

Chapter 7

Collaborative Web for Natural Resources Industries

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ABSTRACT

“Information is a strategic asset,” claimed the evangelists in the last decade of 20th Century. This paradigm has become a commonly known fact today. It needs no reiteration that everyone appreciates the significance of managing the information and knowledge in the organization. However, the philosophy has transcended organizational boundaries to take into its fold the entire stakeholder network of the organization.

The Petroleum and Mining industries work along with various external entities for strategic planning, execution, and control purposes. These entities could belong to either the business or governmental realm. It is the collaboration with these external entities across the value chain that can be positively affected by the Web. Leading organizations like petroleum super-majors and large mining companies have already started utilizing Web for some near real-time and batch-mode interaction with the external entities. However, they have touched only the tip of the iceberg. The collaborative Web has tremendous potential to further enhance their operational efficiencies. Many of these enhancements are beyond our imagination today. However, some have already been visualized, but are yet to be implemented at a wide scale.

The roles of these external entities span across various functions of the core value chain. This chapter focuses on collaboration in the core functions like geo-sciences, engineering, production operations, supply chain, transportation & logistics, equipment maintenance, materials management, sales and marketing, and environment health and safety (EH&S) etc.

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INTRODUCTION

This chapter aims to cover the following aspects:

1. Current status of web-based collaboration (encompassing both internet as well as corporate intranet) along different categories of companies like Oil super-majors, National Oil Companies (NOCs) and International Mining companies
2. Potential that web holds for enabling the core functions across the natural resources value chain
3. Insights into the technological aspects of collaborative web (or web 2.0) that can be leveraged by the natural resources companies
4. Potential contribution to collaboration by the industry data exchange standards like PRODML and WITSML (for Petroleum industry managed by Energistics)

To maintain the focus, this chapter focuses on the core value chain operations and excludes other support functions like finance and human resources that are also undergoing significant collaboration with outsourcing service providers like BPOs.

This chapter is based upon author's experience in the operations, management and IT consulting related to the petroleum and mining industries.

BACKGROUND

The natural resources industries occupy a pivotal position among various industries, as the supply of raw materials and energy is fundamental to running operations across the industrial landscape. In this chapter, the term "natural resources" refers to the Oil & Gas and Mining industries.

Let us understand the Oil & Gas value chain first. This information will help in better visualization of the processes and hence, appreciating the value of web based collaboration. Figure

1 represents the macro-view of the petroleum value chain.

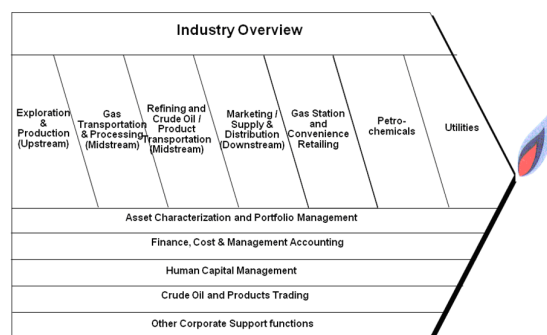
The Upstream petroleum segment covers the exploration, development and production of crude oil and / or gas. This segment has a plethora of business entities working together in a networked manner. For instance, many a times, the oil fields are co-owned by upto 3 or 4 companies in order to hedge the individual risk and gather resources and investments. The business interactions and transactions among these companies can be improved using the web. Several suppliers, vendors and oil field services contractors work with the upstream oil companies and this chapter later describes how collaborative web can increase the efficiency among these players.

Figure 2 further details out the Upstream Oil & Gas supply chain and the various functions therein.

The produced crude oil and/or Gas have to be processed, distilled and refined in order to obtain products like Liquefied Petroleum Gas (LPG), Naphtha, Petrol, Diesel, Kerosene, Aviation Oil, Lubricants, Asphalt, Petrochemicals, Aromatics etc. This work is carried out in refineries and downstream petrochemical plants. These petroleum products are then transported through rail, road, marine or pipeline channels. The product movement from the refinery to the product terminals is termed as "Primary Distribution" and from the product terminals to depots / customers

Figure 1. Value Chain of Oil and Gas Industry

Value Chain: Oil and Gas Industry



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