

Energy Issues

IEP Newsletter

Supply Chain Management (SCM) in the Oil & Gas Industry

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Supply Chain Network:

“...a network of companies/corporations in different locations and involved in product design, manufacturing, and delivery to customers and/or end-users...”

Supply chain management represents one of the important issues facing the oil and gas industry today. It needs to be managed effectively and efficiently in order to attain the optimized results and achieve the strategic, middle management and operational objectives that reflect our business needs.

What is the supply chain?

Behind every product there is a supply chain. And over the years the concept of the supply chain has evolved. The supply chain network is now defined as *A network of companies/corporations in different locations and involved in product design, manufacturing, and delivery to customers and/or end-users e.g. food, aerospace, electronics, computers, etc.* Components may be sourced from several countries, assembled in another country, and distributed to the customer all over the world. Note that for most organizations there is no one who coordinates the relationships among the various supply chain entities.

The supply chain network is comprised of the following sub-networks and actors.

Primary Sub-Networks:

- **Logistics Network** – provides a streamlined material flow between all partners, reducing lead time and cost
- **Communications Network** – it provides information integration between

companies of the supply chain network.

- **Financial Network** – connects all the institutions providing funds, letters of credit and insurance.

Additional Sub-Networks:

Demand Sub-Network – consists of manufacturing, distribution, retailing, logistics and finance.

Supply Sub-Network – consists of suppliers, manufacturers, inbound logistics, financial institutions and freight companies.

Service Sub-Network – connects customers with suppliers and manufacturer after sales service centers.

There are three (3) fundamental **Business Processes** impacted by these networks.

- **Procurement** – sourcing raw materials and components from the suppliers, delivery scheduling and inventory management.
- **Manufacturing** – could be in a single location or geographically distributed.
- **Distribution and retail** – consists of packaging, transportation and warehousing. Options include direct shipping or outsourcing to third parties.

Any change in the information, material or financial flows in the supply chain represents a risk needing to be managed effectively and efficiently. These changes can:

Supply Chain Management (SCM) in the Oil & Gas Industry *(continued)*

- Create a mismatch between the supply and demand
- Effect the supply chain functioning efficiency and output
- Cause company cutbacks or closure

The objective, therefore, of *Supply Chain Management (SCM)* is to reduce vulnerability to adverse changes by identifying and managing the risks, in coordination with supply chain partners. With the objective identified, our focus will be on relevant strategies that have improved performance, efficiency and the tangible benefits of the oil, gas and related industries.

Vertical Integration: One-stop shop¹

Consolidation is particularly effective in lowering costs and simplifying contractor management. A combining of equipment, software and engineering, or other combinations of service offerings, can unlock significant value for customers.

Services and equipment purchases are frequently outsourced to a variety of providers, which results in complexity and a fragmented supplier base. Multiple companies are now bringing these services in-house, consolidating them with integrated offerings, thereby reducing coordination costs. This can lead to savings of up to 30 percent. For example, Schlumberger's SIS (*Shale Index Sector*) division is offering a software structure based on its *Petrel* software platform. This allows an operator to develop a view of the potential for oil and gas in a reservoir, model the field, plan the wells, and complete the design.

While companies are developing integrated offers in-house, many also are partnering or merging with others to provide a wider range of services. In the

subsea sector, Cameron (CAM) and Schlumberger (SLB) formed the One Subsea Alliance in 2013. It offers reservoir-to-surface services, integrating SLB's reservoir and well technology with CAM's wellhead and surface technology (sensors, controls, software, and analytics), to create complete drilling and production systems, thereby gaining annual cost and revenue synergies (savings) estimated at US\$600 million per year.

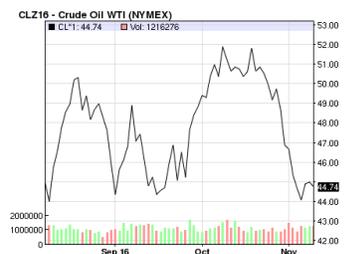
Another recent and major convergence was FMC Technology with Technip, announced on May 19, 2016, aimed at redefining the way subsea fields are designed, delivered, and maintained. This merger allowed the combined companies to offer a comprehensive suite of subsea equipment and service, including engineering, procurement, construction and installation. The companies announced significant projected savings of US\$200 million in 2018, and at least US\$400 million in 2019 and beyond. This would be achieved through a combination of supply chain efficiencies, real estate and infrastructure optimization, and organizational efficiencies.

A further example of Supply Chain Management in a related industry is highlighted in the *US Petrochemical Supply Chain Market Outlook*². Though more shielded from crude oil price fluctuations, the petrochemical industry is still at risk from price volatility, infrastructure bottlenecks, labor supply shortages, market access constraints, environmental and other regulations affecting licensing, and market imbalances created by variations in regional supply/demand growth.



"A combining of equipment, software and engineering... can unlock significant value for customers."

"Though more shielded from crude oil price fluctuations, the petrochemical industry is still at risk from price volatility..."



*Nymex Crude Oil Price
(Courtesy of NASDAQ)*

Supply Chain Management (SCM) in the Oil & Gas Industry *(continued)*

While there are many factors and risks at play, China's demand and capacity additions are one of the biggest wild cards in the market moving forward. Over the last 6-8 months, even as the oil price has come down substantially and global economic growth has softened, Chinese producers have not taken non-competitive assets out of production and are instead pushing cheap petrochemical material into the market. Moreover, China's economic growth is set to edge down further, from 6.5% in 2016 to 6.2% by 2017, according to the OECD, while the global economy will continue to be stuck in a "low growth" trap. GDP growth in 2016 is projected to stay the same as in 2015 (3%) and in 2017 GDP growth is forecast at 3.3%.

In this supply-demand scenario, as new plants continue to come on line there is going to be more pressure on the overall system, requiring stronger cost control on investments and logistics. Moving forward, excess capacity in oil, petrochemicals and other commodities, as well as some basic industries, could also pressure prices downward, hurting producers, particularly those with high production costs.

Much of this will hinge on global GDP growth, as well as the supply and demand for petrochemicals. Looking further ahead, real GDP growth is projected to be higher, on average, in the 2010s compared to the 2000s in the United States, the United Kingdom, Japan and India.

Real GDP growth is forecast to slow down in the 2020s from 2010s levels in the U.S., Japan, Russia, China and India, according to the American Chemistry Council (ACC).

Risk Factors:

It goes without saying there is a series of risks that can impact SCM and need to be considered. These include:

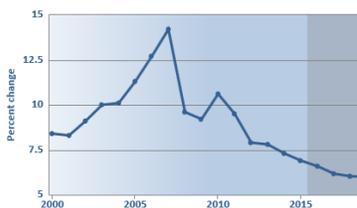
- The stability of the political financial and economic systems, especially in emerging economies.
- Continued volatility, or even further drop, in oil and other commodity prices.
- Stronger deflationary pressures, along with a potential financial sector outfall, or continued negative interest rates.
- Economic forces (low productivity growth, etc.) could keep interest rates low or further depress them in the US and other countries.
- The strength of the US dollar against other benchmark currencies.
- Public sector debt in advanced nations could adversely impact demand.
- Low capital investment and low diffusion of technological innovation.

Summary:

The concept of Supply Chain Management has been demonstrated to be effective and efficient, while providing significant monetary savings and other benefits, including stability against potential disruptions. As with any strategy, there are risks and variables that need to be addressed and assessed in its development.

References:

1. McKinsey & Company article on "Five strategies to transform the oil and gas supply chain" Oil & Gas July 2016;
2. Petrochemical Update "US Petrochemical Supply Chain Market Outlook" Key outlook in the North American petrochemical supply chain and export logistics market in North America in 2016-202



China – Real % GDP Change
(Courtesy Koema.com)



"...Supply Chain Management has been demonstrated to be effective and efficient, while providing significant monetary savings and other benefits, including stability against potential disruptions."



Connect with Other PEMs

By: IEP Staff Writer

Networking with other energy professionals is a critical component to staying abreast of developing technologies and maintaining successful energy programs and policies. With more than 500 PEMs having been certified, there is a wealth of energy-related experience and knowledge available to you.

LinkedIn, the world's largest professional network, is a mechanism that we may use to connect with one another. If you have not already signed on the LinkedIn we encourage you to consider joining. By joining you will have access to energy professionals around the world. When you join be sure to list your status as a Professional Energy Manager (PEM) in your profile.

LinkedIn – *The world's largest professional network*

IEP Renewal Policy

By: IEP Staff Writer

(In response to a number of inquiries, the PEM renewal policy has been outlined below. The policy and sample form can be found at the IEP website www.theiep.org.)

Note: Last year IEP revised its PEM certification renewal procedure to a quarterly basis. It has taken approximately a year to convert everyone to this schedule.

Notifications for renewals are sent to individuals approximately 45 days prior to their renewal date. Domestic renewals are sent via US postal service. International renewals are sent electronically, since delivery by standard mail service cannot be assured. Therefore, it is essential that contact information be kept up to date.

Renewal is based upon a ten (10) point system. Points are accrued over the three year period of your certification. Five (5) points are granted by continued activity in the energy field. The remaining points are achieved through additional training, participation in professional organizations, making presentations, and publishing articles/papers in journals/newsletters. IEP reserves the right to allocate points for items/activities that do not readily fit into these categories, but meet the policy intent. Requests for inclusion should be sent to IEP via e-mail.

Renewal, on or before your certification expiration date, requires submittal of the completed form and the renewal fee (US\$150.00). Payment can be made by check or by credit card (at the IEP homepage payment portal). Renewal requests after a certification has expired, but prior to the end of the following month, will be subject to a late fee of US\$50.00. Certification renewal requests received 30 days after an expiration date will require re-examination.



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