CHAPTER 1

Introduction

1.1 General Background

Enterprise Performance Measurement and Management System (EPMS) and flexibilities are becoming important in view of globalisation, increasing competition and complexities of the businesses. The effectiveness and maturity of an EPMS will depend on how it is designed, implemented, used by the stakeholders including top management, and is able to improve performance of an enterprise. The present study on the effectiveness of EPMS incorporating flexibilities has been carried out in the context of Indian upstream oil industry.

Major corporations, new start-ups and multi-national companies are grabbing newer opportunities in Indian oil industry, particularly in the upstream oil sector (oil and natural gas exploration and production) which is thrown open with liberalization and globalization policy of government of India. Many existing oil companies and multi-national corporations (MNCs) are now diversifying in oil exploration and production business and also in the process of merger and acquisition in India and abroad. The present study is limited to Indian corporations and MNCs operating in India in upstream oil sector.

Enterprise performance measurement and management exist in some form in all organizations. Traditional enterprise performance management systems based on financial or productivity measures do not seem to be appropriate in today's competitive global market. Alternative performance management systems have been proposed by many authors who incorporated variety of performance measures/key performance indicators (KPI). The Enterprise Performance Management (EPM) is also being referred to as

business performance management (BPM), corporate performance management (CPM), and strategic performance management (SPM) in the literature and practice. In this study, the more generic term of enterprise performance measurement and management system (EPMS) has been used.

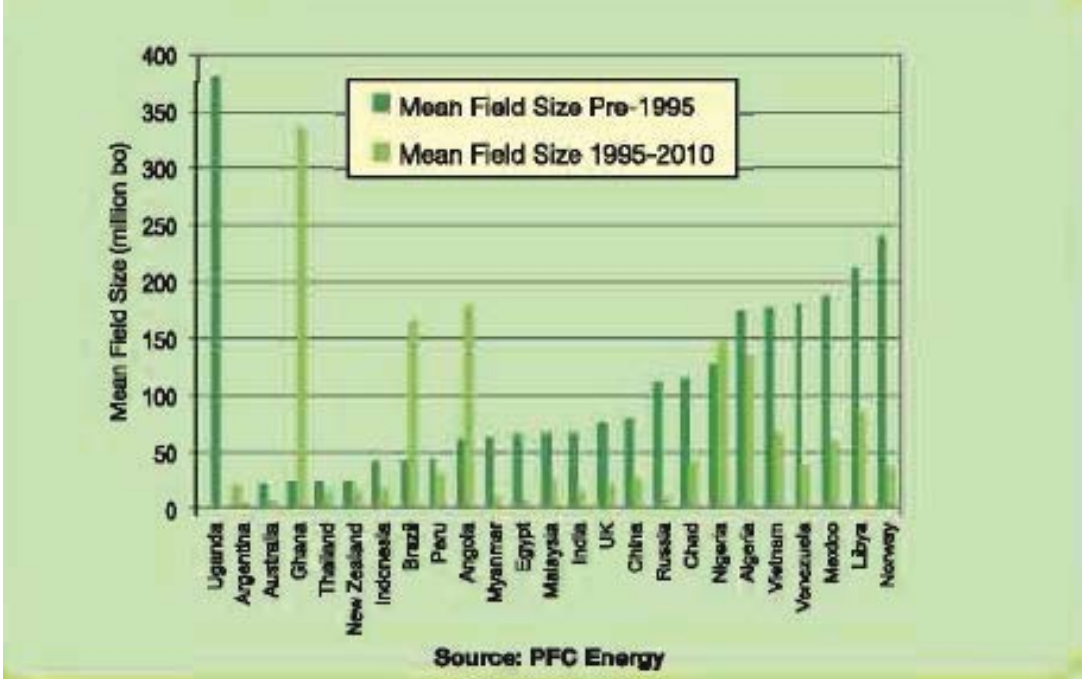
Many researchers have tried to develop a model with a particular perspective in focus, which could not provide a comprehensive picture of business performance such as economic value added (EVA), activity based costing (ABC), management audit, budgeting, total quality management (TQM), six sigma, international standard organisation (ISO) certification, Skandia's intellectual capital navigator, and performance benchmarking etc. Most of them are lacking in strategic perspective, comprehensiveness and integral view of the business performance.

Globalization and liberalization have created more competition, uncertainties and volatilities in business putting greater pressure on the organizations to adapt rapidly and perform at higher levels. The business environment is changing constantly and thus adoption of flexibility has become imperative for enterprise to survive and perform. There are many types of flexibilities such as strategic, organizational, operational, functional, and information system flexibilities. However the strategic and information system (IS) flexibilities are considered to be more relevant for the EPMS and hence they are considered in the design of EPMS.

1.2 World's Oil and Gas Industry Scenario

Production of crude oil and natural gas, hereafter called oil and gas, world-wide are decreasing while consumption is increasing gradually year after year. There

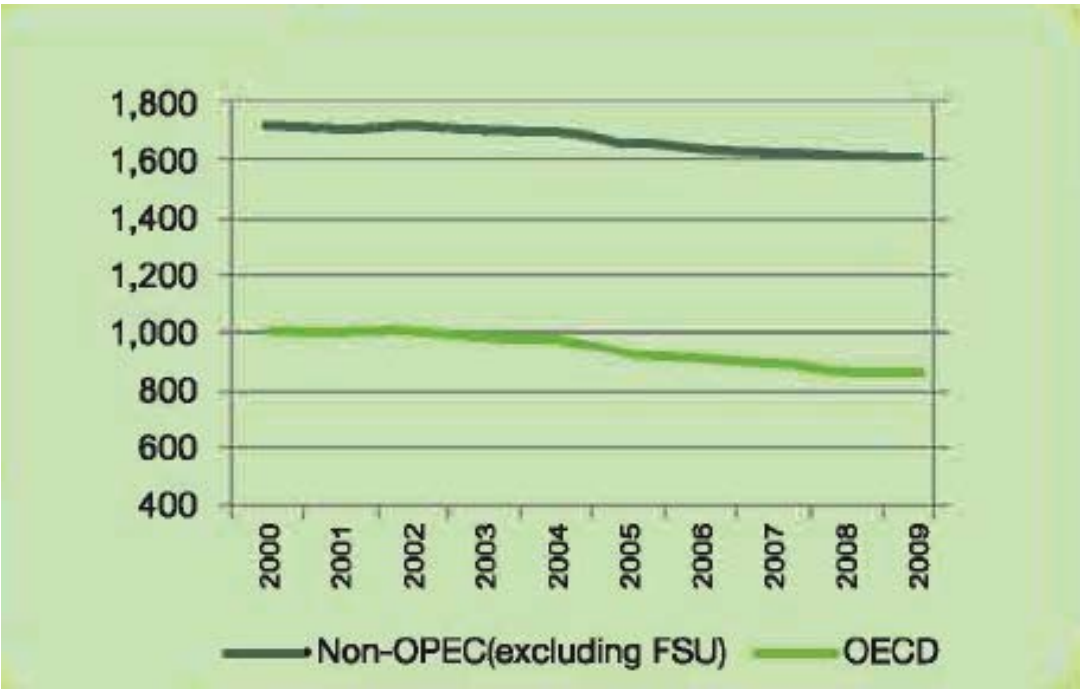
is tremendous pressure to improve oil recovery from existing oilfields as well as to discover new oilfields. This calls for major investments. Secondly almost all the oilfields have been discovered in onshore and shallow waters in seas. There is need to accelerate discovery in deepwater and arctic peninsula, which is risky, highly capital intensive and requiring newer technologies. World-wide declining discovery of oil and gas (Figure 1.1), declining crude oil production (Figure 1.2), increasing oil industry investments (Figure 1.3) and increasing crude oil prices (Figure 1.4) present a grim picture of world-wide upstream oil industry.



Mbo: Million barrel of oil

Figure 1.1: World-wide Declining Oil and Gas Discoveries

Source: ONGC Annual Report 2009-10



MMT: Million Metric Tons

Figure 1.2: World-wide Crude Oil Production (MMT)

Source: ONGC Annual Report 2009-10

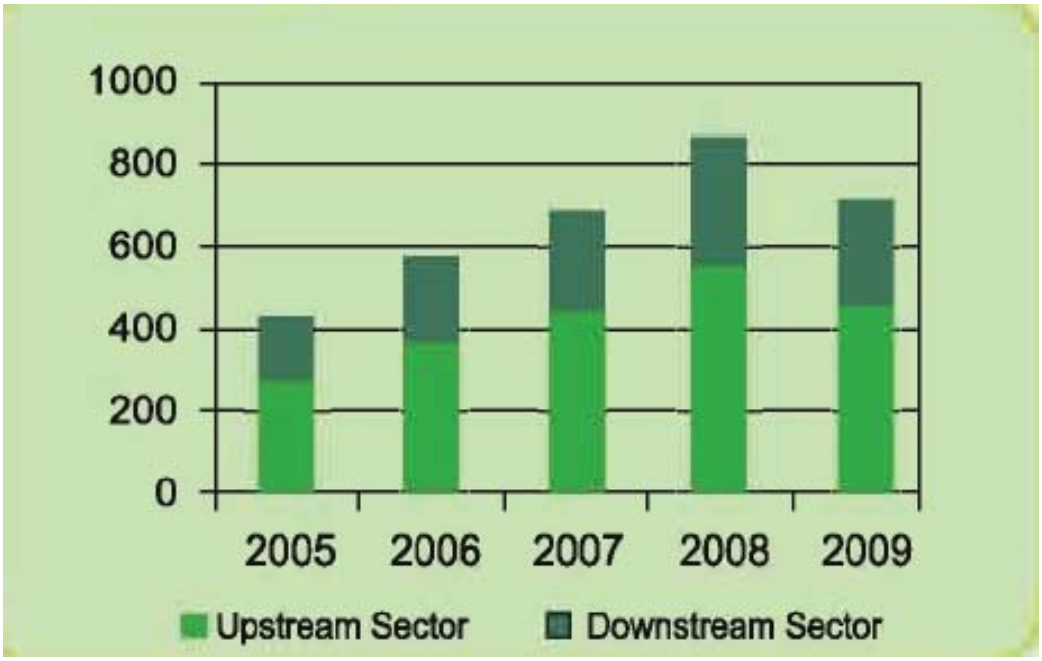


Figure 1.3: World-wide Oil Industry Investment (billion US$)

Source: ONGC Annual Report 2009-10

UD$/bbl: US dollar per barrel of Oil

Figure 1.4: Brent Crude Oil Prices (US$/bbl)

Source: ONGC Annual Report 2009-10

1.3 Indian Oil and Gas Industry Scenario

Traditionally, Indian national oil companies were awarded oil and gas blocks for exploration and production on nomination basis. Targets were set in the form of memorandum of understanding (MoU) signed between Ministry of Petroleum and Natural Gas (MoPNG), Government of India and CEOs of national oil companies. These MOUs contained targets on physical and financial parameters and the frequency of measurement were either annual or at most quarterly. The dimensions of measurement were very few and did not present a comprehensive picture of the enterprise performance.

Initially, two major central public sector enterprises (CPSE) existed in the upstream oil business namely Oil and Natural Gas Corporation Ltd. (ONGC) and Oil India Ltd. (OIL) and they signed the MoUs with government of India for performance reviews. With the introduction of new exploratory licensing policy (NELP) in 1998, few other downstream companies owned by Government of

India such as Indian Oil Corporation Ltd. (IOCL), Hindustan Petroleum Corporation Ltd. (HPCL), Bharat Petroleum Corporation Ltd. (BPCL), Gas Authority of India Ltd. (GAIL), private owned companies such as Reliance Industries Ltd. (RIL), Essar Oils Ltd. (EOL), Hindustan Oil Exploration Corporation Ltd. (HOECL), Gujarat State Petroleum Corporation Ltd. (GSPC), and MNCs such as Cairn Energy India Ltd. (CEIL), British Gas India Ltd. (BGIL), and Heramec India Ltd. etc. have entered into upstream business of oil and gas exploration and production. In place of nominations earlier, oil blocks are now auctioned through international bidding. An overview of the Indian oil industry in term of their ownership and types of operation is presented in Table 1.1.

Table 1.1: Overview of Indian Oil Industry

S.No	Company	Govt./Private Owned	Up-stream	Down-stream	Other Energy Sector
1	Oil & Natural Gas Corp. Ltd. (ONGC)	CG	√	√	√
2	Oil India Limited (OIL)	CG	√		
3	Gujarat State Petroleum Corporation (GSPC)	SG	√		
4	Reliance Industries Ltd. (RIL)	PV	√	√	
5	Essar Oil Ltd. (EOL)	PV	√	√	
6	Cairn Energy India Ltd. (CEIL)	PV	√		
7	British Gas India Ltd. (BGIL)	PV	√	√	
8	Gas Authority of India Ltd. (GAIL)	CG	√	√	
9	Indian Oil Corp. Ltd. (IOCL)	CG	√	√	
10	Hindustan Petroleum Corp. Ltd. (HPCL)	CG	√	√	
11	Bharat Petroleum Corp. Ltd. (BPCL)	CG	√	√	
12	Hindustan Oil Exploration Corp. Ltd. (HOECL)	PV	√		
13	Videocon Corp. Ltd.	PV	√		
14	Canoro Resources Ltd.	PV	√		
15	Heramec India Ltd.	PV	√		

Note: CG: Central Government owned; SG: State Government owned; PV: Private owned; √: operating in the selected sectors

Source: Ministry of Petroleum and Natural Gas, India (MoPNG) website www.petroleum.nic.in, Directorate General of Hydrocarbons, India (DGH) website www.dghindia.org and DGH Annual report 2011-12

India's production of crude oil is hardly meeting 20 per cent and natural gas 80 per cent of total oil and natural gas consumption. The figures are taken from websites of Ministry of Petroleum and Natural Gas, India. Oil and Natural Gas production and consumption of India is given in the Table 1.2 and Figures 1.5, 1.6. The overview of Indian energy scenario is portrayed in the Table 1.3.

Table 1.2: Crude Oil and Natural Gas Production and Consumption in India

	Year					
	Unit	2005-06	2006-07	2007-08	2008-09	2009-10
Crude Oil Production	MMT	32.19	33.99	34.12	3.51	33.69
Crude Oil Consumption	MMT	130.11	146.55	156.10	160.77	160.03
Natural Gas Production	BCM	32.20	31.75	32.42	32.85	47.51
Natural Gas Consumption *	BCM	37.91	39.64	42.30	42.25	57.97

* includes imported LNG and MMT to BCM conversion factor taken is 1.3
Note: MMT: Million Metric Tons, BCM: Billion Cubic Meter
Source: Ministry of Petroleum and Natural Gas (MoPNG) website www.petroleum.nic.in

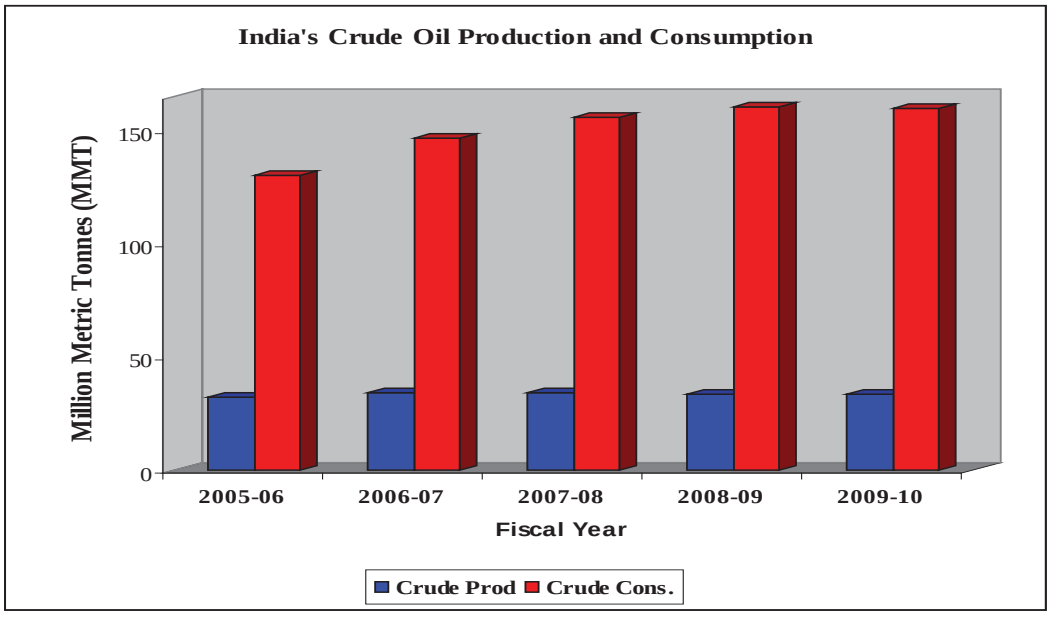


Figure 1.5: Crude Oil Production and Consumption in India
Source: Ministry of Petroleum and Natural Gas (MoPNG) website www.petroleum.nic.in

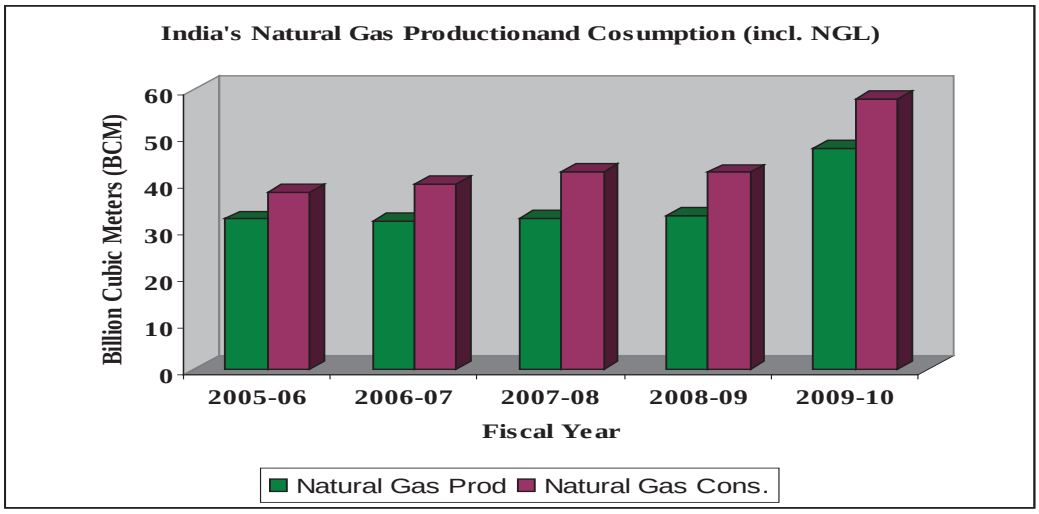


Figure 1.6: Natural Gas Production and Consumption in India
Source: Ministry of Petroleum and Natural Gas (MoPNG) website www.petroleum.nic.in

Table 1.3: Overview of Energy Scenario in India

Overview of Energy	
Proven Oil Reserves (Jan, 2010)	5.6 billion barrels
Oil Production (2009)	879,000 barrels per day, of which 77% crude oil.
Oil Consumption (2009)	3.0 million barrels per day
Proven Natural Gas Reserves (Jan, 2010)	38 trillion cubic feet
Natural Gas Production (2009)	1,365 billion cubic feet
Natural Gas Consumption (2009)	1,810 billion cubic feet
Recoverable Coal Reserves (2005)	62,300 million short tons
Coal Production (2009)	680.9 million short tons
Coal Consumption (2009)	613.4 million short tons
Electricity Installed Capacity (2007)	159 gigawatts
Electricity Generation (2007)	761 billion kilowatt hours
Electricity Consumption (2007)	568 billion kilowatt hours
Total Energy Production (2007)	13.05 quadrillion Btus*
Total Energy Consumption (2007)	19.1 quadrillion Btus*, [of which Coal (53%), Oil (31%), Natural Gas (8%), Hydroelectricity (6%), Nuclear (1%), Other Renewables (1%)]
Total Per Capita Energy Consumption (2007)	17.0 million Btus
Energy Intensity (2007)	6,500 Btu per $2000-PPP**
Environmental Overview	
Energy-Related CO2 Emissions (2008)	1,494 million metric tons
Per-Capita, Energy-Related CO2 Emissions (2008)	1.31 metric tons
Carbon Dioxide Intensity (2008)	0.48 Metric tons per $1,000-PPP**
Oil and Gas Industry	
Organization	Petroleum: Oil and Natural Gas Corporation (ONGC); Oil India Ltd. (OIL); Indian Oil Corporation (IOC); Reliance Industries (private). Natural Gas: Gas Authority of India Ltd (GAIL).

Major Oil/Gas Ports	Oil - Bombay, Cochin, Haldia, Kandla, Madras, Vizag; LNG – Hazira, Dahej
Foreign Company Involvement	BG International, BP, Cairn Energy, Marubeni, Niko Resources, Petronas, Shell.
Major Refineries (capacity, bbl/d)	Reliance Petroleum: Jamnagar (1,240,000). IOC: Koyali (185,100), Mathura (156,000), Panipat (120,000). Mangalore Refinery and Petrochemicals Ltd: Mangalore (180,000). Hindustan Petroleum Corporation: Vishakapatnam (164,250), Mahul (132,000). Kochi Refineries Ltd: Ambalamugal (152,000). Chennai Petroleum Corp.: Madras (130,660). Bharat Petroleum Company Ltd: Mahul(120,000).

* The total energy consumption statistic includes petroleum, dry natural gas, coal, net hydro, nuclear, geothermal, solar, wind, wood and waste electric power.
** GDP figures from Global Insight estimates based on purchasing power parity (PPP) exchange rates.

Source: US Energy Information Administration, www.eia.doe.gov

A pictorial view of oil and gas technologies being used in onshore and offshore oilfields in India are presented in Figures 1.7 to 1.10.

Figure 1.7: Onshore Oil Well Head and Christmas Tree
Source: ONGC Annual Report 2009-10

Figure 1.8: Offshore Crude Oil Processing Platform
Source: ONGC Annual Report 2009-10

Figure 1.9: Onshore Natural Gas Processing Plant
Source: ONGC Annual Report 2009-10

Figure 1.10: Sucker Rod Pump at Well Head as EOR Method
Source: ONGC Annual Report 2009-10

1.3.1 New Exploratory Licensing Policy

Since early 1990s, Government of India has gradually liberalised industrial and trade policies and Indian markets have been gradually opened to more competition. Globalisation has accelerated competition from MNCs, other Indian companies and start ups in oil industry. Government of India introduced New Exploratory Licensing Policy (NELP) in 1998, and now oil and gas blocks are awarded through international bidding. This has brought more competition to existing Indian upstream oil companies from other Government owned and private companies including the MNCs. As a diversification strategy, the downstream companies and other start-ups have made joint ventures with oil companies having technological capabilities in oil exploration and production. In recent years with increase in crude oil and natural gas prices world over, there has been pressure on the government to increase the prices of petrol, diesel and compressed natural gas but due to socio-political compulsions it could not be done. As a result, refining margins of downstream have gone down

significantly. Therefore, these refining and distribution companies have grabbed new opportunity in oil exploration and production under the NELP.

Directorate General of Hydrocarbons (DGH) under the Ministry of Petroleum and Natural Gas is the nodal agency for implementation of NELP. It gives oil blocks for exploration to oil companies through open competitive international bidding, sign production sharing contracts (PSC) for producing fields, and monitors the development of oilfields. NELP has brought major liberalization in upstream oil sector, where 100 per cent foreign direct investment (FDI) is allowed.

1.3.2 Sedimentary Basins in India

India has four categories of geological basins, classified based on their prospectivity viz. proven commercially productivity, identified prospectivity, prospective basins and potential prospective as depicted in Table 1.4.

1.4 Need for Studying Enterprise Performance Management System Effectiveness

Performance management is a set of processes that help businesses to discover efficient use of their financial, human, material resources and business units. It focuses on creating methodical and predictable ways to improve business results and performances across the organization.

The traditional enterprise performance management systems were based on financial and cost parameters which did not provide true picture of the performance of the business and lacking in strategic focus. Later few researchers came up with alternate enterprise performance management system incorporating various dimensions, perspectives and measures.

Table 1.4: Sedimentary Basins for Oil and Gas Exploration in India

(Sq. km)

Basin Category and Name	Onland	Offshore	Total
Category : Proven Commercial Productivity			
Assam-Arakan	116000	-	116000
Cambay	51000	2500	53500
Cauvery	25000	30000	55000
Krishna-Godawari Offshore	28000	24000	52000
Mumbai Offshore	-	116000	116000
Rajasthan	126000	-	126000
Category : Identified Prospectivity			
Kutch	35000	13000	48000
Mahanadi-Nec	55000	14000	69000
Andaman-Nicobar	6000	41000	47000
Category : Prospective Basins			
Bengal	57000	32000	89000
Ganga Valley	186000	-	186000
Himalyan Foreland	30000	-	30000
Kerla-Konkan Lakshdweep	-	94000	94000
Saurashtra	52000	28000	80000
Vindhyan	162000	-	162000
Purnea	-	-	0
Category : Potentially Prospective			
Bastar	5000	-	5000
Bhima Kaladgi	8500	-	8500
Chhattisgarh	32000	-	32000
Cuddapah	39000	-	39000
Deccan Syneclise	273000	-	273000
Karewa	3700	-	3700
Narmada	17000	-	17000
Pranhita Godavari	15000	-	15000
Satpura-S.Rewa-Damodar	46000	-	46000
Spiti Zanskar	22000	-	22000

Source: Directorate General Hydrocarbons (DGH) website www.dghindia.org

The suggested frameworks emphasised on a particular perspective alone viz. strategic focus and competitive availability (Skinner, 1974), stakeholder satisfaction and quality (Chakravarthy, 1986), effectiveness, efficiency, quality, productivity, quality of life, innovation, and profitability (Sink and Tuttle, 1989), hierarchical structure (Lynch and Cross, 1991), leading indicators of business performance such as quality, customer satisfaction, innovation, and market share etc. (Eccles, 1992), financial and non-financial measures (quality, time

and flexibility) with greater consideration of human resources (Toni and Tonchia, 2001), and employee satisfaction (Hayes et al., 2002).

Kaplan and Norton (1992) proposed the balanced scorecard (BSC) with four perspectives namely financial, customer, internal business process, and learning and growth. Neely and Adams (1998) conceptualized a performance prism framework with five facets / dimensions namely stakeholders satisfaction, strategies, processes, capabilities, and stakeholders contribution for delivering stakeholders value.

Few researchers have also studied the effect of EPMS implementations. Ittner and Larcker (2003) examined the reasons for not achieving benefits of non-financial measures in service and manufacturing companies, and have cited following reasons; measures were not linked to strategy, non validation of cause and effect relationships, non setting of right performance targets, and incorrect measurement. Martinez and Kennerley (2005) studied EPMS implementation in different organizations and found out a few positive and negative effects of EPMS implementations.

Bititci, Turner and Begemann (2000) proposed a dynamic performance measurement system to monitor external and internal environment. Sushil (2005) presented a flexible strategy framework to manage continuity and change forces in face of tremendous turbulence in enterprise environment. He also presented a flexible strategy game-card to balance the dual perspectives viz. enterprise perspective and customer perspective (Sushil, 2010). Gebauer and Lee (2008) studied the information system flexibility to guide the investment.

From the discussion in Para 1.3, it is clear that Oil and Gas constitute a major segment of Indian economy. Oil industry is characterized by high

demand of oil and gas, heavy investments, higher risks and uncertainties, dependencies on external factors such as government regulations, geo-political situations and economy, and severe competitions due to rapid industrialization and globalization. Additionally, Indian national oil companies are bound by social objectives such as oil subsidy payments, corporate social responsibilities, and environmental conservation. In this scenario designing a performance management system is challenging and difficult. Hence there is a need to design an effective, comprehensive and integrated EPMS incorporating flexibility.

1.5 Objectives of the Study

The main objective of the study is to design a comprehensive enterprise performance measurement and management system (EPMS) incorporating flexibility and to test its effectiveness in driving performance improvement in Indian upstream oil industry, and to evolve a validated EPMS model. The specific objectives of the study are as follows:

(i) To explore the status of EPMS being used in Indian upstream oil industry.

(ii) To assess strategic and information system flexibilities prevailing in upstream oil industry.

(iii) To identify the critical EPMS implementation issues in upstream oil industry.

(iv) To design EPMS model incorporating strategic and information system flexibilities for measuring and managing performance in upstream oil industry.

(v) To assess the effectiveness of EPMS model by empirical and case studies.

(vi) To develop a validated EPMS model incorporating strategic and information system flexibilities which is effectively measuring and managing enterprise performance in upstream oil industry in India.

1.6 Research Questions

Most of the Indian upstream oil companies are using the traditional EPMS. In recent years, few companies have adopted newer and comprehensive EPM models which are focussing on strategic performance. Based on the literature review, the present study is focussed on identifying the factors and dimensions of EPMS which will drive performance improvements in the organization. The main issues covered in the study are as follows:

(i) What is the effect of extent of strategy planning and its linkages on effectiveness of EPMS?

(ii) What is the effect of strategic flexibility incorporation on effectiveness of EPMS?

(iii) What is the effect of strategy implementation linkages on effectiveness of EPMS?

(iv) What is the effect of comprehensiveness of EPMS design on effectiveness of EPMS?

(v) What is the effect of performance reporting and feedback on effectiveness of EPMS?

(vi) What is the effect of information system flexibility incorporation on effectiveness of EPMS?

(vii) And finally, what is the effect of critical EPMS implementation issues on effectiveness of EPMS?

1.7 Scope of the Study

The scope of the research is limited to design an EPMS model incorporating strategic and information system flexibilities and to study its effectiveness in the Indian upstream oil industry. The strategic and Information System (IS) flexibilities are more relevant to EPMS for Oil industry and hence included in the design while other flexibilities such as organizational, operational, functional, and technological flexibilities have not been covered in this study. Though the external environmental factors such as economy, government regulations, geo-political situations, and social objectives (oil subsidy payments, corporate social responsibilities, and environmental conservation) play very important role in the EPMS in oil sector, but due to constraints of getting sufficient data and their linkages with other variables dissuaded the researcher to incorporate in the present study. The study focuses on strategic alignment, strategic monitoring, financial, customer, business process, and learning & growth perspectives/ dimensions of EPMS in upstream oil industry in India.

1.8 Methodology of the Study

The thesis is based on the empirical research to design and test the effectiveness of EPMS incorporating strategic and information system flexibilities, in Indian upstream oil industry. The research has been carried out in three phases, viz.

(i) Survey study,

(ii) Case studies, and

(iii) Synthesis and recommendations.

Phase I: Survey

An in-depth literature review has been carried out to identify EPMS design, implementation and effectiveness issues. A conceptual model has been formulated and number of hypotheses has been developed based on the conceptual model and statistically tested by conducting survey in upstream oil companies in India. The questionnaire containing 107 questions on various dimensions of EPMS with 6-point likert scale, 1-strongly disagree and 6-strongly agree, were sent to 500 executives of 15 oil companies involved in upstream business of oil and gas exploration and production in India. As EPMS is linked to strategy execution, monitoring and control, the responses were taken from senior and middle management of upstream oil companies. A total of 139 responses from 10 companies were received. As questions were large, exploratory factor analysis has been carried out using Principal Component Analysis with loading factor of 0.7 as cut off point. The Kaiser-Meyer-Olkin (KMO) test is performed to measure sampling adequacy. The data collected has been analysed statistically using Univariate, Bivariate and Multivariate analysis techniques. The macro and micro hypotheses were tested by correlation and regression analysis using “SPSS Version 12” software. Based on the results of analyses and hypotheses testing, a validated EPMS effectiveness model has been evolved to understand factors influencing effectiveness of EPMS.

Phase II: Case Studies and Interpretation

Detailed case study of two select oil companies have been carried out. The companies have been selected based on extent of EPMS implementation and experience in upstream business. The dynamic Situation-Actor-Process—Learning-Action-Performance (SAP-LAP) framework (Sushil, 2000) has been applied for case analysis. It consists of understanding 'Situation', key 'Actors' and their roles, evolving 'Processes', key 'Learning' issues, suggested 'Actions' and expected 'Performance'. The survey findings have been cross verified with in-depth quantitative and qualitative insights from the case studies, which included analysis of performances both on financial and physical parameters.

Phase III: **Synthesis and Recommendations**

The synthesis of learning from the survey and case study has facilitated verification and refinement of validated model to provide a recommended model of EPMS and to generate implementation guidelines.

1.9 Organization of the Thesis

The thesis is divided into eight chapters. The brief introduction of each chapter is given as follows:

Chapter one provides an introduction to the research study. It consists of background of the study in Indian upstream oil industry. The research problem, objectives, issues and scope are clearly defined. The overall methodology of the study has been described. A brief outline of the organization of thesis is also mentioned.

Chapter two is devoted to the review of literature related to the research topic. The literature review has covered most of the issues related to the EPMS such

as dimensions, perspectives, implementation issues, drawbacks of traditional EPMS, and strategic and information system flexibility. The review of literature leads to identification of the key effectiveness perspectives, and macro and micro variables.

Chapter three provides the research design of the study. The variables identified from the research issues have been clustered broadly into two types of macro variables: viz. independent macro variables influencing EPMS effectiveness and dependent macro variables of EPMS effectiveness. A conceptual model showing relationship among them is presented. The model assumes that independent EPMS variables lead to the EPMS effectiveness. The EPMS effectiveness model is prepared for the purpose of empirical study considering quantitative variables. The hypotheses are formulated on the basis of EPMS model and are proven by the survey.

Chapter four deals with the survey in upstream oil companies in India. The systematic approach of questionnaire development, pilot testing and validation has been followed before conducting the actual survey. The Univariate statistical analysis has been presented in this chapter.

Chapter five contains hypotheses testing and validation of conceptual model using various statistical techniques such as correlation and regression analysis. The survey data has been put to Bivariate and Multivariate analysis to investigate the relationship(s) between dependent and independent variables and to test the hypotheses. Based on the results of the survey, dominant EPMS independent macro as well as micro variables, influencing EPMS effectiveness have been identified, and finally a validated model for EPMS effectiveness has been presented.

Chapter six deals with two case studies on EPMS practices in select organizations in upstream oil industry, namely Oil and Natural Gas Corporation Ltd. (ONGC) and Oil India Ltd. (OIL). The study has been carried out using dynamic SAP-LAP framework. The comparison of the two case studies has been made to understand the differences, similarities and interpretation of the validated model.

Chapter seven contains the synthesis of the research findings and comparison of survey and case studies. It is aimed to organise syntheses of EPMS macro and micro variables influencing EPMS effectiveness in terms of a guiding framework and finally a recommended EPMS effectiveness model has been presented. The interpretation of the EPMS model, key implications and implementation issues has also been discussed.

Chapter eight is the summary and conclusions on EPMS effectiveness in upstream oil industry. The summary of macro and micro predictors of EPMS effectiveness, relationship of key variables, and validated EPMS effectiveness model is presented. Implication for researchers and managers/practitioners, significant research contribution, major recommendations, limitations of the study, and suggestions for future research are included in this chapter.

The chapters of the thesis organized are shown in Figure 1.11.

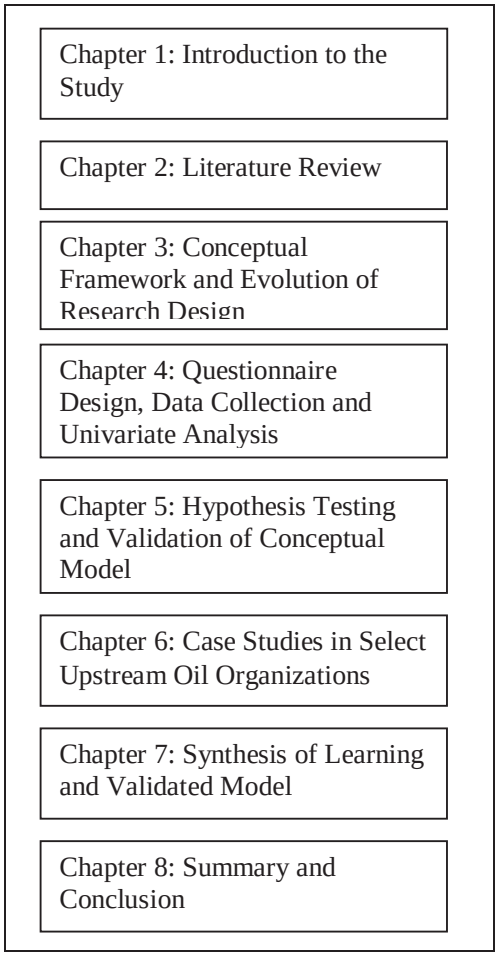


Figure 1.11: Organization of Study

1.10 Concluding Remarks

Enterprise performance measurement and management system provides an effective model for integrating strategic planning, strategic flexibility, strategy implementation, EPMS design, performance reporting and feedback, information system flexibility, and EPMS implementation issues. The effective EPMS helps the enterprise to be strategically aligned, strategically monitoring, and driving the overall performance improvements of the enterprise.

With a clear definition of the research objectives and issues, the scope of research problem has become well focussed. The research study has been designed to understand the effectiveness of EPMS and its impact in measuring

and managing performance of the organisation. The next chapter deals with the review of literature covering various aspects of the research problem.

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