

1 Case Study Business Process Re-Engineering of Supply Chain 2 Activities in Attock Petroleum Limited (APL)

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5

6 **Abstract**

7 Organizations in the modern age are being challenged by many difficulties because of the
8 rapid advancements in technology while using old and traditional techniques for the running
9 of their processes. To increase the competitiveness of the organization and to improve the
10 sustainability of the company, the concept of Business process re-engineering is being adopted
11 which involves the radical redesign of process by tossing aside the existing ways and
12 methods. The main objective of this case study is to explore the possibilities for improvement
13 in the processes of Attock Petroleum Limited (APL) such as supply chain management with
14 the technique of business process reengineering as the traditional approach is affecting the
15 performance of the company. Data has been collected through unstructured interviews from
16 the engineering personals in the company and from the company website.

17

18 **Index terms**— business process re-engineering, supply chain, attock petroleum limited, vehicle tracking
19 system, auto tank guaging(atg), centralised data acquisition

20 **1 Introduction**

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

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

30 Author: e-mail: sabaidrees162@hotmail.com again and no same task is revised thus it is the radical redesigning
31 of all the processes of the organization. It is done to improve the existing condition of the organization by implying
32 new and improved ways thus lowers the cost and improves the profitability of the organization.

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

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

43 According to Briggs and Tolliver (2012) the petroleum industry supply chain is like the supply chain of
44 any other industry, composed of intricate entities that extend from the oil fields to the gasoline stations. The

7 LITERATURE REVIEW

45 upstream petroleum supply chain has always been considered complex compared to other process industries, such
46 as pharmaceuticals. However, the logistics function is one of the areas that affect supply chain performance in
47 the petroleum industry.

48 2 II.

49 3 Company's Profile

50 APL is the 3 rd largest oil marketing company of Pakistan after Pakistan state oil (PSO) and Shell and was
51 established in 1998. The main aim of the company is to continuously provide quality and environment friendly
52 petroleum products and related services to industrial, commercial and retail consumers, and exceeding their
53 expectations through reliability, A economy and quality of products and services. APL is committed to benefiting
54 the community and ensuring the creation of a safe, responsible and innovative environment geared to client
55 satisfaction, end user gratification, employees' motivation and shareholders' value.

56 4 III.

57 5 Company's Operations

58 APL is procuring its product from Attock Refinery Limited, National Refinery Limited, PARCO refinery and
59 imported product through Jetty. Currently the company is operating from the following supply points.
60 ? Rawalpindi ? Machike. sheikhupura ? Karachi ? Gatti, Faisalabad ? TarruJabba, Peshawar ? Vehari, Sindh
61 ? Mehmood kot, Muzzafargarh ? Shikarpur, Sindh ? Habibabad, Lahore IV.

62 6 Problem in Companys Process

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

68 V.

69 7 Literature Review

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

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

76 According to Aghassi (1994), the process reengineering often seem as one of the tools to justify the
77 organizational business processes. Davenport himself describes business process reengineering as "the fad that
78 forgot people".1990's have been a decade of retrenchment in spite of enlargement for most businesses, and found
79 that in fact US,UK and German organizations change in size enlarger rather than organizations which appear to
80 occupy the reengineering .

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

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

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

89 Common fundamental approaches highlighted supply chain management, business process reengineering,
90 business process improvement philosophies. It is argued that those who work with supply chain management
91 in their businesses, have already undergone business process reengineering and therefore reengineered their own
92 processes, so the business process reengineering and supply chain management traveled the same path far ago.
93 Once businesses integrated supply chain management, they processed with the greatest benefits. (Wisnosky,
94 Dennis & Batteau, 1990) According to global supply chain forum ,it is integration of key business processes from
95 end user through original suppliers that provide products, services ,information that add value for the customers
96 and other stakeholders. (Chan & Qi, 2003).

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

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

105 **8 VI.**

106 **9 Case Presentation**

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

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

114 **10 VII. Business Process Re-engineering at Company**

115 It is suggested that the whole process should be re-engineered and technological advancements should be used
116 to help develop better mechanism for the company. e.g one major issue is that retailers illegally purchases fuel
117 from other sources because of several unavoidable reasons, which in return effects the profits of the company. so
118 if the company opt for installation of auto tank gauging at all its retail outlets and a centralized data acquisition
119 center, logistic department will get a real time picture about stocks at all its locations. Also it will benefit to
120 get first hand information of fuel levels at stations, so the logistic department can arrange for the supply in
121 advance and avoid the station to get dry. Another addition which may benefit the company is to install tracking
122 system on all its fleet vehicles. This will help supply chain department to figure out the actual time required by
123 a particular fuel to get to its location, when in transit.

124 **11 VIII.**

125 **12 Aim of Business Process Reengineering**

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

130 **13 Supply Chain Cycle (Product Receipt)**

131 Step# Event description Process Title 1.

132 All OMCs raises their demand every month to the refineries across Pakistan, based on their respective
133 forecasted sales, storage capacities, shutdowns, etc.

134 Product demand

135 **14 2.**

136 All refineries issue a product allocation sheet that depicts the volumes up liftments for every OMC.

137 Refineries are bound to follow the regulations imposed by Oil and Gas regulatory authority (OGRA) and Oil
138 companies advisory committee (OCAC).

139 Product allocation

140 **15 3.**

141 The product is then transferred to OMC's terminals through pipelines, tank trucks etc.

142 **16 Product receipt**

143 **17 Supply Chain Cycle (Product Dispatch)**

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

146 Step# Event description Process title

147 **18 Methodology**

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

151 19 X.

20 Business Process Improvement

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

- 155 ? Increase in company's sale volumes.
- 156 ? Just in time product availability at all sale points which in return increases customers trust in company.
- 157 ? Better utilization of company's resources
- 158 ? Deduction in company's operating cost due to involvement of lesser human resources
- 159 ? Better & advance product sourcing and distribution planning.
- 160 ? No chance of theft of product during transportation.
- 161 ? Cost reduction in logistics of product
- 162 ? Cutting margins of competitor & increasing company's market share
- 163 ? Ensure Quality of product

164 21 XI. discussion

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

170 In marketing gaining customer trust is the first and foremost objective and the ability to ensure product
171 availability at all times is critical. By implementation of suggested re-engineering, it is presumed that any chance
172 of product unavailability at any of supply point will be eliminated. This is because the supply chain department
173 is getting all the required information about the stock positions through the introduction of auto tank gauging
174 system sitting in head office and they can easily manage to supply the product in time for fulfillment of customers
175 requirements. It is pertinent to mention here that it is an obligation on the company to ensure product availability
176 at all its sale points by oil and gas regulatory authority (OGRA) of Pakistan, so in that context this reengineering
177 will also prove to be helpful in this regard. Through establishment of central command and control where the
178 data is acquired automatically through online gauging of product and tracking of vehicles will not only decrease
179 the hassle previously involved but will also help in getting the correct authentic data and reduction in the cost
180 of communication.

181 22 Effect of BPR on the supply chain cycle will be as

182 By introduction of these changes it is expected that the manpower required can be reduced by as much as
183 30% thereby resulting in savings for the company and also by means of automation the precision of data can be
184 achieved.

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

188 23 D

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

192 Since by introduction of vehicle tracking system the central control and command will be getting the real time
193 data about the movement of fleet vehicles across various supply points, so in case a vehicle reports to some other
194 station for product adulteration / mixing where it is not supposed to go, the same can be monitored. So the
195 risk of adulteration can be minimized. Also it is assumed that by introduction of this change the product theft
196 of thousand of liters every month can almost be eliminated. Some retailers used to get product through other
197 sources like other OMC's which badly hits the company's profits, so by minimizing this probability it is assumed
198 that the company will increase its market share by 1-2% which is currently around 18-19 % of the total.

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

202 24 XII.

25 Conclusion

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

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

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

212 By applying BPR techniques that is the installation of auto tank guaging, vehicle tracking system and
213 establishment of centralised data acquisition centres, product adulteration and or theft of fuel can also be
214 controlled and it will definitely help company to gain customer satisfaction and capture better market share.
215 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. ^{1 2}



Figure 1: Year 2015 Global

216

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²Case Study Business Process Re-Engineering of Supply Chain Activities in Attock Petroleum Limited (APL)

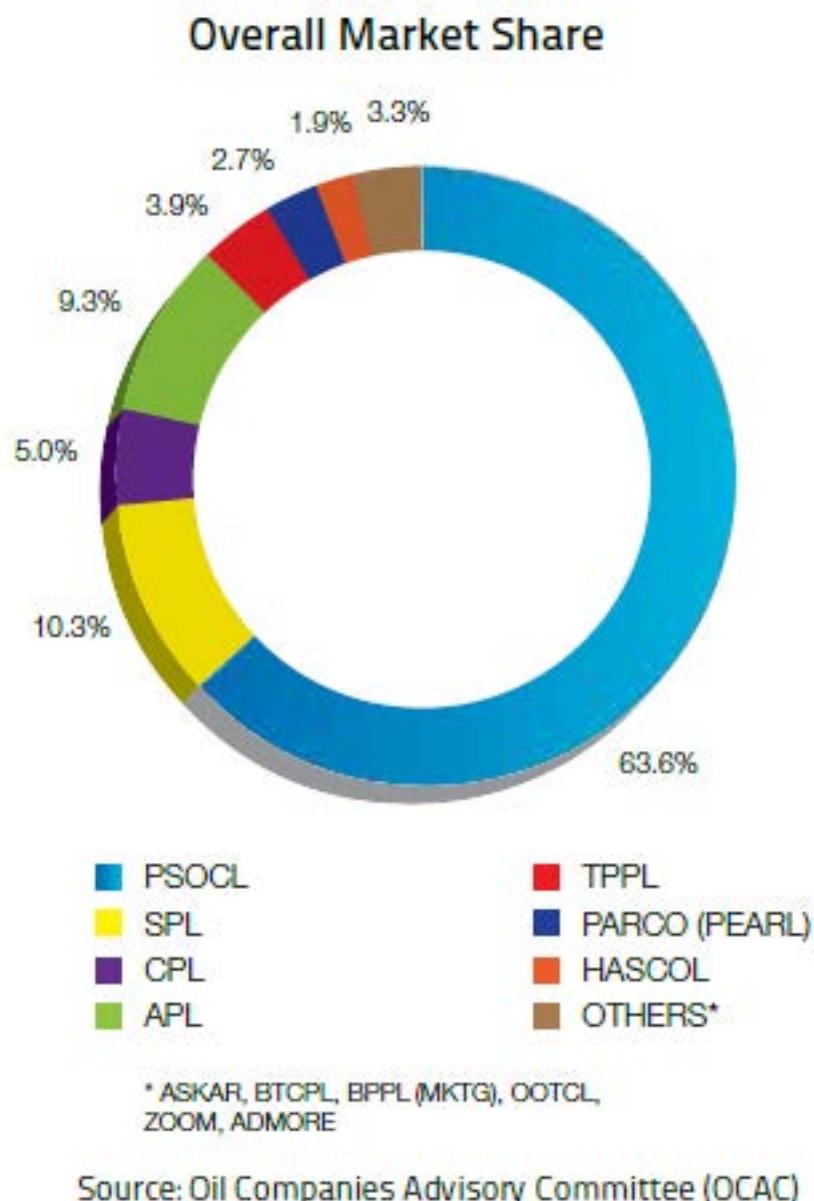


Figure 2:



7

Company Information | Annual Report 2013

Figure 3:

Figure 4:

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