlation that the impact factors like competency increase, technological augmentation, infrastructural development and benefits factors such as efficiency increase, best inventory management and sales increase have positive correlation because the correlation values are 0.676, 0.625 and 0.474 respectively.

2) The researcher has found that there is positive correlation among technological augmentation, efficiency increase, best inventory management and sales increase because the correlation values are .689, .643, .417 respectively and its p values are 0.000 which is statistically significant at 1 percent.
3) There is a positive correlation among infrastructural development and efficiency increase, best inventory management and sales increase. The correlation values of these factors are .543, .543 and .382 respectively. All its p values are 0.000, which indicates that it is statistically significant at 1 percent.

4) Correlation analysis reveals that there is a positive correlation among human resource development and benefit factors like efficiency increase, best inventory management and sales increase because, the r values are .457, .509 and .282 respectively, which is statistically significant at 1 percent.

5) There is a very minimum association between periodic review and efficiency increase, best inventory management and sales increase because, the correlation values are .025, 0.074 and .269.

6) The researcher has found that cost management is highly correlated with asset management, customer service, quality and productivity because, its correlation values are .735, .719, .614 and .585 respectively. Its p values are .000, which is statistically significant at 1 percent.

7) There is a positive correlation among customer service and quality of the product, asset management and productivity and the correlation values of these variables are .720, .684 and .648 respectively. It is statistically significant at 1 percent level.

8) There is high and positive correlation among quality and asset management and productivity because the r values are .680 and .641 respectively. It also found that there is correlation between productivity and asset management because the value of r is .603 and p value is 0.000, which is statistically significant at 1 percent.

9) It is found through ANOVA that:
a) Executives designation influence on benefits, problems and impact factors of SCM such as best inventory management, poor supply flow, co-ordination failure at 5 percent level of significance because, the p values are .01, .01 and .01 respectively.

b) Benefits factors such as best inventory management and sales increase are influenced by experience of the respondents at 1 percent level because, p value is less than 0.001. It also has influence on increasing the efficiency at 5 percent level because, the p value is 0.002.

c) The problem factors namely confused strategies, poor supply flow and co-ordination failure are statistically significant at 5 percent level with respect to the experience of the respondents. The impact factors such as competency increase and technological augmentation are statistically significant at 1 percent level with respect to the experience of the respondents. Infrastructural development and periodic reviews are statistically significant at 5 percent with respect to the experience of the respondents.

d) The departments do not influence all the factors of benefits, problems and impacts of SCM at 5 percent level of significance because, p values are greater than 0.05.

e) Benefits, problems and impact factors are not influenced by educational background of the respondents because, all the factors are statistically insignificant at 5 percent level.

f) Transport facility of HLL influences the cost management metrics at 1 percent level of significant and performance metrics such as productivity and asset management are statistically significant at 5 percent level.
g) Overall performance metrics such as cost management, quality are influenced by operational, tactical and current programming strategies of HLL life at 1 percent significant level and customer service is statistically significant at 5 percent level.

h) The problems in taking raw materials influence the on overall performance metrics such as customer service, quality, productivity and asset management at 1 percent level of significant and cost management metrics is statistically significant at 5 percent level.

i) Delivery performance of logistics department influence on overall performance metrics such as cost management, customer service, quality, productivity and asset management at 1 percent significant level. Hence it is concluded that logistics department delivery performance increase overall performance of the company.

j) Aggregate planning does not influences the overall performance metrics such as cost management, customer service, quality productivity and asset management because, all its p value are greater that 0.05.

10) It is found through multiple regression analysis that:

   a) The independent variable efficiency increase influence on the dependent variable competency increase at 1 percent level of significant.

   b) The independent variable efficiency increase influence on the dependent variable technological augmentation at the 1 percent level of significant and the independent variable poor supply flow influence on the dependent variable technological augmentation at the 5 percent level.
c) The independent variable efficiency increase influence on the dependent variable infrastructural development at the 5 percent level of significance.

d) The independent variable co-ordination failure highly influence the dependent variable human resource derivation at 5 percent significance level.

e) The independent variables such as sales increase, confused strategies and co-ordination failure have high influence on the dependent variable periodic review at 5 percent level of significance.

11) Based on cluster analysis, the benefits of SCM such as increase in efficiency, best inventory management and rapid sales increase are segmented into two heterogeneous groups. The first group consists of 45.16 percent of employees with moderate agreement on benefits of SCM. Therefore this group is known as moderate beneficiaries. The other groups consists of 54.83 percent of employees with strong agreements on the benefits of SCM. Therefore this group is known as maximum beneficiaries.

12) The cluster analysis categorize the problems of SCM like confused strategy, poor supply flow and co-ordination failure which are segmented into two groups. 37.63 percent of the respondents are moderately agree with problems of SCM, therefore this group is called as moderate problem facers. The second group consists of 62.36 percent of employees with strong agreements of the problems of SCM. Therefore this group is known as maximum problem facers.

13) Through cluster analysis it is found that the impact factors of SCM namely competency increase, technological augmentation, infrastructural development, human resource derivation and periodic reviews are grouped into two clusters. The first group consists of 27.95 percent of employees who moderately agree with impact factors, therefore this group is known as moderate impact realizers.
Majority (72.04%) of the respondents strongly agree with impact factors of SCM, therefore this group is known as maximum impact realizers.

14) The cluster analysis reveals that there is an association between clusters of benefits and problem of SCM at 5 percent level of significant because the chi-square and p values are 3.253 and 0.041 respectively.

15) The researcher has found that, there is an association between benefit cluster and impact cluster of SCM at 1 percent significant level, because the p value is 0.001 and chi-square value is 11.356.

16) It is found that there is association between problem cluster and impact cluster of SCM at 1 percent level of significance because the p value is 0.025.

17) The benefit cluster is not influenced by the logistics department at 5 percent level of significance because, the p value is 0.693.

18) It is found that, the benefit cluster do not influence the logistic strategic plan of HLL life care because, its p value is 0.436 which is greater than 5 percent level of significance.

19) It is found through the chi-square test that:

   a) There is no association among benefit cluster and non-conformities because, the p value is greater than 0.05.

   b) There is no association between problem cluster and separate logistics department of HLL, because the p value is statistically insignificant at 5 percent level.
c) There is an association between problem cluster and logistics strategic at 5 percent level of significance because the p value is 0.745 and chi-square value is 0.106.

d) There is no association between problem cluster and nonconformities procedure at 5 percent level. The chi-square and p value are 0.403 and 0.525 respectively.

e) There is no association between impact cluster and logistic strategic plan at 5 percent significant level since, the p value is greater than 0.05.

f) There is no association between impact cluster and the procedure in case of non-conformities at 5 percent level because, the p value is 0.554.

20) The researcher has developed a Structural Equation Model (SEM) and it is lead by statistically by Comparative Fit Index (CFI), Root Mean Square Error of Approximate (RMSCA), Standardized Root Means Square Residual (SRMR), Normed Fit Index (NFI) and Non Normed Fit Index (NNFI) which is used to verify the model fit. The chi-square value is 815.34 and p value is 0.000, CFI is 0.94, RMSCA is 0.055, SRMR is 0.055 and normed fit index is 0.94 and the model is statistically significant at 1 percent level. It is concluded that SCM practices has the association among benefits, problems and impacts factors. The impacts of SCM depends on the factors of benefits and problems of SCM.

8.7 SUGGESTIONS

1) Primary production planning, aggregate planning, vendors relationship management, quality management and its related works are done by operational and middle level executives. The HLL does not have sufficient
employees in both operational and middle level. Hence steps should be taken to recruit more employees.

2) The file management, documentation, communication and training programmes are effectively maintained by the non-technical employees. In HLL the non-technical employees are very few in number so that, the non-technical employees feel stress and work pressure. Hence sufficient non-technical employees should be recruited.

3) The daily wages and apprentice employees participation is overwhelming are more. Their work efficiency is not enough for the success of SCM activities. The company should take steps to recruit qualified and efficient employees in the permanent basis.

4) The employee who belong to Kerala state are occupying top level designation by the political influence and ruling over other the other state employees. Hence the company should improve the moral value among employees and avoid bias based on language, religion and community.

5) Marketing is the backbone of HLL. In SCM practice they face many problems such as poor supply flow, confused strategies and so on. This is because of inadequate employees in the marketing and packing department. Hence the company should recruit more number of employees in the marketing and packing department in the permanent basis.

6) Information technology and communication plays a vital role in manufacturing company. Hence all the employees should be trained with the software packages which helps to improve overall performance of the company.

7) The HLL should recruit trained and efficient employees to check the quality of raw materials and finished products because, this is a tedious process and has
more risk. Hence the HLL can use machinisation for testing raw material and finished products instead of manual operations.

8) There is flaw in delivery system practiced in HLL. This may create a bad name for the company. Hence, the company should have more agents, third party logistics providers in all the states instead of clearing and forwarding agencies.

9) The existing software packages are not user friendly to the employees of HLL, so the company should standardize uniqueness in software packages based on the requirements of current business activities instead of custom made.

10) There exist some delay in waste disposal in HLL Life care, which leads to more accident and health problems to the employees. Hence the company should follow the 5S’s Japanies concept inside the company to maintain cleanliness, removal of waste and so on.

11) The company should pay more attention on SCM consultants to discuss and get the solution to the problems in connection with production, technology, supplier, vendor and SCM problems. The HLL should develop permanent Supply Chain Council (SCC) members, Supply Chain Operations Reference Model (SCOR) which provides a framework for measuring and understanding current supply chain conditions. It can help the company to evaluate cost and performance, develop strategies for meeting out the new customer expectations and respond to domestic and global market growth.

12) Aggregate planning and control, future SCM activities and job design are not properly designed by the executives. Hence, the company should conduct more number of periodic review meetings to discuss and arrive the solution to the problems of HLL.
13) The segmentation is used to design a supply chain with more efficiency to manage complexities, increase flexibility and adoptability. This will improve the product availability at a lower cost. The HLL should adopt segmentation to work out the following activities for the betterment of the company: (1) The company should take step for segmentation analysis including goals and scope. (2) It should create supply chain segments by analyzing data on demand, product information, supply source, storage location, transportation and inventory policies. (3) Identify the services objectives and standard operating policies. (4) Develop an implementing strategy considering financing, policy environment and ways to measure performance of the new segments.

14) Reengineering is the systematic transformation of an existing system into a new form to create quality improvements in operation, system capacity, functionality performance at the lower cost. HLL does not practice reengineering concept at present, so the company should plan for reengineering techniques to improve the overall performance in operational and performance activities.

8.8 CONCLUSION

SCM is a very important area which is used to increase overall performance of the company. In foreign countries the performance is increased because they practice SCM in their companies more effectively and efficiently. Indian companies are not focused with logistics and SCM practices and they should practice SCM concepts to meet the global level competition. The employee participation with moral value is important to the success of SCM. The effective SCM practices contains benefits, problems and impacts factors. There is an association between benefits, problems and impact factors of SCM. The role of information technology is a vital one to increase the efficiency of the SCM. The aggregate production planning, clear logistics strategic plan, adequate transport facility, logistics department delivery
performance supports to increase the benefits and impact of the SCM practice. For the success of the company updating new practices like SCM is very important. The company must allot more fund and financial support for the logistics operations. The information sources and effective information channels and new technologies help to strengthen the activities of SCM. The cost management, customer service, quality, productivity and asset management factors also support to the overall performance of the company.

The SCM is effectively practiced in HLL. It can be concluded that SCM can increase the productivity and pave the way to use the cost management techniques as well as to increase the profitability of the organization.

8.9 SCOPE FOR THE FURTHER RESEARCH

The researcher concludes that the effectiveness of SCM practices can be extended as

1) A comparative study of SCM practices in manufacturing and service sector.
3) Effective value chain implementation in health care industries.
4) Managing supply chains for competitiveness: The Indian public health care companies.
5) Effectiveness of SCM in public and private companies in India- A comparative analysis.
6) Logistics in Indian health care industry.