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By Saba Idrees

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CASESTUDYBUSINESSPROCESSREENGINEERINGOFSUPPLYCHAINACTIVITIESINATTOCKPETROLEUMLIMITEDAPL

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Case Study Business Process Re-Engineering of Supply Chain Activities in Attock Petroleum Limited (APL)

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Abstract- Organizations in the modern age are being challenged by many difficulties because of the rapid advancements in technology while using old and traditional techniques for the running of their processes. To increase the competitiveness of the organization and to improve the sustainability of the company, the concept of Business process re-engineering is being adopted which involves the radical redesign of process by tossing aside the existing ways and methods. The main objective of this case study is to explore the possibilities for improvement in the processes of Attock Petroleum Limited (APL) such as supply chain management with the technique of business process reengineering as the traditional approach is affecting the performance of the company. Data has been collected through unstructured interviews from the engineering personnels in the company and from the company website. Along with that extensive study has been carried out from the existing literature. By applying BPR techniques: the installation of vehicle tracking system, auto tank gauging and establishment of centralised data acquisition centre the company would be able to increase its sales volume by 20% and reduce its human resource by 30% thereby resulting in savings for the company.

Keywords: *business process re-engineering, supply chain, attock petroleum limited, vehicle tracking system, auto tank gauging (atg), centralised data acquisition centre.*

I. INTRODUCTION

A business process is an activity which involves a group of tasks that are achieved in a manner that provide satisfaction to the needs of the users and also they are directed to give them value, in order to meet the strategic goal of any organization. It is very important to properly manage the tasks in order to manage the processes effectively so that it becomes easy to meet the operational objective of the organization (Berber, Baosic & Pasula, 2011). To increase the competitiveness of the organization and to improve the sustainability of the company the concept of business process reengineering emerges which improves the overall condition of the company by implying new and improved ways. (Magutu, Nyamwange & Kaptoge, 2010).

Business process reengineering is the concept in which all the processes of an organization or the company are redesigned in a way that they are invented

again and no same task is revised thus it is the radical redesigning of all the processes of the organization. It is done to improve the existing condition of the organization by implying new and improved ways thus lowers the cost and improves the profitability of the organization.

Year 1990 was the year of business process reengineering success especially when Michael Hammer and James Champy published their bestselling book "Reengineering the corporation", according to their concept business process reengineering is necessary in order to make the company profitable by lowering its cost, it was needed in that era because most of the companies in USA were suffering from losses therefore the researchers gave this idea to improve their condition.

The main objective of this case study is to explore the possibilities for improvement in the processes of Attock Petroleum Limited (APL) such as supply chain management with the technique of business process reengineering. Supply chain management is a process by which a company finds the raw components or material that is needed to make its final product, reengineering in supply chain management means exploring new and improved ways of producing the product which in turn lowers the cost and this maximizes the profit.

According to Briggs and Tolliver (2012) the petroleum industry supply chain is like the supply chain of any other industry, composed of intricate entities that extend from the oil fields to the gasoline stations. The upstream petroleum supply chain has always been considered complex compared to other process industries, such as pharmaceuticals. However, the logistics function is one of the areas that affect supply chain performance in the petroleum industry.

II. COMPANY'S PROFILE

APL is the 3rd largest oil marketing company of Pakistan after Pakistan state oil (PSO) and Shell and was established in 1998. The main aim of the company is to continuously provide quality and environment friendly petroleum products and related services to industrial, commercial and retail consumers, and exceeding their expectations through reliability,

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economy and quality of products and services. APL is committed to benefiting the community and ensuring the creation of a safe, responsible and innovative environment geared to client satisfaction, end user gratification, employees' motivation and shareholders' value.

III. COMPANY'S OPERATIONS

APL is procuring its product from Attock Refinery Limited, National Refinery Limited, PARCO refinery and imported product through Jetty. Currently the company is operating from the following supply points.

- Rawalpindi
- Machike. sheikhupura
- Karachi
- Gatti, Faisalabad
- TarraJabba, Peshawar
- Vehari, Sindh
- Mehmood kot, Muzzafargarh
- Shikarpur, Sindh
- Habibabad, Lahore

IV. PROBLEM IN COMPANY'S PROCESS

Supply chain is believed to be back bone of any oil marketing company like APL where it plays a vital role in successful operation. It consists of the processing, transportation, marketing, and distribution of petroleum products, and it is usually characterized as a mature, rather competitive, and complex industry (Hackworth & Shore, 2004). In APL, traditional approach towards supply chain is denting the company's growth to a great deal.

V. LITERATURE REVIEW

Organizations in past considered their structure and behavior in order to defend their evolution and adaption in dynamic and rapidly changing environment. Change has always been the major cause in any organization, though it was predictable, incremental and evolutionary but today it is rapid, unalarmed and unpredictable.

One of the major development of management studies is business process reengineering around 1990's. Hammer and Champy (1993) and Davenport (1993) introduced the approach to redesign business processes for creating profit and restructure the whole business using engineering methodology.

According to Aghassi (1994), the process reengineering often seem as one of the tools to justify the organizational business processes. Davenport himself describes business process reengineering as "the fad that forgot people". 1990's have been a decade

of retrenchment in spite of enlargement for most businesses, and found that in fact US, UK and German organizations change in size enlarger rather than organizations which appear to occupy the reengineering .

At core business process reengineering involves structural changes and processes within the business environment. It helps to change whole organizational, technical, human dimensions.

Over the past couple of years, it gained much importance and involved in increased circulation of businesses on larger parts of the world, because of that many try to learn, implement and successfully applied a real business process reengineering (Davenport, 1993). Today more than 120 businesses from small to medium size in Greece and thousands in Europe have been with such type of re design organizational structures.

Kallio, Aarinen, Tinnila and Vepsälaine (1999) explains business process reengineering as one of the strategy developed to improve companies entire business processes.

Common fundamental approaches highlighted supply chain management, business process reengineering, business process improvement philosophies. It is argued that those who work with supply chain management in their businesses, have already undergone business process reengineering and therefore reengineered their own processes, so the business process reengineering and supply chain management traveled the same path far ago. Once businesses integrated supply chain management, they processed with the greatest benefits. (Wisnosky, Dennis & Batteau, 1990)

According to global supply chain forum, it is integration of key business processes from end user through original suppliers that provide products, services, information that add value for the customers and other stakeholders. (Chan & Qi, 2003).

Improvement in supply chain management can be shown with the help of business renovation, effective information technology utilization and techniques of business process reengineering modeling. By reformation and different business processes integration between companies at various tiers in the chain, the performance gets enhanced ultimately. (Wisnosky et al, 1990).

Thus the ultimate purpose of supply chain management is to enable specialization and economies of scale and to be successful, business process reengineering projects need to be top down, taking in the complete organization, and the full end to end processes. It needs to be supported by tools that make processes easy to track and analyze. (Hunt, 1996. Hammer & Champy, 1993).

VI. CASE PRESENTATION

Attock Petroleum Limited (APL) intends to build a world class infrastructure for the receipt and distribution of petroleum products throughout the country. Every day millions of liters of refined product is received from the refineries through pipelines or road trucks, stored in storage tanks and hundreds of vehicles roll out from the oil installations to travel vast stretches of the Indus Valley, deserts in the south and mountainous ranges in the north to reach its customers.

APL supply chain intends to ensure that each product is delivered to its customers at the right time in the right quantity and quality.

VII. BUSINESS PROCESS RE-ENGINEERING AT COMPANY

It is suggested that the whole process should be re-engineered and technological advancements should be used to help develop better mechanism for the company. e.g one major issue is that retailers illegally purchases fuel from other sources because of several un avoidable reasons, which in

return effects the profits of the company. so if the company opt for installation of auto tank gauging at all its retail outlets and a centralized data acquisition center, logistic department will get a real time picture about stocks at all its locations.

Also it will benefit to get first hand information of fuel levels at stations, so the logistic department can arrange for the supply in advance and avoid the station to get dry. Another addition which may benefit the company is to install tracking system on all its fleet vehicles. This will help supply chain department to figure out the actual time required by a particular fuel to get to its location, when in transit.

VIII. AIM OF BUSINESS PROCESS REENGINEERING

It is proposed to introduce vehicle tracking system, Auto tank gauging and other technological advanced equipment for effective utilization of resources. By these additions, product adulteration and or theft of fuel can also be controlled and it will definitely help company to gain customer satisfaction and capture better market share.

Supply Chain Cycle (Product Receipt)

Step#	Event description	Process Title
1.	All OMCs raises their demand every month to the refineries across Pakistan, based on their respective forecasted sales, storage capacities, shutdowns, etc.	Product demand
2.	All refineries issue a product allocation sheet that depicts the volumes up liftments for every OMC. Refineries are bound to follow the regulations imposed by Oil and Gas regulatory authority (OGRA) and Oil companies advisory committed (OCAC).	Product allocation
3.	The product is then transferred to OMC's terminals through pipelines, tank trucks etc.	Product receipt

Supply Chain Cycle (Product Dispatch)

Once the product is received at OMC's terminals it is dispatched to its customers including its retail network, power generation companies, industries, Pakistan Army etc. Steps involved in this cycle is as under

Step#	Event description	Process title
1.	Payment in advance by the customers by mean of payorder, demand draft etc. in favor of APL.	Product Payment
2.	APL logistic section arranges for the suitable vehicle as per product volume, area of disptach etc.	Logistic
3.	Issuance of PUA (Product up liftment authorization) to the customers representative by APL finance section at terminal.	Invoicing
4.	The PUA is then transferred to the APL operations department for filling of product into tank truck. The product in exact volume is handed over the customers representative after sealing truck outlets valves.	Operations
5.	The tank truck then leaves the terminal for its designated location.	Transshipment
6.	Product is off loaded for onward utilization.	Product delivery

Human Resources

#	Designation	No of staff	Process title	Department	Location
1.	Business support officer	57	Invoicing & Product payment	Finance	All
2.	Executives	26	Invoicing, Product payment, Logistics, Opearitions,	Finance, Logistics, opearitions	All
3.	Sr. Executives	07	Product demand, logistics, Operations	Supply chain	All
4.	Assistant Manager	03	Product demand, Invoicing	Supply chain	Head Office
5.	Managers	02	Operations, Product demand and receipt	Supply chain	Head Office
6.	Assistant General Manager	01	Supply chain cycle	Sales & Marketing	Head Office
7.	General Manager	01	Finance	Finance and Accounts	Head Office
	Total	97			

IX. METHODOLOGY

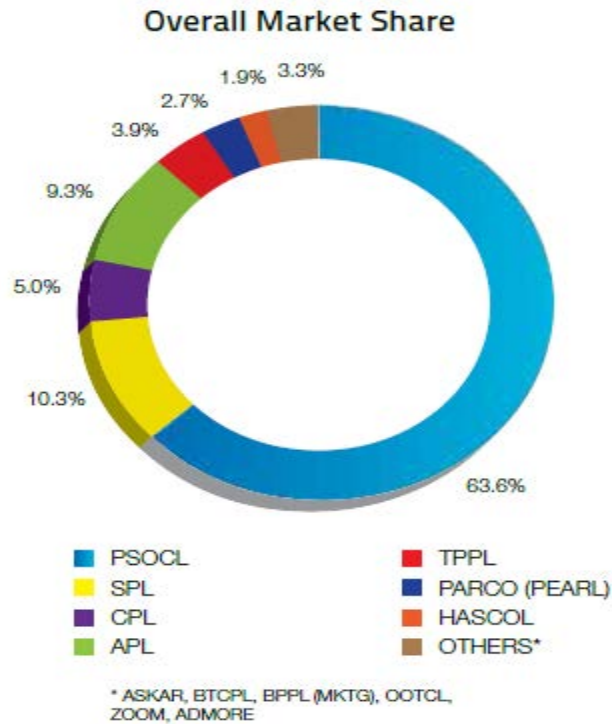
Data has been collected through unstructured interviews from the engineering personnels in the company. Along with that extensive study has been carried out from the existing literature. Company's website is also visited to get information.

X. BUSINESS PROCESS IMPROVEMENT

After proposed reengineering of company's supply chain algorithm, following outcomes / betterments are expected.

- Increase in company's sale volumes.
- Just in time product availability at all sale points which in return increases customers trust in company.
- Better utilization of companys resources

- Deduction in company's operating cost due to involvement of lesser human resources
- Better & advance product sourcing and distribution planning.
- No chance of theft of product during transportation.
- Cost reduction in logistics of product
- Cutting margins of competitor & increasing company's market share



Source: Oil Companies Advisory Committee (OCAC)

- Ensure Quality of product



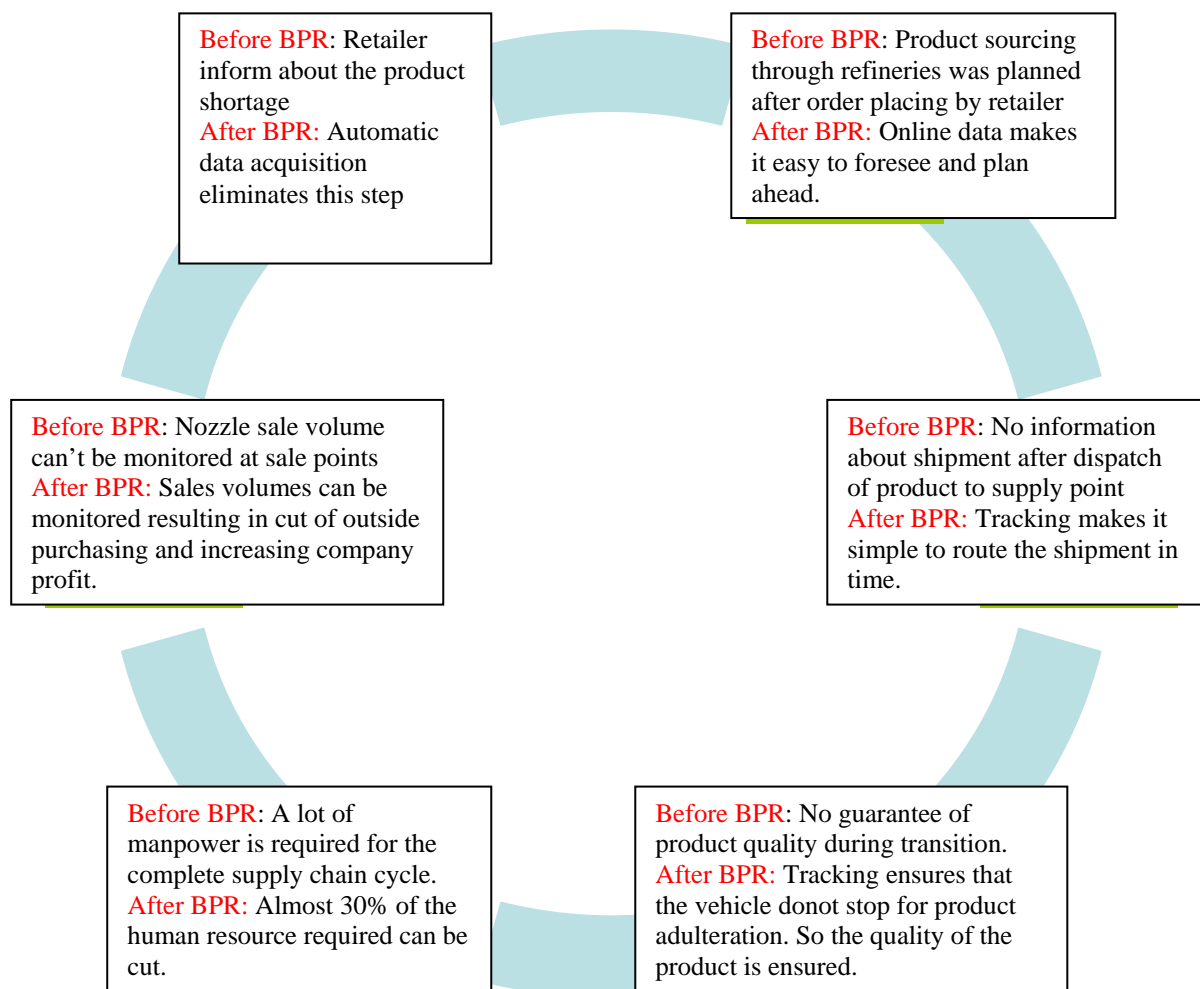
XI. DISCUSSION

By getting the real time data through ATG's installed at storages at company's sale points, the supply chain department can restrict illegal purchasing of retailer and thereby increasing company's sales volumes. It is estimated that the current annual sale volumes of company which are 1,837,357 Mtons of oil for the financial year 2012-13 will increase by approx. 20 % and will close out at around 2.2 Million Mtons of Oil at the end of next financial year.

In marketing gaining customer trust is the first and foremost objective and the ability to ensure product

availability at all times is critical. By implementation of suggested re-engineering, it is presumed that any chance of product unavailability at any of supply point will be eliminated. This is because the supply chain department is getting all the required information about the stock positions through the introduction of auto tank gauging system sitting in head office and they can easily manage to supply the product in time for fulfillment of customers requirements. It is pertinent to mention here that it is obligation on the company to ensure product availability at all its sale points by oil and gas regulatory authority (OGRA) of Pakistan, so in that context this re-engineering will also prove to be helpful in this regard.

Effect of BPR on the supply chain cycle will be as under



Through establishment of central command and control where the data is acquired automatically through online gauging of product and tracking of vehicles will not only decrease the hassle previously involved but will also help in getting the correct authentic data and reduction in the cost of communication.

By introduction of these changes it is expected that the manpower required can be reduced by as much

as 30% thereby resulting in savings for the company and also by mean in automation the precision of data can be achieved.

By mean of this advancement it is assumed that the product sourcing section will get prior information about the upcoming requirements of product and they can arrange for the refineries in advance. The refineries then schedule their plant operations accordingly and the

whole cycle of oil products in the country can be streamlined.

Most of the time, a single vehicle carries oil from depot to multiple source points, so by introduction of this system the logistics department will have the prior information regarding requirements of a particular region and they can plan suitable size of vehicles accordingly. This will reduce the cost of transportation.

Since by introduction of vehicle tracking system the central control and command will be getting the real time data about the movement of fleet vehicles across various supply points, so in case a vehicle reports to some other station for product adulteration / mixing where it is not supposed to go, the same can be monitored. So the risk of adulteration can be minimized. Also it is assumed that by introduction of this change the product theft of thousand of liters every month can almost be eliminated.

Some retailers use to get product through other sources like other OMC's which badly hits the company's profits, so by minimizing this probability it is assumed that the company will increase its market share by 1-2% which is currently around 18-19 % of the total.

By subject changes it is believed that the quality of product at source points can also be ensured as any addition to the product other the product supplied by the company can be easily tracked and monitored on the central control and command center.

XII. CONCLUSION

Reengineering is a complex process that consists of several important elements that companies, wanting to implement it, have to pay attention. (Radosavic, Pasula, Berber, Nebojsa & Nerandzic, 2013).

Re-engineering cannot be implemented without the use of Information Technology. It is also necessary to focus upon the processes rather than functions before starting re-engineering.

The main objective of this case study is to explore the possibilities for improvement in the processes of Attock Petroleum Limited (APL) such as supply chain management with the technique of business process reengineering as the traditional approach is affecting the performance of the company. Unstructured interviews have been conducted to gather the information along with the usage of some secondary sources of data.

By applying BPR techniques that is the installation of auto tank gauging, vehicle tracking system and establishment of centralised data acquisition centres, product adulteration and or theft of fuel can also be controlled and it will definitely help company to

gain customer satisfaction and capture better market share. Also the company would be able to increase its sales volume by 20% and reduce its human resource by 30% thereby resulting in savings for the company.

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