

Study of Supply Chain of an Indian Shipping Company using Modified SAP-LAP Framework

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Abstract

Purpose – The purpose of the present work is to study the supply chain of an Indian Shipping Company (SC) which has posted an audited loss of Rs 147.47 crores in the F Y 2013-14 and the three quarter reports of 2014-2015 is also not very encouraging as financial position of case company still indicate southward trend. It is a matter of surprise to everyone that during the same period other private companies have reported profits in their fleet operation. This shows that the cost cutting measures, such as: Reduction in expenses incurring towards ship repairs and dry-docking at least by 50% because the average age of ships has come down to nine years, taken SC management are not sufficient. It has been also noticed that manning agents to provide above personnel engaged by management are not performing their duties with dedication and their services are not of good quality. There is dissatisfaction among permanent floating staff personnel as they are given biased treatment as compared to contract personnel as far as their posting on the vessels. The purpose of this paper is to develop a case of a shipping company and to gain learning insights towards current situation of the company with the help of SAP (Situation-Actor- Process)-LAP (Learning-Action- Performance) framework. The case study points out limitations of the Shipping Company (SC) and suggests modifications and some actions for improving its competitiveness in near future. **Approach:** With the help of modified SAP - LAP framework, the working of the shipping company in the present scenario have been analyzed. The analysis has been carried out with the help of discussion with the experts of the company having more than ten years of experience. The case study makes some suggestions after analyzing the present situation, so that company can make operational profit in financial year 2016- 17 onwards. **Findings** - Through development of SAP- LAP framework, past and present situation of the case company has been studied with the focus on direct actors and indirect actors responsible for the growth of the case company. The process of the company has been analyzed from strategic, tactic and operational point of view. Learning is gained for the present and future situation. Actions have been proposed to improve the present situation and for sustainable future growth. **Originality** – The paper is an original paper which applies SAP-LAP framework with modification. In the development of SAP-LAP framework, the help of experienced experts has been obtained. The questions were prepared after reviewing the related literature and annual reports of the case company and its competitors. The case study suggests simple but effective solutions that may be adopted by the case company for her sustainable growth in future.

Keywords: SAP- LAP, Maritime Sector, Vessels, High Seas, Global Positioning System

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1. Introduction

Creating competitive advantage is vital to sustain growth. Companies and various sectors are aggressively pursuing initiative to better manage their supply chain by expanding the scope of management of their operations to manage upstream and downstream channels⁵. Maritime Supply Chain keeps full control on all aspects of physical handling of Cargo at Load port and

safely discharges it at Disport and delivers to the consignee in practically initial condition. In Maritime sector, the supply chain management refers to a wide range of functional areas, such as inbound and outbound cargo from vessel, warehousing and Cargo documentation. Importantly, it also embodies the information systems so necessary to monitor all of these activities as can simply stated, “the Maritime supply chain encompasses all of those activities associated with moving goods from the shipper

to the consignee⁷. As labour- saving steamships replaced the sailing ships, shore based labour replaced the ship's crew for cargo handling, but usually supervised by stevedore directly responsible to the ship owner. Stevedoring firms emerged, and rapidly gained considerable industrial power⁶. Significant productivity increases could only come from managing relationships, information, and material flow across high seas to various borders. We can say that the best definition of Maritime supply-chain management as follows: "The delivery of enhanced shipper's economic value through synchronized management of the flow of cargo and associated departments and information from load port to discharge port". Innovation in maritime and port logistic is as important as in any other part of the supply chain to improve the efficiency⁶.

The following activities exist in Maritime Supply Chain:

- Financial Institute/Banks
- Customs and National Law at Load port
- Exporters, Shippers, Shipping agents and consignee
- Forwarding agents and Stevedores
- Sea Going Vessels
- Co-ordination with Load port and Disport shipper's and Consignee agents
- Monitoring the progress of the vessel in sea voyage

From 2010 till now, it has been a challenge for the Shipping Company (SC) in more than one way. The SC continues to face problems of cash flow due to very low charter hire and freight in all segment of Maritime sector. For making on-line transaction under the environment of uncertainty and vulnerability reliability and predictability under fairness in transaction helps in building trust among on-line maritime traders in an e-enabled supply chain (Agarwal and Shankar 2003). Professionals involved in managing supply chains today makes intervention in an increasing extended range of activities in the value chain both upstream facing towards suppliers and downstream, towards customers¹. Cash problems emanating from the low of shipping cycle which started affecting SC from 2010 and it is further compounded by the downturn of Indian economy. With domestic interest rate peaking and cost of carrying foreign currency skyrocketing, all growth plan of SC has taken a backseat. Still SC has done better than any other Indian shipping company as she focused on domestic cargo with largely India-centric operation. On freight point of view, Tanker and Bulk carriers saw a downturn, but offshore segment and supply vessels ensured the cash visibility for the company. Though SC has not yet become a significant player in the offshore business, it has gained a strong foothold in the niche segment by having and operating successfully Anchor handling Tugs (AGT), Off-shore Supply Vessels (OSV) and Multi Support Vessels (MSV).

The SC is finding in reality today's market is not really about fundamentals. Ships are the core assets which are not making any profit today (Last three yearly financial reports of case company) but will do so after 2016. Meanwhile escalating bunker prices has eaten the lion share of SC in operating cost. Slow streaming of ships has further increased the operating losses. When the market tightens, the fleet will speed up, and the SC fuel efficient ships will benefit. SC is the only Indian shipping company with expertise in LNG shipping and provides a complete range of service including ship management, crew management and marine operation. In respect of LNG transport SC with JV of Petro net and GAIL already entered in this field and achieved necessary capacity and competence (case company website). The SC has identified LNG shipping as a key growth area and with the participation of shipping requirement for GAIL's project, she will have a sizeable stake holding in shipping of LNG which is projected to be environmentally friendly source of energy Since Indian content in such transport is of immense value, the SC has already formulated a long term policy keeping in view of energy requirement by 2030.

2. Supply Chain Management in Maritime Industry

India is one of the fast growing economics with diverse market. Managing supply chain in such a vast country is most challenging for an organization because of business practice, technology capability and government regulation². The emerging trends in management of Maritime supply chain management concerns with the integrated and process-oriented approach to the design, management, and control of the supply chain, with an aim of producing value to the customer, by both improving customer service for cargo movements and reducing cost. Modern logistic system requires real time monitoring and interaction with fleet vessels to attain high fleet utilization and provide fast response to customer need⁸. About Ninety percent of Bulk Cargo from Indian sub-continent and to other countries is traded through sea. Customers are more demanded to know the whereabouts and status of their Goods in Transit. This information was given earlier to Customers from Head Office. The Head Office used to collect the Daily Operational Reports through telexes, faxes and telephone from other branch offices at Indian and Foreign Ports. Communication between Ships, Agency Offices, Company's Agents and various Government agencies were totally unreliable due dependency on manpower, faulty communications lines, different Time Zones at various Ports and inclement weather. The advancement of Information technology provides a wide range of options for terminal operator to automate

account for 8 % total energy mix and is expected to grow up by 20% by 2030.

Government Policies, taxation regimes and currencies fluctuation of different countries for the importers of India, and it affects on the freight levied by the shipping company .The transaction cost associated with externalizing logistic services may be significant, whether they are provided directly by a specialized logistics firm or forwarder⁶. Evolution of new market in the Offshore shipping Sector has led to the entry of new players in the industry including foreign operators, some of which are equipped with modern technologies. The decision to adopt SAP-LAP applications in SC business and identifying the perceived gaps between the expectations through this is the main object for this study.

SAP-LAP methodology recommended by Sushil⁷ is used for critically examining the case company. The SAP analysis

highlights the dynamic parameters of a case through dynamic interfaces of any business system. These interfaces are situation (S), actors (A) and processes (P). The next step is LAP synthesis, which has three components. These are learning (L), action recommended (A), and anticipated improvement in performance (P). Actors consistently evaluates the situations follows processes, and take action to improve their performances either the processes are modified or same processes are followed in future⁷.

3.1 Development of Modified SAP-LAP Framework

Modified SAP-LAP framework (Figure 2) for case company is developed as follows:

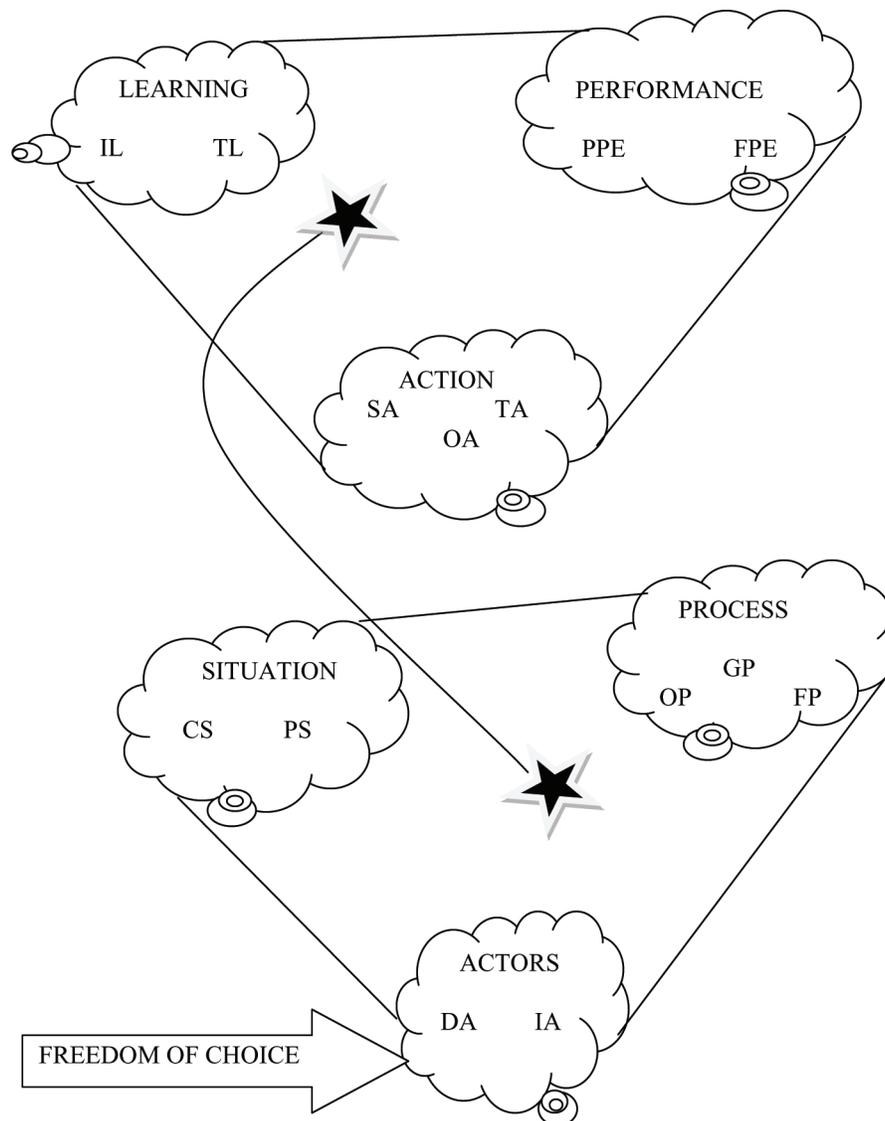


Figure 2. SAP-LAP Paradigm⁷.

3.2 Situation (S)

In the modified SAP-LAP framework, study for the past situation and for the current situation has been made. The study of past and current situation helps in comparing the two situations and in analyzing the factors responsible for bring the case company in the current situation.

3.2.1 Past Situation (PS)

- The case company was established in 1961, and has professionally managing its vessels and maritime supply chain efficiently
- The case company has never made any operational and financial losses till 2010.
- In early sixty to eighty, case company made profit in its cargo and break bulk liner services.
- In early 80-90, the case company ventured into off-shore business and manned supply vessels of ONGC in oil sector and with this she earned reputation of best managed shipping company in off shore sector
- The case company manned government service of inter-island vessels on cost plus basis and survived the recession period of eighty and early nineties.
- The case company entry into container business in maritime sector took somewhat late due to high cost and delay in approvals from Government.
- In 2008 when case company was having cash overflow due to earnings of bulk carrier employed in Indo-China trade. Under the guidance of Shipping Ministry, she booked bulk order for new vessels at high cost at various shipyards instead of partly replacements.
- Prior to initiating the mass fleet acquisition in 2008, sustainability was the criteria for fleet expansion and whatever tonnage was to be scrapped was replaced in phased manner.
- However in 2008 thrust was put more on scrapping and replacing the same but also subsequently adding more tonnage without releasing the after effect of non-employment of added tonnage once the Beijing Olympic is over and bulk trade of iron ore will be restricted.
- After 2010 when the recession in shipping business was its peak, supply of tonnage exceeds the demand of vessels in operation; the case company's new delivered tonnage could not be employed on profit basis. Hence there is mismatch in the availability of ships and its employment.

3.2.2 Current Situation (CS)

- After opening of Indian shipping market in 2014 for foreign ships, presently intense competition exists between case

company and various private and foreign shipping companies for want of Indian and foreign cargo.

- National and International competitors shipping companies are offering rebate on freight and other financial promotions to shippers, which the case company unable to promote due to Government control.
- Competitors shipping lines have more national and international penetration in supply chain and have captured the market due to quick decisions and efficient.
- Supply chain of case company is Indian shores, but many co-laborators are in other maritime nations like for oil, fertilizers and coal.
- SC has wide range of vessels as Tankers, bulk carriers, containers, passenger, supply vessels and manning most of Government of India Vessels, but its business performance is far behind global competitors for want of quick decision.
- A matter of concern is that due to lack of quick decision after market analysis, case company's maritime share of cargo is not improving.
- Case company is now focusing on reducing operating cost by efficient manning them operationally by suitably chartering the vessels.
- There is a pressure to use less polluting marine fuel to safeguard environment.
- There is intensive pressure on case company to maximize use of IT to maximize responsiveness to survive in maritime sector due to unstable market scenario like fluctuation of crude prices from \$120 to \$45 a barrel. The employment of tankers depends on the price of crude oil.

3.3 Actor (A)

The Actor is categorized into Director Actor and Indirect Actor in the proposed SAP-LAP framework.

3.3.1 Direct Actor (DA)

- The case company's main management office in Mumbai (Head Office).
- Liaison Office with Ministry of Roads, Highways and Shipping at New Delhi.
- Branch Offices at Kolkata, Haldia, Chennai and Port Blair.
- The case company's foreign offices at London and Singapore.
- Protecting Agents at other major Ports in India, looking after maritime supply chain specially cargo and to some extent stores and spares as per head office direction.
- Shipbrokers dealing with case company in India and at foreign ports.
- Cargo and ships charterers dealing with case company

- Management staff on ship (Captain & Chief Engineers) during sea passages and in port.

3.3.2 Indirect Actor (IA)

- The Ministry of Road transport, Highways and Shipping at New Delhi
- Third Party logistic provider where SC has no reach.
- Exporters at various countries
- Shippers at various National and International ports
- Consignees at various International and National ports.
- Importers at various countries
- Stevedores at various ports.
- Customs authorities of exporting countries.
- Customs authorities of importing countries.
- Port authorities where the case company vessels ply.
- Bank /Financial Institute

3.4 Processes (P)

Processes in SAP-LAP framework are studied under three categories:

- Operational Processes
- Financial Processes
- Growth Process

3.4.1 Operational Processes (OP)

- The case company is presently sustaining itself on manning the Government vessel of National Institute of Oceanography, Fisheries Research institute (Goa) and off shore vessels of ONGC.
- The case company presently doing in house induction of technical experts from floating staff is being done on regular basis to tide over expertise in day to day running of the ship.
- Introduction of Information Technology in case company maritime operation, the new trends have lately developed in Management of Maritime Cargo as use of IT and ERP has become an essential part of the rapid and accurate transfer and processing of data.
- Use of SAP-ERP all the case company's and agent's offices have connected all maritime activities. Due to this all maritime activities specially cargo and freight related operational activities are visible at all times. Hence IT is playing a major role to make the company business online.
- With the use of IT, case company is focusing on continuous improvement in vessel management and operation. It has

given empowerment the vessel's command in day today's vessel's operation due to quick exchange of information.

- With the use of IT, the case company is trying to reduce the turnaround of the vessels, so that her efficiency in maritime operation and vessel management improves a lot.

3.4.2 Financial Process (FP)

- The case company has activated single database at Mumbai head office. Therefore the decision on deployment of ships and its result on financial implication are easy to understand.
- The case company is now making minimum and only desired use of ship's brokers and charterers Brokers for its cargo and vessel employment, thus saving costly commissions to them
- SAP - ERP system is being followed for payments of day to day ships, port, agency and other statutory bodies' fees.

3.4.3 Growth Process (GP)

- The case company encourages sharing of views through meeting with personnel from ships, operating division, finance division, chartering division regularly at least every fifteen days.
- The case company now discussed in regular board meeting may issues like alignment of ships as per commercial activities and government requirement (like evacuation of Indians from Yemen through Indian passenger ships), deployment of supply vessels as per ONGC/IOC requirement, starting of New shipping routes (coastal shipping).
- The case company welcomes new ideas regarding future growth of her shipping activities.
- The Company is now venturing into off- shore division, port operation / management and dredging operation.
- SC has also identified LNG shipping as a key growth which is projected to be environmentally friendly source of energy.
- Container shipping department is given thrust on expansion even if the market situation is not bright, hoping to breakeven in 2016.
- The New tonnage is being offered to international charterers at market rates.
- Customer care center has been opened at head Office and at least one each at eastern, southern, western and at New Delhi for maintaining the maritime supply chain for Exim cargo in Indian sub-continent.

3.5 Learning (L)

In SAP-LAP framework for the case company, Learning can be Tangible Learning and Intangible Learning.

3.5.1 Tangible Learning (TL)

- The case company should rely on branch offices and various agents to decide the cargo booking as per local condition and availability of the ships by using SAP- ERP.
- The case company should endeavor research and development efforts should be continuously interface with latest I T technology and international environment protection regulations.
- The case company should align definitions related to use of IT in procurement of cargo and stores and connected logistics across different functions in maritime sector.
- The case company should breakdown maritime planning information into components such as procurement of cargo/ stores, special promotions and key account through use of IT.
- The case company should explore new market /shipping routes even in niche market should be preceded with details market research (Indo-Myanmar container route of costal shipping).
- The case company should acquire more agents at various ports by bringing innovative and customer friendly product.
- The case company should understand that oil trade is vital to India's growth and a step to strengthen its economy. Hence more and more tankers are to be chartered on cross trades rather than awaiting for Indian companies.
- The case company should not deploy ships for short period of time but extended one. This will allow us to better manage our old tonnage over three to five years when the economies will improve in all over the world.
- The case company with the help of SAP-ERP should facilitate accuracy rate especially deployment of container cargo at various ports must be improved.
- Management of case company should focus on developing cross-functional workforce.
- Shippers and Stevedores should be encouraged by case company to focus on their core competencies
- Consignee/end customer care improvement is needed by case company with the help of systematic use of IT.
- With some drastic measure the case company has taken customer- service measures and increased cargo booking to double digits.
- The case company should have a flexible procurement policy regarding cargo, stores and spares and should be agile to maritime change and quick to respond and integrate.

3.5.2 Intangible Learning (IL)

- The case company will survive in maritime business in future without the Government support by self supporting and sustainable by rationalizing it's Fleet in profit sectors.

- The management of case company need to sent the message that with the improvement in maritime activities and its supply chain, they are not only supplying its customers with service but also bringing value to the customers.
- Project management group (Technical and Off-shore division) should endeavor to reduce project completion time especially new ships to bring them right time in the sector to capture its utility.
- From year 2016 the demand of the goods will increase in different part of the world, giving rise to movement of the goods in maritime sector in brisk manners. This will increase in freight rates, thereby higher growth in case Company's revenue.
- Regular business survey is required to know the accurate maritime volatilities specially fuel sector.
- SC should build demand forecast from the "bottom up" by collaborating with its agents at the various ports to determine future cargo/products need.
- Future plans should be shared with upstream (Ministry) and downstream maritime partners in various countries (like Iran, Venezuela, SAARC countries, Eastern Asia).

3.6 Action (A)

Under the present Indian Government mission of "Make in India", the case company actions are kept under Strategic Action (Long term), Tactical Action (Medium term) and Operational Action (Short term).

3.6.1 Strategic Action (SA)

- The management of the case company is presently reengineering its internal processes and organizational structure to focus on bringing value to its customers.
- The case company is presently ensuring service level improvement through shippers, vessel's command, consignee and agents at various ports are being given priority to maintain customer's loyalty.
- New Delhi liaison office is being strengthened so that Ministry and other Government approvals should not take much time specially on new venture or to diversify.
- Since Merchant navy and specially and case company is the second line of defence , a high infusion of capital to support the expansion of ship's main line (oil and Bulk) and feeder service with the help of Govt. of India are being explored by case company for survival and future growth.
- The case company is trying her best to achieve "on time complete" especially port stay, seaway streaming and voyage. Once they achieve better "on time complete" data synchronization would figure next for achieving perfect cargo booking orders.

- The case company has put proposal to Government of India to reserve carriage of crude purely for Indian vessel, or maximum to 50% if exporting country wants to use their national fleet. This is in line with the cargo protection to National carrier as done in most of the maritime nations.
- For future growth, the case company has entered into joint venture with off-shore sector with ONGC and GAIL and also in LNG Port operation like Dehej in view of long term survival.
- The case company is presently also venturing and attaining expertise into port operation of Ratnagiri Gas and Power Pat Ltd (RGPPL) LNG jetty at Dabhol.
- The case company has signed MOU with GAIL to cooperate for transport of about 5.8 million metric tons of LNG from USA
- The case company is also assisting GAIL in the process of tendering and post fixture management of eight to ten LNG tankers and has a step in right for participating in the shipping project with up to 26% equity stake.
- The case company is also venturing into dredging business of Indian ports under instructions of Ministry.

3.6.2 Tactical Action (TA)

- The role of IT and ERP is strengthened by case company to clear operational expenditure quickly and thereby increasing the viability of cash reserve in hand. Lot of funds remain ideal for long time and thus losing interest as Agent's accounts are settled long after the expenditure is received. Even though when ship gets diverted, the agent who is not going to attend the ship does not promptly send back the funds to the company in normal procedure.
- With the use of SAP-ERP, the case company is trying to strengthen its payment process to quick payment with reduction of time from 3months to 15 days.
- The case company is now following the HRM tools of job rotation and empowerment is must for people and also to enhance efficiency of work culture. People posted at various departments ashore are rotated to different departments after every 4-5 years or after promotion to different departments in line with Govt. policy except those are physically challenged or expert opted for that department (CA and Educationist).
- By appropriating funds in investment of new ships or second hand ship, the case company is presently pulling along with some profit even at present low demand of cargo and charter rate.
- The case company should judge performance of its employees by 360 degrees evaluation method rather than Bell mouth curve which do not gives accurate results.

- The case company now ensuring that appointment of Master (FG) and Chief Engineers on Staff to be done only for emergency basis, to avoid paying of sailing wages at ashore.

3.6.3 Operational Action (OA)

- The case company is doing her best to improve both its upstream and downstream supply chain process including in maritime sector.
- There should be regular meetings with upstream and downstream partners in maritime sector including Government and port authorities.
- The case company has started using SAP-ERP that examines a number of variables to determine the appropriate level of maritime activities. Some of the variables includes daily cargo and container positions, weekly order history and variability, forecast accuracy, frequency of deployment of ships and ports, availability of cargo, lean and excess period of cargo availability (like shipment of rice during Hajj). This one platform will give the transparency to all our marine activities
- The case company has instructed clearly all Indian and foreign agents to use ERP with head office to return the unutilized fund as quickly possible.
- The management of case company has improved cargo visibility in its supply chain, which will enable them to make smarter tradeoff between availability of cargo/product and customer service at consignee end.
- Global Positioning System are now being installed on ships, for tracking and security and provides continuous worldwide coverage for the remote tracking of maritime vessels, whether in port or on passage in any ocean.
- With the use of IT, the case company has further shorten the cargo delivery time for shipment to shippers at loadport and cargo release time to consignees and its customer at disport.
- The case company in consultation with Ministry has eliminated many of its unprofitable routes that are not meeting financial targets.
- The case company should ensure the appointment of retired employees to do routine work should be stopped as this is to favour their persons in the name of retaining and utilizing expertise.
- For Maritime education in its training Institute under affiliation to Indian Maritime University, the case company must ensure that the norms of UGC and IMU are being followed in its training Institute. This includes faculties attaining higher education (Ph. D), promotion as per teaching experience and attaining required qualification and finally retirement age of 65 years.

3.7 Performance (P)

The performance of the case company is analyzed under present situation and is analyzed for future situation in SAP-LAP framework.

3.7.1 Present Performance (PPE)

- The SAP-ERP system in case company is being linked with its Maritime business. There is presently a free flow of information in both technically and commercially aspect of business. Critical applications in chartering, manning, freight collection and payment to different parties who are connected with company business are getting priorities. Being transparent information system user is getting hold latest updates of marine activities without any delay. This transparency in operational activities information and system has enhanced the customer's confidence and is providing more business to our ships.
- The case company is presently giving support to Government vessels in the form manning and technically supporting them by use of IT/ERP.
- The case company management has realized that trading partners of the supply chain should make decision not based on their individual objectives but on the objectives of the whole system. This is leading for to development of integrated maritime supply chain benefiting all maritime trading partners and certainly a WIN- WIN situation.
- With the use of IT, the case company is presently doing proper alignment of vessels and their fast turnaround at port and voyage. This is now proving to be a beneficial to improve market share in maritime sector.
- Through process and organizational changes, case company and shippers will optimized the cargo bookings and this will boost in customer service level.
- Since IOCL, Petronet and GAIL favours the long term employment of LPG and LNG carriers, case company is employing her LNG vessels on long term period. This long term employment is giving steady returns and helping the company to sustain growth and use of tonnage in present slow down market.
- The case company has now ventured towards technical and commercial management of the ships of other company and Government of India. This will in future improve the company's financial and technical situation. SC has won its fourth long term LNG shipping contract from Petronet in an over \$200 million deal, which is likely to use ship's transporting LNG from Gorgon in Australia to India either at Kochi or Dehej.
- Maritime Labour convention (MLC) which came into force from August 2013 and is being implemented by case company

with zeal specially revised requirement of work and new training guidance for ship's staff to meet international standards.

3.7.2 Future Performance (FPE)

- Trust among case company and other maritime partners should be developed through better use of IT in information sharing and by involving them in decision and policy-making.
- SAP-ERP implementation in case company has to be enriched with integrity, innovative and interactive with various on board ship's procedure and SC offices ashore.
- By implementing the concept of risk pooling and improving speed of information flow by use of IT, case company supply chain flexibility and responsiveness will be improved.
- Re-engineering operational and commercial aspect of ship's operation in case company before automating will improve the effectiveness and efficiency of each department. It will avoid the duplicity of the informations and procedure both on board and ashore.
- Container Feeder services in case company will able to offer better competitive rates even though these shipping routes are presently making loses, but still SC has to continue these services on these sectors even if SC makes operating loss by not getting enough cargo. Plying their feeder service on these routes by case company, the freight rates are kept low and in the bargain Indian exporters/importers are indirectly benefiting the Indian economy
- In line with the energy requirement of India in future, SC off shore and specialization vessels department has already started working and expanding LNG fleet according in line with energy requirement of India as projected by 2020.
- As per Government if case company has to increase its fleet strength, a cargo support scheme in liaison with other PSU connected to shipping is extremely important and necessary. This will ensure sustained support in terms of cargo for SC on the EXIM (Export and Import) and coastal trade. SC is trying her best for cargo support from Government like any other maritime nations.
- Once the tonnage is stabilized with demand and supply, it is expected that freight rates will show improvement. It is hoped that once the economy of India and world improves by early 2016, company will hope to make profit.

4. Result and Analysis

The SAP-LAP framework with modification for the case company has been developed in the present research paper. The outcome of SAP is in the form of Learning- Action - Performance (LAP). The outcome of the framework may be considered as the efforts to improve the present performance of case company. The company

considered in the research work is the flagship company in its respective maritime sector. The case has been examined by studying the situation, actors, and processes of the case company. The framework suggests learning, possible actions and expected performance for the case company. The analysis suggests action to be taken by case company to achieve anticipated performance in the current situation.

It is observed from the case study that use of IT in maritime sector plays a significant role in improving the business performance of a company. Most of the Indian shipping companies are steadily following the global trends of centralized and collaborative planning and information sharing among its maritime partners. As per latest information most of the shipping companies have started using latest IT tools (ERP) and outsourcing some of their marine connected activities to Logistic provider. Hence implementation of the finding as mentioned in research Paper should be implemented without any delay.

Earlier the Indian Government protection and support was there both in Cargo and financial sector, but now Company has to survive and sustain herself hence she has to diversify more in other sector like oil exploration, gas carriers and Management of Port sector. Hence the SC has to implement the 'LAP' function with full zeal so that the company comes out 'Red' and starts earning profit from financial year 2016-17 to survive and projected growth in future.

5. Conclusion and Recommendation for Future Research

The SC is the Indian shipping which provides technical consultancy to A & N Administration, (Union Territory of Lakshadweep) UTL Administration, UTL Tourism department, Directorate General of Light houses and Light ship, GSI, NIO, National center for Antarctic & Ocean Research and other Government Department for their various ship acquisition /retrofit projects

The growth of the SC tonnage is of strategic importance to national and energy security and for this there should be cargo support through long charters (of IOCL and GAIL/Petronet). There is tremendous potential for increasing saving of the SC by increasing the share in India's overseas trade. The SC is the largest contributor of saving foreign exchange in India in the Shipping Industry. It has been established by the National Council of Applied Economic Research (NCEAR) that a 5% increase in the SC or Indian tonnage saves an additional 17% of the freight bill. The present SAP-LAP analysis is done to increase the operational and financial strength of the SC.

The Government of India has LNG as crucial source of energy to critical industries as power, petrochemical and fertilizers,

which forms the backbone of India's industrial, agriculture and economic growth. Government should release the necessity to securities' to the SC for this strategic commodity as per the tonnage and expertise. This protection of tonnage to Indian bottoms (Ships) has been clearly emphasized in this analysis

The role of IT in company is at early stages and lot problem occurring from technical point of view in implementation of same, but the work is in progress and with the help of in-house experts, the SC will achieve the economy of scale. To ensure business continuity during the time of emergency and earth quake, disaster recovery site at Kolkata office is operational in March 2015. To avoid depending on outside agencies for our operational and commercial aspect, in-house expertise should be developed at the priority basis as it will be beneficial in long term both operationally and economically. All above finding are clearly discussed with the use of SAP-LAP model in case company.

The given study with developed SAP-LAP framework suggests possible directions of future research in the shipping industry and deployment from the perspectives of the authority augmented with Company's perception and researcher's propositions.

The future research will deal with

- 1) The implementation of IT in office ashore and on ship's for Shore based continuous global tracking of Ships and Cargo and piracy warning and then avoidance of piracy at high seas by use of satellite surveillance at Maritime sector. The piracy area has come to near our Indian coast and it is a new threat to shipping fraternity.
- 2) The new requirements for security trainings well as provisions to ensure that ship's staff is properly trained to cope up with the situation if the ship comes under attack from pirates
- 3) The future research will also deal with the probable effects of Maritime Agenda: 2010-2020 on SC, the prime shipping company in which Government shares are more than 50 %.

6. References

1. Alan S. eBusiness and supply chain integration. *Supply Chain Management: Journal of Enterprises Information Management*. 2008; 21(3):227-46.
2. Sahay BS, Jatinder N, Gupta D, Ramneesh M. Managing supply chains for competitiveness: The Indian Scenario. *Supply Chain Management*. 2005; 11(1):15-24.
3. Kia M, Shayan E, Ghotb F. The importance of Information Technology in port terminal operation. *International Journal of Physical Distribution & Logistics. Management*. 2000; 30(3):331-44.
4. Kumar S, Hoffman J. Globalization: Maritime nexus. *Handbook of maritime economic and business*. Lloyd's of London press; London.

5. McLaughlin J, Motwani J, Manu S, Madan MS, Gunasekaran A. Using information technology to improve downstream supply chain operation: a case study. *Business process Management Journal*. 2003; 9(1):69–80.
 6. Raul CL, Nigel P. Quality assurance in the maritime port logistic chain : the case of Valencia , Spain. *Supply Chain Management: An International Journal*. 1998; 3(1):33–44.
 7. Sushil. SAP-LAP models of inquiry. *Management Decision*. 2000; 38(5):347–53.
 8. Win-Bin S. Wireless technologies for logistic distribution process. *Journal of manufacturing Technology Management*. 2007; 18(7):876–88.
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