

Innovations and External Growth Strategy: The Case of Oil and Gas Supply and Service Companies

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This work is concerned with the wave of consolidations that the upstream oil and gas service and supply industry has been going through since 1990. Scores of companies in this sector have relied on an external growth policy designed to reinforce their core business, to broaden their range of services, and to fully revamp their operations. The oil and gas service and supply sector today is distinguished by the existence of an oligopoly formed of three majors (Baker Hughes, Halliburton and Schlumberger) and numerous smaller oil and gas service businesses that we will call the “competitive fringe”. The evolution of this industrial sector is characterized by the fact that every company that implements an innovation is imitated by one or more competitors. To show this phenomenon in the sector we study, we rely on Schumpeter’s work (1942).

The Work of Schumpeter on the Evolution of an Industrial Sector: A Short Synopsis

According to Schumpeter, companies implement strategies via different levers: by influencing the number of companies, by differentiating between products and/or factors of production, by erecting barriers and by controlling the flow of information.

The author lumps these strategies under a single name: innovation, and the development process of capitalism is driven by five types of innovation:¹ the production of a new product, (of better quality or designed to respond to new demand), the introduction of a new production or marketing method, the opening of a new market, the use of a new raw or intermediate material and the establishment of a new organization.

The Schumpeterian cycle hence begins with the establishment of an innovation by an entrepreneur and the search for monopoly power (new product, new process, new market, new source of raw material or new form of organization). This innovation enables the firm to increase its profits. Then competing (or potentially competing) companies imitate the innovation. Hence it is at this stage that the followers appear. The innovation thus becomes ordinary, with the result of lower profits for the competing companies.

This illustrates a strategic pattern of the “leader – follower(s)” type. Then the same company, or a competing firm, assumes the leadership role to innovate and within a variable period of time, it is imitated by competitors.

Innovations and “Leader – Follower” Pattern in the Oligopoly (Baker Hughes, Halliburton and Schlumberger)

We identified four major innovations that have occurred recently in the oil and gas supply and service sector. These innovations were initially launched by one of the three leading firms and were quickly imitated by the other two.

The first of these innovations is organizational. It occurred in the late 1980s, a few years after the 1986 oil aftershock, and consisted of the firms’ redefinition of their

activity portfolios. This development resulted from a sector crisis that accompanied a slump in crude oil prices which led the oil companies to drastically cut their exploration-production budgets, the main source of income of the supply and service companies. Faced with a declining market, the supply and service companies were forced to draw up restructuring plans driven by the more efficient utilization of their production capability.

The company that emerged as the leader in this innovation is Halliburton, which refocused on some of its activities from 1986 to 1989, and consolidated by absorbing other trades. Reinforced activities included drilling fluids with the creation of a joint venture in 1986, M-I Drilling Fluids, with a division of Dresser, and seismic business (acquisitions of Gearhart Industries and 60% of GSI in 1988, and Sierra Geophysics in 1989). This strategy was speedily imitated by Baker Hughes in 1987 and until 1994. Baker Hughes wanted to preserve operations offering attractive margins, as well as those in which the group was number one or two worldwide and for it, reinforced its submersible pumps activity (acquisition of Edeco in 1989), instrumentation (acquisitions of Vetco Gray in 1987, Bird Machine in 1989, Tracor and Elder Oil Tools in 1990) and chemicals (acquisitions of Chemlink and Ceda Reactor in 1990). The same development pattern was witnessed at Schlumberger between 1988 and 1993, which reinforced its information systems², seismic and 3D software³, wireline logging and measurements during drilling activities, as well as cementing. The group also sold its defense and graphic operations in 1988.

Thus for this innovation, which consisted in setting up a new organization (by altering the operational frontiers of the firms), we have a “leader – follower” pattern, or more precisely a “one leader – two followers” pattern, which recurred in the three developments described below.

The second innovation occurred between 1992 and 1996 and, for the three firms examined, consisted in broadening the range of services supplied in order to propose an integrated service. This innovation was driven by the demand of the oil companies, which decided to subcontract more operations to the supply and service companies. This innovation has offered the supply and service companies a new market and encouraging the implementation of new working methods, materialized by the search for alliances and partnerships.

The company that played the leader role among these three firms is Baker Hughes, which created the Baker Hughes Inteq division, which led to the supply of integrated services and the search for partnerships with oil and gas clients. The competition promptly responded. In 1994, Halliburton created the Halliburton Energy Services division, which combined all the energy operations of the group. This customer oriented strategy was accompanied by an internal restructuring that caused the group to sell off its geophysics operations and create Halliburton Drilling Systems, including the directional drilling operations. The implementation of this strategy was initially less pronounced at Schlumberger, although in 1994, the group organized itself into 11 world scale product lines, with closer attention paid to customers, the aim of the strategy being to shorten the product development cycle.

The third innovation that we consider corresponds to major mergers and acquisitions which occurred in 1998 (Table 1). Halliburton first set the example by acquiring

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¹ See footnotes at end of text.

Dresser in February 1998 in order to propose completely integrated services, quickly followed by Baker Hughes in May which bought Western Atlas, world leader in geophysics.

Table 1: Mega-Mergers in the Oil and Gas Supply and Services Industry in 1998

Buyers	Targets	Amount
Baker Hughes	Western Atlas	5.5 G\$
Halliburton	Dresser	9.0 G\$
Schlumberger	Camco	3.1 G\$

As to Schlumberger, the acquisition of the US Camco offered it a niche in which the group was not yet positioned, the drilling tools sector. Following this operation, Schlumberger covered all the trades in geophysics and drilling (and borehole associated services).

This race to bigness has sparked a wave of asset sales and refocusing : Schlumberger sold its offshore drilling operations in 1999. Baker Hughes, in 2000, sold the seismic assets it acquired in 1998. This sale led to the creation of a joint venture (Western Geco, 30% owned by Baker Hughes and 70% by Schlumberger). Similarly, Halliburton sold Dresser Equipment Group in 2000 as part of a refocusing on its core business.

Developments in e-business and the advent of the new economy appears to be the fourth innovation witnessed by the oil and gas supply and service sector. However, it is still difficult to have an overall grasp of the situation since it is still in the early stages. We can simply highlight that Schlumberger played the leader role in setting up this new marketing method, with the creation of “indigopool.com” in January 2000. Emulating Schlumberger, Halliburton acquired 15% of Petroleum Place in August 2000, a specialist on the Internet in the market for asset acquisitions and divestitures in the oil and gas industry.

These four mutations were chiefly achieved by relying on an external growth strategy that enabled them speedily to acquire the expertise held by others.

Repercussions on the Overall Oil and Gas Supply and Service Industry

We have adopted the following assumption for the competitive fringe: the company growth mode reflects a “3 leaders – many followers” logic, according to which the three oligopolistic firms are now the leaders and all the smaller companies are the followers. Now we test this hypothesis and determine to what extent such a development pattern has been pursued by the competitive fringe.

Increased size has undeniably been a strategic objective largely adopted by the drilling and geophysics companies since 1990. 83% of the firms have increased their production capacity. And this applies to drilling and geophysics companies alike. This growth chiefly occurred by external growth. This strategy enables the companies using it to boost their production (or services) capacity rapidly. For example, Nabors Industries, a drilling firm, which made 15 external growth operations since 1990 has seen its number of drilling rigs in activity rose from 111 in 1990 to 542 in 1999.

The second trend in the companies making up the competitive fringe is the broadening of the range of services. 50% of the companies have pursued such a strategy. Unlike the companies of the oligopoly, this integration of services

rarely extends beyond the initial segment to which the firm belonged: for a seismic firm, it first tries to propose comprehensive seismic services (and similarly for drilling companies). For example, the Norwegian firm Petroleum GeoServices broadened the range of its services in 1993 with the acquisition of Tensor (large acquisition and processing capabilities) and the acquisitions of ERC, Mapware and Woodlands, which enabled the PGS group to develop seismic software operations. Between 1994 and 1998, PGS extended its services to seismic acquisition in shallow waters following the acquisition of the assets of Eastern Geophysical and Northern Geophysical and of the firm Acadian. Today, like CGG, PGS is active in every aspect of seismics (acquisition, processing, interpretation, data management, software, etc). This development is also significant in the drilling industry.

Examples of e-business in the competitive fringe are still hard to find. The only significant example is the creation of an electronic portal (OFS Portal) in partnership with 11 service industry companies⁴. The aim of this joint venture is to supply a standardized electronic catalog to the customers as well as an information service on products and services offered by the participants.

To conclude, service industry companies on the competitive fringe follow the strategic moves of the oligopolistic firms. Yet the imitation is not clearly and distinctly perceptible in terms of time. Imitation takes place with a certain lag, which varies according to the innovations.

Consolidation Prospects of the Oil and Gas Supply and Service Sector

Drilling is a market left vacant by the oligopoly, and this is why we will very probably witness a new wave of consolidations in the drilling sector. This trend has already begun with the attempt to buy R&B Falcon by Transocean Sedco-Forex in 2000. This will place the new firm in the top rank worldwide offshore drilling.

Moreover, the acquisition of the Baker Hughes seismic operations by Schlumberger in 2000 was perceived as an offensive maneuver by the geophysics companies in the competitive fringe. To strike back, it is also very likely that these seismic firms will seek consolidation through large scale mergers. Why not imagine a merger between CGG, PGS and/or Veritas?

Thus it appears clearly that the oil and gas supply and service sector has not yet completed its restructuring, and that the wave of consolidations will continue in the coming years, in the patterns that we have described.

Insofar as a few firms dominate the industry, they serve as a “test” in strategic terms for smaller companies. This was in fact what Porter said (1982) when he stated that the competitive battle between the groups of the industrial sector is one of the types of competition. Thus the developments discussed above offer an original justification for the concentration of a sector. The results that we obtain enable us in fact to justify the wave of consolidation of the companies by the fact that they emulate the strategies implemented by competing firms.

Footnotes

¹ Schumpeter does not overlook the role played by transforma-

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tions of the social and natural environment (like wars and revolutions) of economic life in the evolution of capitalism. Nor does he overlook the growth of population and capital, or the role played by monetary systems. However, the basic impetus is the implementation of the innovations as he defines them.

² Creation of a research laboratory in Austin because of the growing use of softwares and computers in oil and gas service operations. Similarly, Schlumberger acquired Geoquest Systems in 1992.

³ Acquisitions of 25% of GECO in 1988, of Sonics in 1989, of Deft Geophysical in 1990, of 51% of Prakla-Seismos in 1991 and Seismograph Service in 1992. This wave of seismic acquisitions followed a first wave which began before the oil aftershock.

⁴ ABB, BJ Services, Cooper Cameron, ENSCO, FMC, Halliburton, National Oilwell, Schlumberger, Smith International, Transocean Sedco-Forex and Weatherford. The interesting point is that the three service industry majors participate in this joint venture.

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ANNEX 1: THE THREE LEADERS IN THE OIL AND GAS SUPPLY AND SERVICE INDUSTRY

➤ Size of the three majors

31/12/1999	Stock market Capitalization on 8/4/2000 (M\$)	Income (M\$)	Asset Value (M\$)	Workforce (thousands)	International Presence
Halliburton (United States)	21427	14898	10728	103	Active in 122 countries, including the United States (32% of income) and the United Kingdom (12%).
Schlumberger (United States – France)	44289	8395	15081	55	Internationally active. For oil and gas services, North America accounts for 25% of income and the Europe/ CIS/West Africa zone 23%.
Baker Hughes (United States)	12073	4547	7040	27	Active in 70 countries, including the United States (37% of income), the United Kingdom (9%) and Norway 6%).

Source: 1999 annual reports

➤ Integration of the majors

Source: Annual Reports & IFP

	Geophysics			Drilling - Equipment associated services and							Engineering and offshore operations					99 income (G\$)
	acquisition	Processing	interpretation	rilling	Logging	Mud Logging	WD Deviation	rilling fluids	Cementing- Stimulation	Drill bits	Engineering	Construction	Installation	Pipelaying	Subsea operations	
Halliburton																14.9
Schlumberger																5.9*
Baker Hughes																4.5

* "Oil and gas services" income