

THE BRAZILIAN OFFSHORE OIL AND GAS INDUSTRY:

Potential and Market Entry for Friesland Kabel

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RESUMO

Em vista da exploração de petróleo e gás offshore no Brasil existe uma grande demanda de tecnologia de ponta e know-how. Por causa disso, fornecedores estrangeiros de equipamento naval ficam cada vez mais atraídos por esse mercado dinâmico.

Neste contexto, o projeto desenvolve uma estratégia internacional para o fornecedor alemão de cabos navais Friesland Kabel, dentro da cadeia de suprimentos brasileira de petróleo e gás offshore. O estudo analisa criteriosamente o ambiente de negócios externo e os recursos corporativos internos aplicando os modelos PEST, Porter's 5 Forces e VRIO. Os elementos centrais da estratégia de entrada no mercado incluem a declaração de missão, visão e objetivos, seleção de modo de entrada, análise de SWOT, conceito de marketing e por fim um plano de ação. Todas as teorias e os conceitos de negócios são preparados e analisados em detalhe.

O resultado do estudo mostra que apesar da crise econômica enfrentada pelo país e também pela indústria de petróleo e gás, existe um certo potencial de mercado para Friesland Kabel no longo prazo. Além disso, as medidas estratégicas fornecem as ferramentas para superar os obstáculos ao comércio e aproveitar as oportunidades.

Palavras-Chave

Indústria Brasileira de Petróleo e Gás, Estratégia Internacional, Cabos Navais, Gestão Estratégica

ABSTRACT

The Brazilian oil and gas offshore exploration faces a high demand for advanced technology and know-how. For that reason, foreign suppliers of subsea equipment are increasingly attracted by this dynamic market.

Against this background, this project develops an international strategy for the German marine cable distributor Friesland Kabel within the Brazilian offshore oil and gas supply chain. The project thus critically analyzes the external business environment and internal corporate resources by applying the PEST analysis, the Porter's 5 Forces model and the VRIO framework. Core elements of the market entry strategy include a mission and vision statement, an objective setting, an entry mode selection, a SWOT analysis, a marketing concept and a strategic action plan. All business concepts and theories applied are prepared and assessed in detail.

The result of the study shows, that despite the recent economic downturn in the country and the oil and gas industry, there is a certain market potential for Friesland Kabel in the long term. Additionally, the developed strategic measures provide a guideline about how the company can overcome main business barriers and leverage opportunities.

Keywords

Brazilian Oil and Gas Industry, International Strategy, Marine Cables, Strategic Management

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Sumário executivo

No contexto da exploração de petróleo e gás offshore, o Brasil se torna um mercado de inovação para fornecedores de equipamento naval recebendo assim uma atenção significativa de investidores estrangeiros. O fornecedor alemão de cabos navais e tecnologia de rede offshore, Friesland Kabel, está avaliando este mercado como uma opção para a expansão de negócios há alguns anos. No entanto, a empresa ainda não chegou a uma conclusão se as condições de entrada no mercado são favoráveis e quais estratégias devem ser utilizadas. Neste contexto, o objetivo deste estudo é analisar o potencial da Friesland Kabel na indústria de petróleo e gás offshore do Brasil, bem como fornecer orientações para a gestão da entrada de mercado. Portanto, o estudo contém duas seções principais.

Seção 1 avalia o potencial de mercado da Friesland Kabel em investigar o ambiente de negócios externo e os recursos internos da empresa.

- A análise macroeconômica discute as restrições e oportunidades de negócios principais no mercado brasileiro através da aplicação do quadro PESTLE. Índices e estudos internacionais asseguram uma comparação entre países diferentes.
- A análise da indústria investiga as oportunidades e as barreiras de negócios da indústria offshore brasileira e seus sub-segmentos relacionados. Além disso, o quadro Porter's 5 Forces examina o ambiente competitivo da indústria. Dados sobre a rivalidade são obtidas a partir de entrevistas com fornecedor de cabos navais que já operam no mercado.
- O quadro VRIO serve como abordagem para determinar as capacidades e os recursos de Friesland Kabel. Estes são completados e avaliados por entrevistas com os principais executivos da empresa.

Seção 2 trata da estratégia de entrada no mercado para Friesland Kabel. Assim, a estratégia é dividida nos seguintes elementos:

- Em primeiro lugar, os principais objetivos corporativos são especificados através da produção de uma declaração de missão, visão e objetivos.
- Através de uma análise SWOT são determinados os principais fatores que moldam a posição estratégica da Friesland Kabel.

- Com base nos fatores da análise SWOT são elaborados as ações estratégicas. Entre eles uma estratégia de estoque, gestão de clientes e uma abordagem passo-a-passo do mercado podem ser destacadas.
- A decisão do modo de entrada é de principal importância. Aqui, o estudo centra-se em uma estratégia cooperativa, além de fornecer informações detalhadas sobre o design de parcerias potenciais.
- Outra prioridade é a estratégia de marketing. Ao aplicar o enquadramento SAVE, um conceito de marketing baseado no valor é realizado.
- Finalmente um plano de acção determina os conjuntos de medidas de gestão para Friesland Kabel.

Executive Summary

In terms of the offshore oil and gas exploration, Brazil is in the process of becoming an innovation driven market for suppliers of marine equipment receiving significant attention from foreign investors. Friesland Kabel, a German supplier of marine cable and offshore network technology has been evaluating this market for several years as an option for business expansion. However, the company did not come to a conclusion as to whether the market entry conditions are favorable, and if so, which strategy should be pursued. Against this background, the objective of this study is to analyze the potential for Friesland Kabel in the Brazilian offshore oil and gas industry and to provide guidance for managing the company's market entrance. Therefore, the study contains two major sections.

Section 1 assesses the market potential of Friesland Kabel by investigating the external business environment and the internal resources of the company.

- The macroeconomic analysis discusses the main business restrictions and opportunities within the Brazilian market by applying the PESTLE framework. In doing so, international indices and studies provide an inter-country comparison.
- The industry analysis investigates the opportunities and business barriers of the Brazilian offshore industry and its related sub-segments. Moreover, the Porter's 5 Forces framework examines the competitive environment of the industry. Data about the market rivalry is obtained from interviews with marine cable suppliers already operating on the market.
- The VRIO framework serves as an approach to determine the competitive capabilities and resources of Friesland Kabel. This is completed and evaluated by interviews with key corporate members of staff.

Section 2 deals with the market entry strategy for Friesland Kabel which is divided into the following elements:

- First, the major corporate goals are specified by producing a mission and vision statement and setting the objectives.
- Through a SWOT analysis, the principal factors that shape the strategic position of Friesland Kabel are determined.

- Based on the SWOT–factors, strategic actions are elaborated. Among them, a stock strategy, customer management and a step-by-step market approach can be highlighted.
- The entry mode decision was of particular importance. Here, the study focuses on a cooperative strategy and provides detailed information on how to shape potential partnerships.
- Another priority is the marketing strategy. By applying the SAVE framework, a value based marketing concept is introduced.
- Finally, an action plan proposes the managerial measures of Friesland Kabel.

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List of Abbreviations

ABPG - Associação Brasileira de Pesquisa e Desenvolvimento em Petróleo e Gás
ABPIP - Associação A Associação Brasileira dos Produtores Independentes de Petróleo e gás
AHK – Auslandshandelskammer
ANP - Agência Nacional do Petróleo
APEX - Agência Brasileira de Promoção de Exportações e Investimentos
API – American Petroleum Institute
ASME - American Society of Mechanical Engineers
B2B – Business to Business
B2C – Business to Customer
BA- Bahia
BNDES - Banco Nacional do Desenvolvimento
BRICS – Brazil, Russia, India, China, South Africa
CEO - Chief Executive Officer
CIN - Centro Internacional de Negócios
COOEC - China Offshore Oil Engineering Corporation
CRCC - Certificado de Registro no Cadastro Corporativo
DNV – Det Norske Veritas
E&P - Exploration and Production
EBN - Empresa Brasileira de Navegação
EPC - Engineering, Procurement, and Construction
ES – Espírito Santo
FDI – Foreign Direct Investment
FGV - Fundação Getulio Vargas
FIRJAN - Federação das Indústrias do Estado do Rio de Janeiro
FSPO - Floating Production, Storage and Off-loading
GAAP - Generally Accepted Accounting Principles
GDP – Gross Domestic Product
GE - General Electric
GL - Germanischer Loyd
HDI - Human Development Index
IBMA - Instituto Brasileiro do Meio Ambiente
IBP - Instituto Brasileiro de Petróleo, Gás e Biocombustíveis
ICT - Information and Communication Technology
IEC – International Electrotechnical Commission
IFRS - International Financial Reporting Standards
IJV - International Joint Venture
INPI - Instituto Nacional da Propriedade Industrial
IP - Intellectual Property
ISO - Internationale Organisation für Normung
JIT – Just in Time
JV - Joint Venture
MNE – Multinational Enterprise
NBCC - New Brazilian Civil Code
NEK – Norsk Elektroteknisk Komite
NRI - Network Readiness Index
OECD - Organization for Economic Co-operation and Development
OHAS - Occupational Health and Safety Assessment Series

ONIP - Organização Nacional da Indústria do Petróleo
OSV - Offshore Support Vessel
PESTLE – Political, Economic, Social, Technical, Legal, Environmental
PISA - Program for International Student Assessment
PROMEF - Programa de Modernização e Expansão da Frota
PRS – Political Risk Services
PT – Partido dos Trabalhadores
PUR – Polyurethane
PwC – PricewaterhouseCoopers
R&D – Research and Development
RJ – Rio de Janeiro
RS – Rio Grande do Sul
SC – Santa Catarina
SELIC - Sistema Especial de Liquidação e de Custódia
SHF - Sheathed Flame Retardant
SINAVAL - Sindicato Nacional da Indústria da Construção e Reparação Naval e Offshore
SAVE – Solution, Access, Value, Education
SMART – Specific, Measurable, Attainable, Realistic, Time-bound
SME - Small and Medium Sized Enterprises
SP – São Paulo
SWOT – Strengths, Weaknesses, Opportunities, Threats
SS - Semi-submersible
TLP - Tension Leg Platforms
TTT – Time to Time
TÜV - Technischer Überwachungsverein
UNCSD - United Nations Conference on Sustainable Development
VRIO – Value, Rarity, Imitability, Organization

1. Introduction

During the last two decades multinational enterprises (MNEs) have increasingly focused on emerging markets. In 2012 emerging economies have, for the first time, absorbed a higher share of foreign direct investment (FDI) inflows than developed countries (United Nations, 2013, p. 12) – a trend which continued in the following years (United Nations, 2014, p. 9).

This development is in the interest of both parties - MNEs as investors and emerging economies as host markets. Western enterprises benefit from different sorts of local competitive advantages (Dunning, 2001, p. 176) whereas motives of the host countries include capital gains, job creation or transfer of know-how and technology. However, while emerging markets offer great opportunities, they also confront investors with different kinds of environmental challenges and transaction costs. For that reason, business organizations have to thoroughly assess these markets and consequently develop appropriate strategies.

FDI in emerging countries is concentrated on a small group of markets characterized by wealth of natural resources, large populations and high economic growth rates (Weigel, et al., 1997, p. 1). These include in particular the so-called “BRICS” which describes the association of the five major emerging economies: Brazil, Russia, India, China, and South Africa (O’Neill, 2001, pp. 1-11).

1.1 Problem Formulation

Being part of the BRICS group and the 7th largest economy in the world, Brazil nowadays is one of the most attractive markets for FDI. Especially the oil & gas industry, driven by recent discoveries of massive offshore petroleum and gas reserves, generates plenty of business opportunities. For the next two decades, the exploration of Brazilian offshore sources will require huge investments in infrastructure including the shipbuilding-, down- and upstream sector. According to experts, until 2020 half of the worldwide subsea equipment will be produced in Brazil. For that reason, international suppliers of business-related services and products increasingly focus on this dynamic market in which the demand for offshore technology, equipment and know-how is tremendously high (AHK; GTAI, 2014, p. 16).

Germany has strong economic ties with Brazil, which is its Germany’s most important trading partner in Latin America. There are about 1.300 German companies in Brazil and the State of São Paulo is the biggest German business location outside the home country (Auswärtiges Amt, 2015). Some German companies have already become established within the Brazilian oil and gas supply chain. Friesland Kabel, a German distributor of marine

cables, wires and data system technology, also considers this possibility for expanding its business.

1.2 Research Questions and Objectives

Against this background, the present project deals with the potential and the market entry for Friesland Kabel in the Brazilian oil and gas industry. Accordingly, the work consists basically of two parts derived from two overriding questions:

1. What is the potential for Friesland Kabel in order to create economic value within the Brazilian oil and gas industry?

Based on this question, the first part of the work focuses on the attractiveness and the suitability of the Brazilian oil and gas market for Friesland Kabel. In this context, external market drivers and internal forces of the company will be identified and evaluated according to their business implications. To this aim, the research follows a top-down approach (Glowik & Smyczek, 2011, p. 66) by analyzing first the external macro environment, second the industry sector, and third the company's internal resources and capabilities.

2. How can Friesland Kabel ensure a successful market entry into the Brazilian offshore oil and gas industry?

With regard to the previously identified external and internal forces, the objective of the second part is to develop an appropriate market entry strategy. This involves mainly the elaboration of measures to overcome business barriers and to leverage market opportunities.

The two parts described above correspond to the first two phases of a strategic planning process: (1) Strategic Position and (2) Strategic Choice (Johnson, et al., 2008, p. 49). In this sense, the present project can be understood as an international strategy for Friesland Kabel.

Although the project focuses on one case, the results also provide inductive insights for other business organizations. The overall objectives of this project are to strengthen the bilateral trade between both countries, Brazil and Germany in general, to support German direct investment in the Brazilian offshore market and to guarantee long term market success for Friesland Kabel.

1.3 Methodology

In accordance with the research questions, the case study approach is the most appropriate methodology for this project. In comparison with other research methods, case studies provide more insightful explanations (Yin, 2012, p. 5) and are preferred for contemporary (as opposed to historical events) and real-life events in which the researcher cannot control or manipulate the behavior of samples (Dul & Hak, 2008, p. 6).

In terms of design the project focuses on one case and a single unit of analysis (holistic, single case) (Yin, 2012, pp. 7-8). This choice is the logical consequence of the research objective, which is to develop an international strategy for Friesland Kabel (single case) within the Brazilian offshore oil and gas industry (single unit of analysis).

The data used in this project mainly consists of derived data (secondary data) in contrast to data in natural settings (primary data) (Bromley, 1986, p. 13). This type of data is obtained from websites, articles, reports, statistics, books and economics magazines.

Where the project deals with the internal resources of Friesland Kabel and the competition in the company's related industry primary data is collected in addition.

For the analysis of Friesland Kabels sources of competitive advantage it was important to identify the individual perceived strengths and weaknesses from an internal perspective. Due to the complexity of this research topic, semi-structured interviews based on two core standard questions have been conducted. By following this approach, it was possible to, on the one hand, use a uniform interview structure, and on the other, to address specific aspects in greater depth (Mitchell & Jolley, 2012, pp. 301-302). The selection of the respondents was restricted to a small group of individual experts in order to maintain a high level of expertise.

Regarding the competition of Friesland Kabel, standardized (structured) interviews with 5 major marine cable suppliers on the Brazilian market have been carried out. This method sets a fixed series of questions. Thus, comparability across the respondents could be guaranteed (Mitchell & Jolley, 2012, p. 301). The companies were selected through internet research and via personal contacts on the fair trades Brasil Offshore and Navalshore in 2015. The interviews have been conducted by telephone, since the willingness to participate and the probability to address the right contact person is significantly higher than through online surveys. In preparation for the interviews, a questionnaire (see appendix 5) was elaborated that include a mix of open-ended and closed-ended (multiple choice design) question types. The web-based survey platform SurveyMonkey served as a basis for this (SurveyMonkey, 2015).

The data analysis pursues a qualitative approach since the overall objective of this study focuses on meanings and description of structural processes rather than on quantifiable phenomena or the measurement of specific variables (Patton, 2002, pp. 13-14). In order to organize and evaluate the acquired data in a systematic way, several frameworks and tools from the field of Strategic Management have been applied, including PESTLE; Porter's 5 Forces; VRION; SMART; SWOT; and SAVE. Additionally, basic summaries, graphs, diagrams, charts and tables summarize and visualize the major outcomes.

1.4 Project Structure

The present project is divided into 12 chapters. The introduction (chapter 1) gives an insight into the topic, research objective, methodology and provides information about the current state of research. Chapter 2 covers the macro business environment of Brazil including political, economic, social, technological, legal and environmental aspects. Chapter 3 focuses on the dynamics of the Brazilian offshore oil and gas industry by analyzing market size, growth rates, market segments and competition. In the fourth chapter the resources and capabilities of Friesland Kabel will be identified and evaluated according to their competitive potential.

The second part of the project begins with an introduction in strategy formulation (Chapter 5) and the definition of Friesland Kabel's mission, vision and objectives (Chapter 6). Afterwards, the overall strategic situation is investigated by applying the SWOT framework (Chapter 7). On this basis, strategic responses will be elaborated (Chapter 8.) including market entry mode (Chapter 9.) and marketing concept (Chapter 10). Chapter 11 deals with the implementation of the strategic choices. To this aim, an action plan is developed which lists all necessary activities and sets out a time frame for their implementation.

The last chapter (Chapter 12.) provides a summary of the key results and gives an outlook with regard to the initial questions.

Table 1: Project Structure and Organization (Own Presentation, 2014)

Chapter 1: Introduction	
Market Potential	<u>Chapter 2</u> Macro Environment Analysis
	<u>Chapter 3</u> Industry Structure Analysis
	<u>Chapter 4</u> Internal Analysis
	<u>Chapter 5</u> Strategy Formulation
Market Entry Strategy	<u>Chapter 6</u> Mission Vision & Objectives
	<u>Chapter 7</u> SWOT Analysis
	<u>Chapter 8</u> Strategic Actions
	<u>Chapter 9</u> Market Entry Mode
	<u>Chapter 10</u> Marketing Plan
	<u>Chapter 11</u> Strategic Action Plan
Chapter 12: Summary and Outlook	

1.5 State of Research

The theoretical framework of this project is based on concepts and theories from international strategic management literature. In the context of globalization, this field of study is well researched and saw rapid growth during the last three decades (Lu, 2003, p. 193). A range of strategic management publications divides the internationalization process of business organizations into three or four phases including: (1) analysis of the external and internal environment; (2) strategy formulation; (3) strategy implementation and (4) strategy evaluation (Hill, et al., 2013, p. 11); (Hitt, et al., 2009, p. 6) or (Johnson, et al., 2008, p. 49).

For the strategic assessment of macroeconomic environments, research refers to political, economic, social, technological, legal and environmental aspects of markets. In particular, an emphasis is placed on the questions how these aspects influence the overall market potential and determine investment decisions of organizations (Johnson, et al., 2008, pp. 54-55) or (Piercy, 2012, p. 396).

Due to the changing role of emerging markets, research interest is increasingly attracted by Brazil's macro business environment. Most of the publications on this topic are country profiles from an external market seeking perspective and point out the country's economic stability as well as its different sources of transaction costs (World Bank, 2014c), (CIA, 2014) or (BTI, 2014).

The Brazilian offshore oil and gas industry is also integrated into this research area. Articles and reports of the past years show the importance of the sector for the country's economic prosperity and emphasize its growth potential (Enst & Young, 2012) or (BNDES, 2014). An important source for current industry information is the Brazilian National Agency of Petroleum, Natural Gas and Biofuels (ANP, 2014a) which provides continuously updated figures and statistics.

Data and information about the Brazilian shipbuilding and marine equipment industry is limited to only a few sources. Particular mention should be made of the biannual market studies performed by the Brazilian Association of Naval Construction and Offshore Companies (SINAVAL, 2015).

Research about internal environments deals with capabilities and resources of organizations and provides diagnostic tools in order to identify and evaluate the strengths and weaknesses of organizations. Common assessment criteria are therefore the ability to create competitive advantage and the relative cost position against competitors (Peng, 2009, p. 78); (Barney, 1991, p. 99) or (Hitt, et al., 2009, p. 67).

International strategy formulation is described as a process to determine how organizations enter a certain market. A range of literature specifies alternative components of this process, including mission and vision statements, the setting of corporate objectives, the entry mode selection, marketing strategies and the development of strategic actions (Hill, et al., 2013, p. 11); (Perlitz, 2004, p. 64) or (Kotler & Keller, 2012, p. 48).

Literature about missions, visions and objectives particularly highlights their relevance to the evaluation of business activities and to the determination of the overall goals of organizations. Additionally, several authors define key elements and provide formal criteria in order to define such statements (Hitt, et al., 2007, p. 19); (Baldegger, 2012, pp. 145-147) or (Doran, et al., 1981, pp. 35-36).

When it comes to the question of how to fulfill a company's mission, vision and objectives, the academic research proposes the elaboration of strategic actions. These are usually defined as the allocation of resources and commitment. Basic concepts underlying the

implementation of strategic actions generally aim to maximize the competitive advantage of organizations by translating external and internal starting conditions into specific strategic decisions (Andersen, 2013, pp. 64-66) or (Griffin & Fleet, 2014, p. 157).

A fundamental question of the market entry mode is the degree of internationalization ranging between national diversification and global orientation (Bartlett & Ghosal, 1989, p. 58) or (Buckley & Casson, 1998, pp. 541-543). Based on this dichotomy, different types of market entry modes are distinguished. Additionally, several approaches provide criteria for the selection between the alternative modes (Root, 1994, p. 41).

In the academic inquiry of international strategic development, the marketing plan is one of the basic elements (Root, 1994, p. 4). Marketing strategies are usually separated into different decision areas. The most common framework is the 4P-model (McCarthy, 1960, p. 45). However, depending on specific business environments, other approaches are proposed (Ettenson, et al., 2013) or (Shimizu, 1989, pp. 63-102).

2 Macro Business Environment of Brazil: PESTLE-Analysis

Business organizations are embedded into an external environment which is determined by the geographical area in which they operate (Johnson, et al., 2008, pp. 54-55). According to Kotler, the “macro environment includes forces that create opportunities and pose threat to the business units” (Jain, et al., 2011, p. 10). Companies doing business abroad must consider the particular conditions of the host country in addition to their domestic environment (Francis, 2010, p. 57).

There are several approaches for assessing environmental forces. For the following investigation the PESTLE (political, economic, social, technological, legal and environmental) analysis has been selected since it includes all dimensions which are relevant to the present project.

In implementing this framework, only those environmental aspects which have a potential impact on Friesland Kabel’s business activities have been considered. The data used originates mainly from international reports, rankings and indices since these types of sources enable an inter-country comparison.

2.1 Political Factors

The Federative Republic of Brazil is a stable growing democracy with a sustainable institutional system. After the re-election of President Dilma Rousseff in October 2014 the center-left party PT is expected to continuously stay in power for 16 years.

Brazil has no political enemies, no ethnic or cultural conflicts and faces no threat of terrorism. This is a particular advantage compared to other oil and gas producing regions and countries such as North Africa, the Gulf region or Russia where political uncertainties have considerable impacts on the industry.

During the last two years, national protests, directed mainly against the poor public services, corruption and the management of the PT government, increasingly took place. Since recently, Dilma Rousseff no longer has the support of the population, of which more than two-thirds are calling for her impeachment (Telles, 2015, pp. 7-14).

According to the political risk index by the PRS Group, Brazil is ranked on 59th out of 100 investigated countries (The PRS Group, 2015).

In the following, the most significant political factors from a business perspective will be briefly explained:

Corruption: Despite the introduction of several new legal measures such as the Anti-Bribery Law (Presidência da República, 2013), Brazil's corruption continues to be an obstacle for business. Due to the federal structure and special legal standing of legislators, companies and businesspeople are increasingly facing corruption by public officials (Business Anti-Corruption Portal, 2014). According to the corruption perception index by Transparency International, Brazil is ranked number 69 out of 175 countries. (International Transparency, 2014).

Taxation: The Brazilian tax system is complicated and fragmented, which leads to time-consuming processes of overcoming administrative burdens and to high uncertainty in fiscal matters (Rabobank, 2014). According to the World Bank, the Brazilian tax system is ranked at number 175 among 189 countries (World Bank, 2014a). Another study by PwC, World Bank and the International Finance Corporation (IFC) concluded that Brazil possesses the most time-consuming tax system worldwide (PwC, 2014, p. 21).

Bureaucracy: Start-ups in Brazil face huge bureaucratic challenges. In the category "Starting a Business" of the World Bank report, Brazil is ranked at 123 out of 189 economies (World Bank, 2014a). During the last years, 40% of Brazilian start-ups did not survive their third year on the market (VEJA, 2012). This is mainly due to the legal and regulatory complexity in the country, which negatively affects the efficiency of the public administration and economic operators. It is estimated that Brazil's bureaucracy annually generates a total cost of R\$ 46.3 billion (FIESP, 2015, p. 1).

2.2 Economic Factors

Brazil is considered a solid and sustainable economy in the medium term. With a gross domestic product (GDP) of \$ 2.346 trillion in 2014, the country is currently the seventh largest economy in the world and the biggest economic power in Latin America (Bradesco, 2015, p. 62).

FDI in Brazil has steadily increased during the last years. This is mainly due to a stronger market orientation, by which several public enterprises have been privatized and trade barriers have been reduced. In 2014, FDI in Brazil totaled \$ 62,5 billion, which corresponds to 2.7% of the GDP (Bradesco, 2015, p. 62). According to the Foreign Direct Investment Confidence Index, in the same year Brazil was the fifth-most attractive market for FDI (A.T. Kearney,

2014, p. 1). The biggest investment sectors in the country include agriculture, infrastructure, construction and oil and gas (BNDES, 2014, p. 2).

Nevertheless, Brazil is currently affected by a deep economic recession. The GDP has fallen from 2,7 % in 2013 to 0,1% in 2014 and is estimated to decline to -1,8 % in 2015 (Bradesco, 2015, p. 62). The effects are rapidly increasing unemployment rates, weak consumption and decreasing tax receipts. Moreover, rising inflation and currency depreciation are increasing the government's debt (The Economist, 2015). As a result, at the end of august 2015, President Dilma Rousseff submitted a loss-making budget proposal for the first time in the history of Brazil. According to the news agency Agência Brasil, the estimated structural primary deficit for the year 2016 corresponds to 0,5% of the GDP (Agência Brasil, 2015).

In the following the most important economic causes and consequences of this crisis will be explained in more detail:

Infrastructure: According to the 2013-2014 Global Competitiveness Report, infrastructure in Brazil is the biggest obstacle for business investors (Schwab & Sala-i-Martin, 2013, p. 38). This applies to both local transportation, including air traffic, ports, road and railways and international trading operations. According to the FGV institute, about 100 forms and 900 pieces of information are required in order to import a container into Brazil. Another study shows that importing a container into Brazil costs about US\$ 2215. Compared to other emerging countries (e.g. China US\$ 500 or Chile US\$ 795), this amount is significantly above the average (Rabobank, 2014, p. 3).

Labor and Employment: There is a shortage of technical and skilled labor in Brazil. According to the "Talent Shortage Global Survey 2015", Brazil was the fourth worst scoring country, having difficulty in filling vacancies in the 42 surveyed labor markets (ManpowerGroup, 2015, p. 7). Moreover, the OECD study "Education at a Glance 2013" shows a lack of qualified educated people in Brazil. Only 10% of the population has a post-secondary degree, against 15% in Mexico and 25% in Chile (OECD, 2013, p. 28).

Further restrictions refer to the rigid labor legislation, which leads to high uncertainty, informal employment relationships and increased labor costs compared to other emerging countries (Gill, et al., 2002, p. 221).

Inflation: 1 US\$ is worth R\$ 3,90055 (Oanda, 2015) today (19.09.2015). Since 2014, the Real has depreciated around 30% against the Dollar (Borges, 2015). According to the Big Mac Index, the Real is the third most overheated currency (Big Mac Index, 2015), a fact which has particularly negative impacts for importing countries.

Due to the low purchasing power of the currency, inflation remains high in the country. The average inflation in 2014 amounted to 6.4%. For this reason, the Central Bank of Brazil (Banco Central do Brazil) raised the so-called SELIC interest rate to 11,75%. Overall, with around 5.35%, Brazil thus had one of the highest real interest rates worldwide (Bradesco, 2015, p. 2).

2.3 Social Factors

The Brazilian society is highly diverse in terms ethnic groups and cultural background. It is estimated that currently 202,656,788 people live in Brazil, with an annual growth rate of 0.8%. The medium age of the population is relatively young at 30.7 years (CIA, 2014). Between 2003 and 2014, about 47,7 million Brazilians have risen into the “new middle class” which is estimated to encompass around 112 million people (Secretaria de Assuntos Estratégicos da Presidência da República, 2014, pp. 24-25).

In parallel to this, poverty fell from 20% in 2004 to 7% in 2009, while extreme poverty dropped from 10% to 4%. Income inequality also decreased steadily. From 2001 to 2009, the income of the poorest 10% of the population grew by 7% per year, while the income rate of richest 10% amounted to 1.7% (BTI, 2014, p. 13). Accordingly, Brazil’s GINI index improved from 54.52 in 2008 to 51.9 in 2012, and the Human Development Index (HDI) has also risen continually during the last years (Pieterse & Cardoso, 2014, p. 2).

The educational system in Brazil is characterized by an overall low level and limited access opportunities (Souza, 2011, pp. 8-9). According to the Program for International Student Assessment (PISA), Brazil performs below the average in mathematics (rank: 57/64), reading (rank: 55/56) and science (rank 58/60) (OECD, 2012). In contrast, the rate of people with primary education increased from 34.5% in 1995 to 61.7% in 2009 (Inequality Watch, 2012).

Robbery, rape, fraud, and residential thefts remain at critical levels in Brazil. According to the 2013 Brazilian Yearbook of Public Security, the national homicides rate amounted to 24.3 victims against 6.9 of the global average. However, in some main cities and business centers,

such as Rio de Janeiro or São Paulo, the crime situation has improved significantly compared to previous years (Getulio Vargas Foundation, 2014, p. 7).

2.4 Technological Factors

Science, technology and innovation are key elements for Brazil's economic development. Brazil is a world leader in agribusiness and a pioneer in biodiesel production. Additionally, the country plays a major role in the airplane and submarine industry, space research, deep water oil & gas exploration, telecommunications and software design. Thus, Brazil possesses a comprehensive technological infrastructure consisting of governmental departments, research centers and business organizations (OECD, 2011, p. 144). Brazil's overall innovation strategy is based on the action plan "Plano Brasil Maior" (Plano Brasil Maior, 2014) which pursues three main objectives: (1) The reduction of foreign technology import, (2) the support of Brazil's know-how in nature-related fields and (3) the development of the national research system.

Nevertheless, Brazil is still highly dependent on foreign innovation and technology. The technological transfer is controlled by the patent office Instituto Nacional da Propriedade Industrial (INPI), an institution which is authorized to approve all technological cross-border agreements (INIPI, 2014).

Brazil's research and innovation indicators show significant developments over the last years. The country produces 10 times more PhDs (500.000 a year) than two decades ago and is among the 15 largest producers of scientific publications in the world (SCImago Journal and Country Rank, 2014). The research and development expenditure (% of GDP) of 1.21% in 2011 was the highest share among all Latin American countries (World Bank, 2014b) and in terms of the information and communication technology (ICT), Brazil achieved the 60th place out of 148 economies worldwide in the Network Readiness Index (NRI) (Schwab, et al., 2013, p. 23).

In recent years the Brazilian Government has initiated several efforts in order to improve the conditions of intellectual property (IP) rights. To this end, it has set up different national institutions such as the Conselho Nacional de Combate à Pirataria (=National Council for Combating Piracy and Intellectual Property). In the International Property Rights Index Brazil is ranked at 46 out of 96 countries (Soto, 2014).

2.5 Legal Factors

The principal source of Brazilian law is the Civil Code, which was enacted in 2002, replacing the 1916 code. Codes that specifically refer to business issues are the labor law, company law, consumer rights and contract and property law (Neto, 2013, pp. 3-22). The Brazilian legal system is highly complex. Enforcing contracts is time-consuming and arbitration is a common procedure for resolving commercial conflicts. For this reason, foreign investors should use international laws or engage a local lawyer.

In 2014 Brazil acceded to the United Nations Convention on Contracts for the International Sale of Goods (United Nations Commission on International Trade Law, 2014). FDI is regulated by the law 4131/62. In general, Brazilian law does not prohibit FDI, but in certain industry sectors, including communications, media, public utilities and transportation, foreign ownership is strongly limited. (Ernst & Young, 2011, pp. 7-8). Every FDI is obligated to be registered in the online electronic system of the Central Bank, called Electronic Registration of Foreign Direct Investments (RDE-IED), within 30 days (Banco Central do Brasil, 2014, p. 9).

According to the New Brazilian Civil Code (NBCC), there are no additional restrictions for foreign ownership of real estate property. The Brazilian law knows 9 different types of business entities. The most common forms of establishing subsidiaries are a liability company (limitada) or cooperation (Sociedade Anônima). There are some obstacles for entrepreneurs to incorporating and registering a company in Brazil. As already mentioned before, registration procedures require a lot of time and can involve high costs. Further information including all required procedures can be viewed in the “Doing Business Report of the World Bank” (World Bank, 2014c) .

The major legislation norm regularizing labor activities in Brazil is the Consolidação das Leis do Trabalho. Labor legislation in Brazil is complex and guarantees certain rights and benefits to employees, including regulation of working hours, vacations, salary, notice periods, transportation and meals (Presidência da República, 1943). This is why labor costs are relatively high in comparison with other emerging markets.

2.6 Environmental Factors

As the world's fifth largest country, Brazil possesses a high diversity of natural resources. The country's economic and financial status is extremely dependent on these products, which

contribute to three major industries: (1) raw materials, (2) energy and (3) agriculture (Katsioloudes, 2011, p. 362).

Nevertheless, the country faces different environmental problems including deforestation, species distinction, air and water pollution, land degradation and oil spills (CIA, 2014). In order to preserve its resources, the Brazilian Government has adopted different policies and set up several regulatory organizations. The main monitoring authority in this regard is the Brazilian Environment and Natural Resources Institute (Instituto Brasileiro do Meio Ambiente - IBAMA), which establishes and controls anti-pollution standards. The Brazilian law punishes environmental crimes strictly and contamination of the soil, water or air generally leads to civil and criminal prosecution (Presidência da República, 1998) .

As the fourth largest emitter of greenhouse gas emissions, Brazil increasingly came under pressure to assume global responsibility. In this context, the country has ratified several international environmental agreements as the Kyoto protocol and hosted the United Nations Conference on Sustainable Development (UNCSD), also known as Rio+20 (Fausto & Fausto, 2014, pp. 399-400) .

2.7 Business Implications

In summary, the Brazilian business environment remains diversified. Based on favorable macroeconomic factors including a high occurrence of natural resources, population growth and economic potential, Brazil is currently one of the most sought-after investment destinations worldwide. Moreover, in aspects such as social equity and political stability, the country has shown great improvements during the last years.

However, Brazil still exhibits significant business constraints. In this context, the term “Custo Brasil” stands for the competitiveness problem of operational extra cost making Brazilian goods and services more expensive compared to those of other (emerging) countries (Parra-Bernal, et al., 2011).

It is possible to reduce some of these “costs” through good preparation. This is the reason why Brazil is not the right market for short-term profit-making. By contrast, long-term commitment and seeking economies of scale are key success factors for ensuring high return of investment.

Where the individual influence is low, investors have no other option than to be patient. In this context, Julio Ramundo, director of the BNDES observed that:

“Sixty years ago, this country was not much more than a glorified coffee plantation but we have brought many new businesses through since then. There are very good opportunities in Brazil. Just don’t be put off if you have to have more than six meetings. We like to date” (Booth, 2013).

For a better overview the table below presents the business opportunities and threats analyzed in this chapter. The classification of the PEST model is still maintained. Additionally, the factors were evaluated based on their potential business implications for Friesland Kabel’s market entry. Generally, environmental factors are assessed on two dimensions: First, according to the probability of occurrence and second according to the strength of the impact (Piercy, 2012, p. 396). The rating scale categories range from “1” to “3”. Challenges assessed as 3 have the most negative impact for Friesland Kabel. Likewise, opportunities evaluated as “3” provide great potentials. By contrast, factors rated with “1” correspond to small challenges or limited opportunities.

Table 2: Macro Environmental Factors and Business Implications (Own Presentation, 2014)

	RANK	OPPORTUNITIES	RANK	THREATS
P	3	No military conflicts	3	Bureaucracy
	2	Stable and sustainable democracy	3	Corruption
			2	Taxation
			2	Mass demonstrations
E	3	7th largest economy	2	High inflation
	3	Well-developed market segments (e.g. oil & gas industry)	2	High interest rate
			1	Lack of labor
			2	Poor infrastructure
			3	Economic crisis
			2	Unstable currency
S	3	Large population	1	Crime
	3	Rising middle class	1	Education
			1	Poverty
			1	Social inequality
			1	Social unrest
T	2	Demand for technology	1	Property rights
	2	Technological infrastructure		
L	2	Few restrictions for FDI and foreign real estate ownership	2	Complex legal environment (e.g. labor legislation)
E	3	Natural resources	1	Environmental problems

3 = Great challenges and opportunities

2= Moderate challenges and opportunities

1= Small challenges and limited opportunities

3 Industry Analysis

After this outline of the macro environmental forces, in a next step the focus will be narrowed to the industry. Similar to the macro environment, the dynamics of a given industry also determine the scope of business organizations. However, industry forces are more concentrated and have a more direct impact on enterprises. Conversely, business organizations also have more influence on the industry variables than on macro environmental forces (Gimbert, 2011, pp. 46-47). For those reasons, industry analyses are important measures for companies when it comes to market entry and strategic decisions.

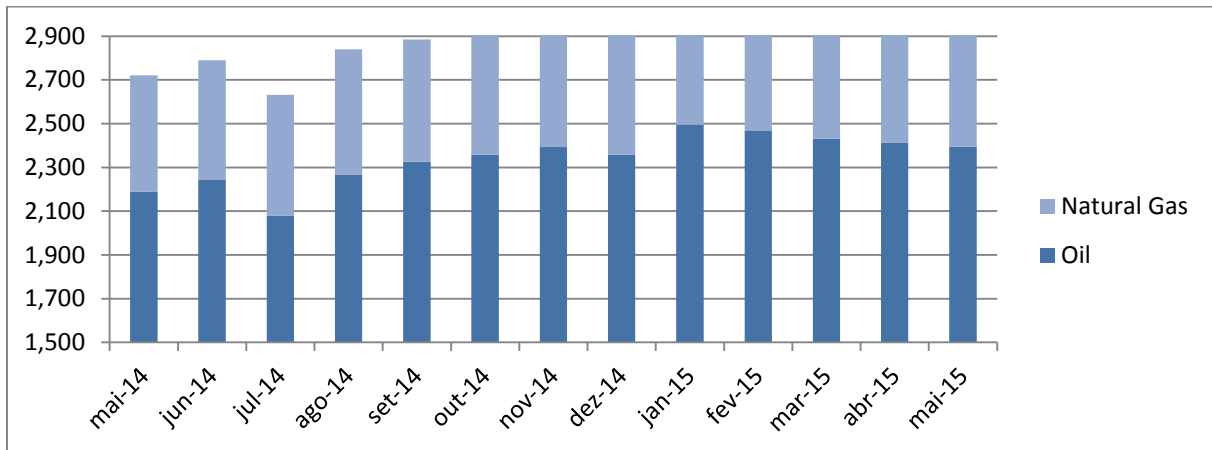
The overall aim of this chapter is to assess the market potential for Friesland Kabel within the Brazilian oil and gas industry and its relevant segments. Therefore, the study includes the following issues:

- Overview of the development of the Brazilian offshore oil and gas industry: *How attractive is the Brazilian offshore oil and gas sector in general and on an international comparison?*
- Identification of Friesland Kabel's product segment: *Which segments within the supply chain correspond to the products and services of the company?*
- Assessment of the competitive environment: *What are the key competitive factors that most affect the industry?*

3.1 The Brazilian Oil and Gas Industry: Current Scenario and Perspective

The Brazilian oil and gas sector is experiencing a defining moment of new opportunities and challenges. In the past 20 years, oil and natural gas reserves in Brazil have, in total, increased by 164% (AHK; GTAI, 2013, p. 12). With an expected investment volume of R\$ 509 billion (ca. US\$ 130 billion) between 2015 and 2018, the oil and gas industry is one of the largest investment sectors of the country (BNDES, 2014, p. 139). At a constant high production level over the last year, in December 2014 a new record of 2.497 million barrels oil per day (bpd) and 598 barrels of oil equivalent (boe) natural gas was reached (see figure 1) (ANP, 2014a, p. 11).

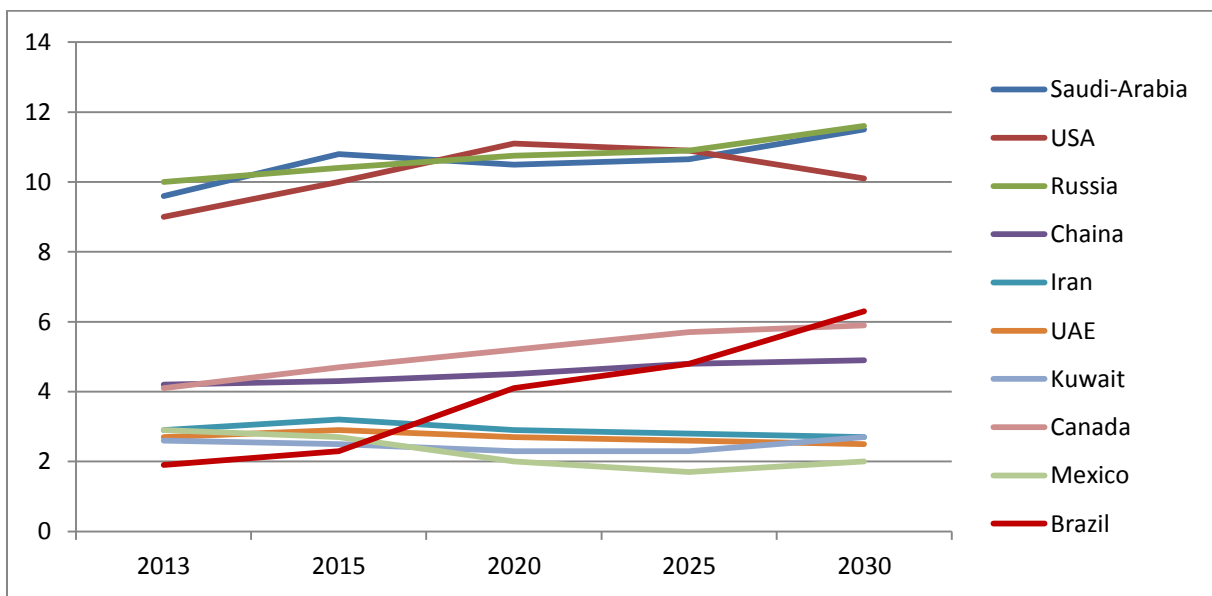
Figure 1: Oil and Gas Production over Time (in million bpd) (ANP, 2015)



With regard to further unexploited sources, Brazil is expected to become one of the major global oil and gas producers. It is estimated that in the next 20 years, Brazil will rise to the fourth biggest oil and gas producing country worldwide after the U.S.A., Saudi Arabia and Russia (see figure 2) and produce nearly 5% of the world's oil supply (AHK; GTAI, 2013, p. 20).

Based on industrial growth and a growing middle class, Brazil is also gaining importance as a sales market. It is forecasted that with an increase of 29% in demand, the oil and gas consumption in the country will account for approximately 4% of the global demand in 2020 (Enst & Young, 2012, p. 21).

Figure 2: Forecast of Oil Production by Countries (US Energy Information Administration, 2013)



Despite this positive outlook, the Brazilian oil and gas sector is currently facing a number of challenges. Apart from the global drop of the oil prices, key players on the market, such as the biggest national oil producer Petrobras, are involved in different corruption affairs. Over several years, managers of the company have taken bribes amounting to billions. The result of this is that thousands of contracts with suppliers and construction companies must be reconsidered and renegotiated. In this scenario, many supplier companies have already closed down and about 20.000 employees of the industry have been dismissed. According to the estimations of the Federal Police, the costs of Petrobras which are directly related to the corruption incidents amount to about R\$ 19 billion (ca. US\$ 5 billion) (Globo, 2015). Against this background, the company has reduced its investment plan for the next 4 years by 37 % (Petrobras, 2015, p. 8).

3.2 National Actors

3.2.1 ANP

The Brazilian National Agency of Petroleum, Natural Gas and Biofuels (ANP) is the central regulatory organ that monitors oil, natural gas and biofuel activities in Brazil. Linked to the Ministry of Mines, the ANP sets national policies and announces bidding rounds for oil and gas resources (ANP, 2014b).

3.2.2 Petrobras & Transpetro

Petrobras is a publicly traded company whose major stakeholder is the Government of Brazil. As an integrated energy company, Petrobras operates in different sectors including exploration and production, refining, marketing, transportation, petrochemicals, oil product distribution, natural gas, electricity, chemical gas, and biofuels (Petrobras, 2014a, p. 1). With its share of 79% of the total national investment in the sector, Petrobras is by far the biggest oil and gas company in Brazil (Camerini, 2014, p. 6). Transpetro, a subsidiary of Petrobras specializes in transportation and logistics activities (Transpetro, 2014).

3.2.3 Private Producer

Apart from Petrobras, the remaining market share is distributed between a few private companies and multinationals. The table below shows the biggest 5 producer according to their production volume.

Table 3: Top 5-Producer 2014 (ANP,2014)

Company	Production (boe/d)
Petrobras	2.402.640
Statoil Brasil	77.231
Shell Brasil	47.690
Parnaíba Gás	37.954
Chevron Frade	17.279

3.2.4 Private Industry Organizations

Private organizations which represent companies of the Brazilian oil gas industry include the National Organization of the Oil Industry (ONIP) and the Brazilian Institute for Oil, Gas and Biofuels (IBP). ONIP is a non-profit organization which serves as a communication and cooperation forum between companies, suppliers and government agencies involved in the Brazilian oil and gas sector (ONIP, 2014).

IBP is a private association with 200 member companies. The main objective of IBP is to support the sustainability, competitiveness and the social responsibility of the national oil, gas and biofuels industry. (IBP, 2014).

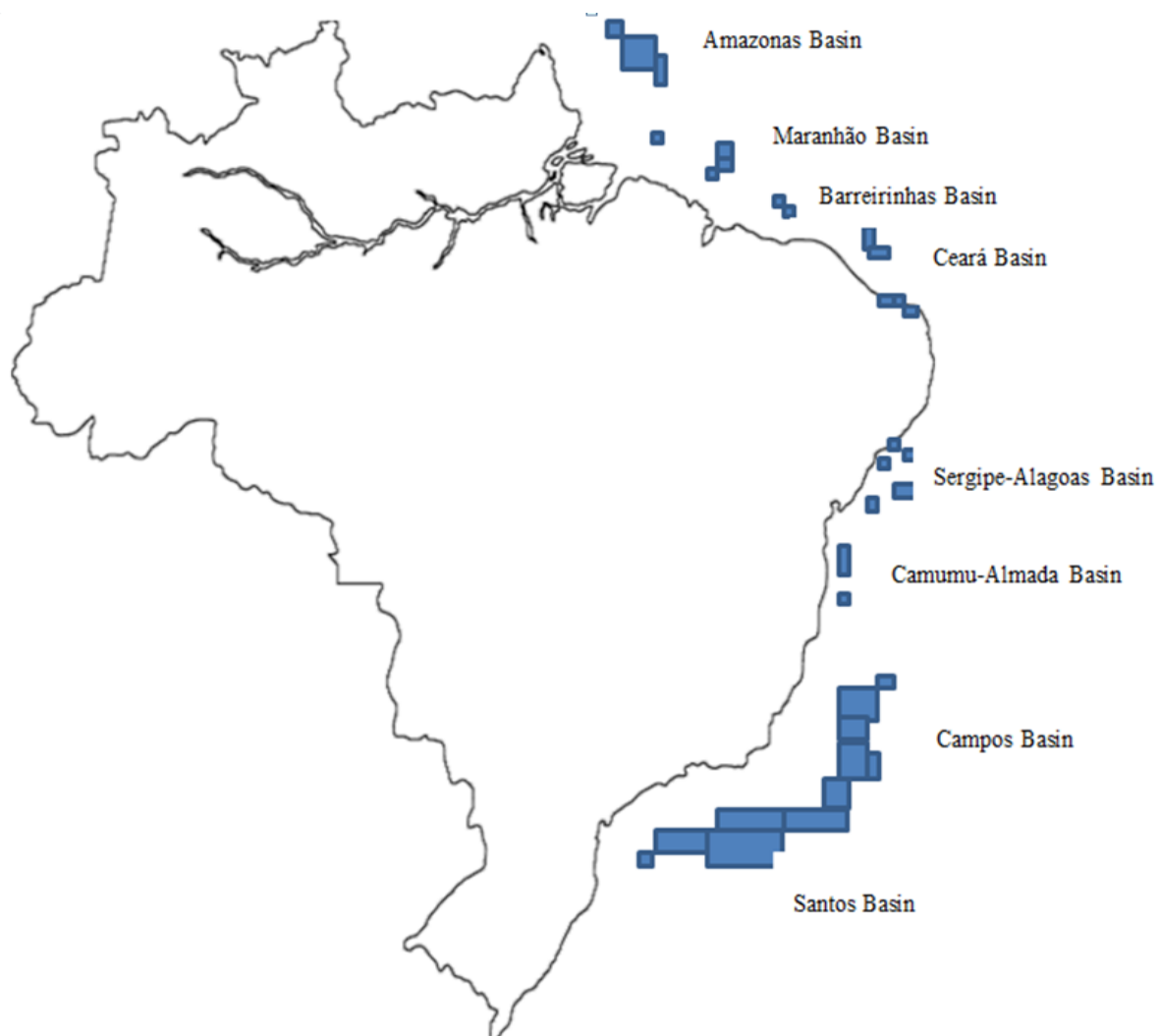
3.3 The Offshore Oil and Gas Sector: Pre-Salt

3.3.1 Geographical Overview

The total Brazilian offshore oil and gas reserves consist of ca. 7% of Shallow Water (0-300m); 48% of Deep Water (300 – 1500 m) and 45% of Ultra Deep Water fields (> 1500m) (Pinho, 2014, p. 4). “Pre-Salt” fields are oil and gas deposits that lie below under thick layers of salt, in areas of approximately 7.000 meter below the sea.

The largest part of the pre-salt reserves is located ca. 300 km off the Brazilian South Eastern coast and extends across 5 federal states, from Espírito Santo over Rio de Janeiro and São Paulo to Paraná and Santa Catarina. The total pre-salt area discovered to date is estimated at 149,000 square kilometers (Petrobras, 2014e). Figure 3 provides an overview of the geographical location of the fields. In addition, a more detailed map is provided in appendix 6.

Figure 3: Oil and Gas Production in Brazil (Adapted from Enst & Young, 2012)



3.3.2 Market Size and Growth

The dynamic growth of the Brazilian oil and gas industry is mainly based on the discovery of offshore deep-water pre-salt fields. Research by Petrobras has shown that more than half of the global oil and gas sources discovered between 2005 and 2010 are located in the deep sea. Out of these, 62% belong to Brazil (AHK; GTAI, 2013, p. 15). Additionally, the ANP estimates that of the approximately 14.7 billion barrel of officially proven oil reserves at the end of 2013, 94% are from offshore sources. (ANP, 2013). It is supposed that the already discovered sources represent only a small percentage of the actual volume. The overall quantity of the seep-sea sources is estimated at 50-70 billion barrels. Between January 2013 and February 2014, 38 new offshore sources were discovered, 14 of them in the pre-salt. Currently, 100% of all drillings lead to new findings. The table below provides an overview

of basins with their respective volumes and number of production facilities (ANP, 2014a, p. 23).

Table 4: Distribution of the Oil & Gas Production by Basin (ANP,2014)

Basin	Oil	Gas	Total production	Number of production facilities
Campos	1.552.481	25.414	1.712.338	45
Santos	307.372	18.141	421.479	9
Solimões	28.817	12.465	107.224	4
Espírito Santo	42.206	6.424	82.615	40
Potiguar	59.834	1.460	69.016	83
Sergipe	43.712	2.914	62.040	22
Recôncavo	43.636	2.550	59.677	80
Camamu	632	6.106	39.037	1
Parnaíba	144	6.011	37.954	14
Alagoas	4.599	1.590	14.602	13
Ceará	6.248	82	6.766	4
Tucano Sul	13	90	578	4
Total	2.089.694	83.248	2.613.326	306

3.3.3 Business Opportunities

Against the background of the deep-water oil and gas exploration there is a high demand for innovation and technology in this sector. Local content regulations set by the government are supposed to meet the most of the requirements by domestic resources. However, due to technological gaps and limited local expertise, the production volume cannot be achieved without foreign contribution.

For this reason, manufacturers of products and providers of services which cannot be covered by local content will be specifically sought abroad in order to establish joint ventures with domestic companies. One of these projects already started in 2014 under the coordination of ONIP and the trade and investment promotion agency Apex Brasil (AHK; GTAI, 2014, pp. 13-14). In the first phase of these projects, potential Brazilian companies for strategic partnerships will be selected. Then, in the next two years at least 7 international road

shows to trade fairs in Asia, Europe and North America will be organized in order to find the appropriate foreign partner. (Appex Brasil, 2014a).

3.4 Target Segment Definition

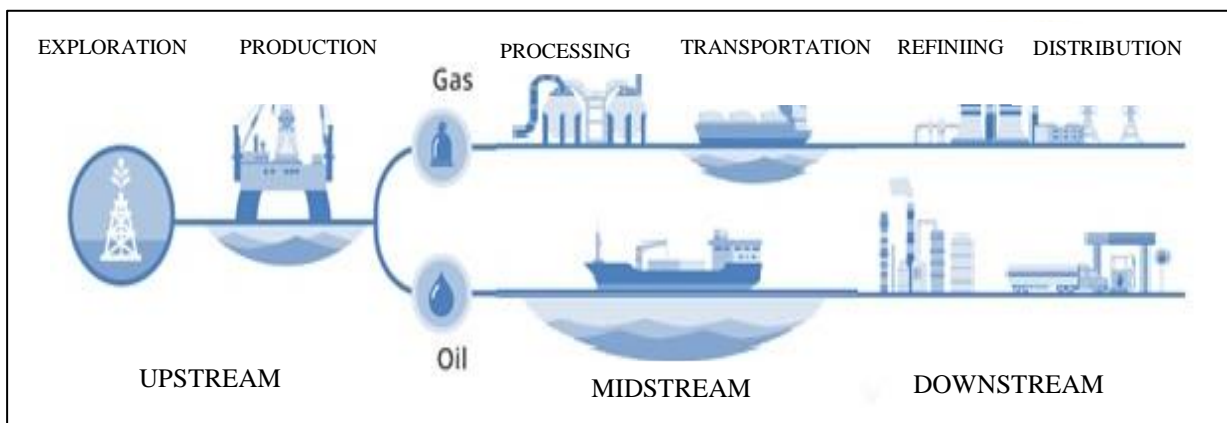
The offshore oil and gas sector is a very complex and fragmented industry that includes a number of different processes. Thus, the objective of this section is to identify those industry segments that will present the most opportunities for Friesland Kabel in terms of market potential and product suitability. This enables a more focused assessment of the relevant segments in the further analysis.

Therefore, first a brief overview of the main segments of the offshore oil and gas supply chain and the products of Friesland Kabel will be presented. On this basis, it will then be determined which segments and products fit together. After that, the related sub-segments will be analyzed according to market size and growth.

3.4.1 The Offshore Oil and Gas Supply Chain

The offshore oil and gas supply-chain can basically be divided into three distinct segments: Upstream, Midstream, and Downstream. The upstream sector includes processes related to the exploration and production (E&P) of oil and gas. Midstream processes refer to the processing and the transportation of the oil and gas to the refineries through tankers or pipelines. The downstream industry covers the refining and the distribution of the products to the final consumer (Harrison & Hoek, 2008).

Figure 4: Offshore Oil and Gas Supply Chain (Quintig, 2014)



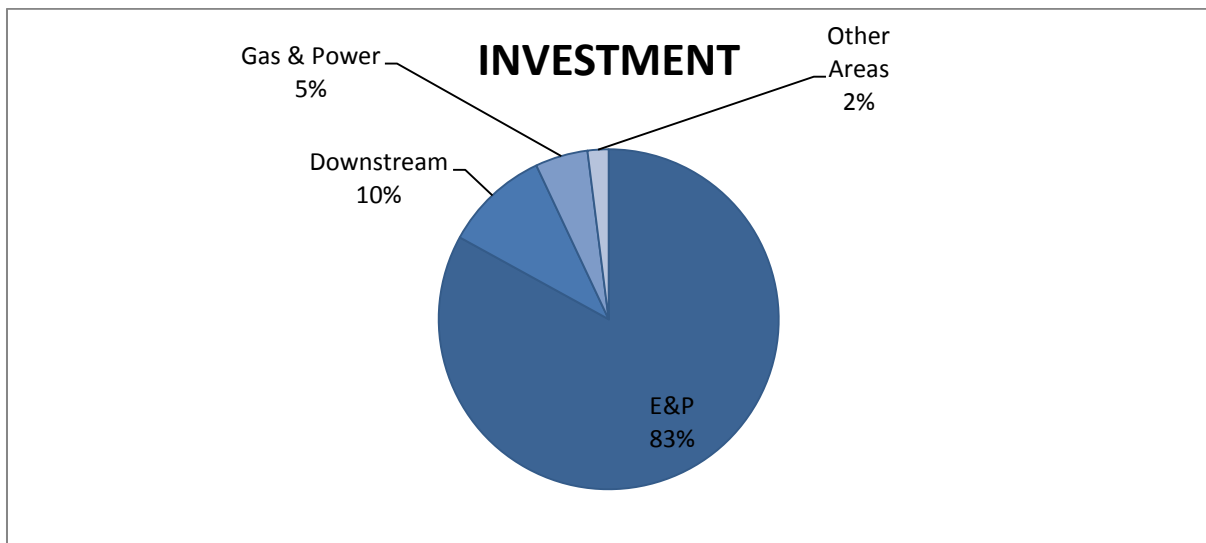
3.4.2 Product Definition

Friesland Kabel is a distributor of wires, cables and network technology. The product range covers five main categories: (1) marine cables; (2) industrial cables; (3) cable and wires; (4) wind cables and (5) data systems technology. Among these, the marine cables and network technology specialized for offshore communication are the products that are most suitable for the offshore oil and gas industry. This equipment can be mainly used in the upstream and midstream sector for offshore constructions including platforms, rigs and vessels.

3.4.3 Production and Development

With regard to future investments, the E&P sector is by far the biggest and fastest growing segment. According to the new Business and Management Plan of Petrobras, until 2019 83% (US\$ 108,6 billion) of the company's total investment is supposed to flow into E&P activities (Petrobras, 2015, p. 8). This focus on E&P is mainly due to the production expansion of the pre-salt sources.

Figure 5: Investement from Petrbras 2015-2019 (Petrobras, 2015)



The bulk of the total expenditures for E&P will be invested in the construction of plants and platforms. Most of these activities are outsourced and performed by specialized industrial service providers and EPC (Engineering, Procurement, and Construction) companies (AHK; GTAI, 2014, p. 20).

3.4.4 Shipbuilding and Marine Equipment

Due to the fact that the shipbuilding sector depends to a large extent on orders from the oil and gas industry, the Brazilian shipyards, for the first time in 15 years, are undergoing a major crisis. In the first half of 2015 around 14.000 employees were dismissed and the construction orders in the shipyards dropped from 381 in 2014 to 279 ongoing projects (SINAVAL, 2015, p. 2). At this point, the exact impact on the industry is difficult to predict. For that reason, both the past and estimated future orders for offshore vessels including tankers (1.6.1); oil production platforms (1.6.2); offshore support vessels (1.6.3) and drilling rigs (1.6.4) will be briefly presented in the following.

3.4.5 Tankers

In 2014 Brazil had the third largest portfolio of orders for oil tankers in the world (Transpetro, 2014, p. 1). Tanker vessels are crucial for the transportation of oil from platforms to terminals on land and of oil products along the Brazilian coast. Within the framework of the growth programs PROMEF and EBN, Brazil had planned to increase its tanker fleet by 88 new vehicles until 2020, including 14 Suezmax, 8 Aframax, 4 Panamax, 38 Products, 8 gas tankers und 9 bunkers (AHK, 2014b, p. 20).

Due to the decline in orders there are currently only 29 tankers under construction (SINAVAL, 2015, p. 4). The table below gives an overview of the recently confirmed projects.

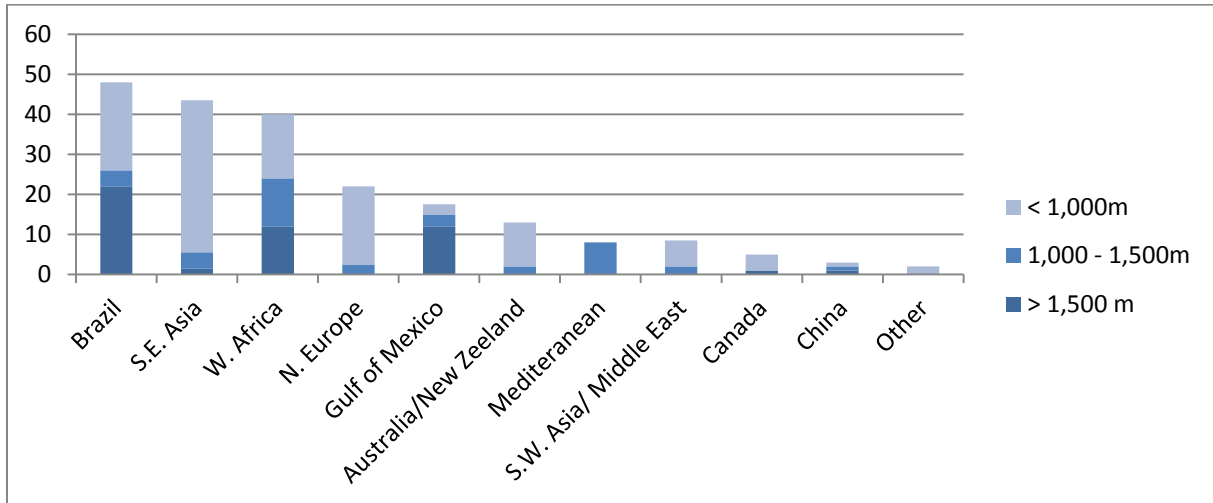
Table 5: Order Position – Tankers (Sinaval, 2015)

Shipyards	Local	Type	Quant.	Owner
Eisa Petro Um	Niterói (RJ)	Aframax/ product tanker	7	Transpetro
Estaleira Atlântico Sul	Suape (PE)	Suezmax and Aframax tanker	14	Transpetro
Vard Promar	Suape (PE)	Gas carrier	8	Transpetro
Total			29	

3.4.6 Oil Production Platforms

Offshore production platforms of different types such as FSPO’s (floating production, storage and off-loading) or SS’s (semi-submersible) generally support production and storage operations (Chakrabarti, 2005, p. 1065). In 2011, with 115 out of 194 FSPO projects, Brazil was at the top of the of all producing countries worldwide (Jacoby, 2012, p. 21)

Figure 6: FSPO Projects by Country/Region (International Maritime Associates, Inc. ,2012)



The former expansion plan provided the construction of 12 out of 27 platforms and production units on the domestic market (AHK, 2014b, p. 28). According to table 6 currently seven hulls are under construction and 10 production modules are ordered. Five further platforms are planned to be built in Asian yards (SINAVAL, 2015, p. 6).

Table 6: Order Position - Production Platforms (Sinaval, 2015)

Shipyard	Local	Type	Unit
Rio Grande Shipyard	Rio Grande (RS)	FSPO hull construction	5
Inhaúma	Rio de Janeiro (RJ)	FSPO hull conversion	2
Total			7
BrasFELS	Angra dos Reis (RJ)	FSPO module hull integration	3
Brasa	Niterói (RJ)	FSPO module const./hull integration	2
EBR	Sao Jose do Norte (RS)	FSPO module hull integration	1
Techint-Technip	Pontal do Paraná (PR)	FSPO module hull integration	1
Integra	Sao Joao da Barra (RJ)	FSPO module hull integration	1
QGI	Rio Grande (RS)	Module construction, hull integration	2
Total			10

3.4.7 Drilling Rigs

In 2014 Sete Brasil Participações SA (Sete Brasil) intended to produce 29 offshore drill rigs for Petrobras, which were supposed to be manufactured completely in the domestic market and under strict local content requirements (2b1 Consulting, 2014). This number was recently reduced to 19 units. To acquire additional financial resources, Sete Brasil established partnerships with Kawasaki (Japan) KeppelFels (Singapore), SembMarine Corp (Singapore), the China Offshore Oil Engineering Corporation (COOEC) and the subsidiary Odebrecht Oil and Gas (see table 7) (SINAVAL, 2015, p. 7).

Table 7: Order Position - Drilling Rigs (Sinaval, 2015)

Shipyard	Quant.	Shareholder
Enseada Indústria Naval (BA)	4	Kawasaki/OOG
BrasFELS (RJ)	6	KeppelFels
inaJurong (ES)	7	SembMarine Corp
Estaleiro Rio Grande (RS)	2	COOEC
Total	19	

3.4.8 Offshore Support Vessels

The reduction of orders for oil platforms and drilling rigs has a direct impact on the construction of support vessels. Last year the orders of supply boats until 2020 amounted to 198 additional vessels (AHK, 2014b, p. 23). According to recent information, currently only 32 offshore support vessels (OSVs) are under construction. Moreover, it is expected that in the context of Petrobras' new investment plan, already tendered projects will be renegotiated and postponed. The company's objective is to reduce the present support vessel fleet by around 90 ships (SINAVAL, 2015, p. 5).

Table 8: Order Position – OSV (Sinaval, 2015)

Shipyard	Local	Type	Quant.	Owner
Vard Niteroi	Niteroi (RJ)	PLSV	2	DOF-Technip
Alianca	Niteroi (RJ)	PSV	2	Grupo CBO
Eisa	Rio de Janeiro (RJ)	PSV	4	Brasil Supply
Sao Miguel	Sao Gencalo (RJ)	PSV	4	Bravante
Wilson Sons	Santos (SP)	OSV	4	Two for undisclosed parties, two for WSUT
Oceana	Nevegantes (SC)	AHTS	4	Grupo CBO
Keppel Singmarine	Nevegantes (SC)	PSV 4500	2	Guanabara Navegacao
Navship	Nevegantes (SC)	MPSV	8	Bram Offshore (ECO)
Detroit	Itajai (SC)	PSV	2	Starnav
Total			32	

3.4.9 National Shipyards: Locations

The state of Rio de Janeiro with its 18 shipyards constitutes the center of the Brazilian shipbuilding industry. An overview of the main national shipbuilding locations and their production capacity can be gained from the table below.

Table 9: Main Brazilian Shipyards (Sinaval, 2014)

YARD	STATE	STEEL PROCESS (1,000 t. year)	SIZE (1,000m ²)
Eisa	Rio de Janeiro	52	150
BrasFELS	Rio de Janeiro	50	410
Mauá	Rio de Janeiro	36	334
STX OSV Niterói	Rio de Janeiro	15	120
Alianca	Rio de Janeiro	10	61
UTC	Rio de Janeiro	?	112
Wilson, Sons	São Paulo	10	22
Navship	Santa Catarina	15	175
Rio Grande	Rio Grande do Sul	30	100
Quip	Rio Grande do Sul	0	70
Atlântico Sul	Pernambuco	160	1.500

3.4.10 Marine Cables & Network Technology

Information about the demand for Friesland Kabels's specific products can be derived from the procurement lists for marine equipment (appendix 1-4) originally released by SINAVAL (AHK; GTAI, 2014, pp. 44-50) and lists of Petrobras's supplying goods (Petrobras, 2014d). In both types of documents, marine cables and individual parts of network technology can be found. Nevertheless, it has to be taken into consideration that these documents were published before the crisis affected the shipbuilding sector and that at this time, no updated lists are available. Thus, it must be assumed that, in line with the shipbuilding industry, the demand for this kind of product has also declined.

3.5 Competitive Environment: Porter's 5 Forces Analysis

Identifying the competitive environment of a given industry is crucial for companies in order to assess the long-term profitability of markets. An extensive strategic management framework for this purpose is the Porter's 5 Forces model. This framework focuses on five forces that shape the overall competitive environment of an industry: (1) threat of new entrants; (2) bargaining power of buyers; (3) threat of substitute products or services; (4) bargaining power of suppliers and (5) rivalry among existing competitors. The stronger each of the forces is, the less profitable is the industry, the weaker these forces, the more attractive it is. The application of this model helps companies to recognize threats and opportunities and to develop appropriate strategic responses (Porter, 2008a, pp. 36-46).

Based on the Porter's 5 Forces framework, the following analysis investigates how the competitive environment of the Brazilian oil and gas industry influences the profitability of Friesland Kabel in the market. In this connection, it must be noted that, depending on the force and the sub-factors affecting the company, the analysis covers different levels of the industry, ranging from the entire sector to the specific product segment of Friesland Kabel. Furthermore, only such factors will be considered which constitute particularities of the Brazilian oil and gas market or have a potential impact on the Friesland Kabel's business activities.

3.5.1 Threat of New Entrants

The threat of entry depends on the presence and height of entry barriers (Porter, 2008a, p. 3). Entry barriers are an advantage to firms that already operate in a given market. For a new entrant such as Friesland Kabel, entry barriers represent a challenge.

The major obstacle within the Brazilian oil and gas industry are local content policies. As mentioned above, the Brazilian Government puts great emphasis on the preservation of national contribution within the oil and gas industry. The objective of this prospective policy is to integrate national suppliers and to promote domestic know-how. In order to obtain operation rights in the oil and gas supply chain, companies are required to pass several bidding rounds on the basis of cash bonus, work program and local content (Tordo, et al., 2011, p. 89). In these rounds, the ANP sets the minimum acceptable share of local content and monitors the compliance. Additionally, the agency has established a certification system in which accredited certifiers determine the local content required for particular goods or services. Depend on the product and segment, local content requirements vary significantly.

For instance, E&P in the pre-salt area are subjected to particularly strict regulations (85 to 95 % by 2020). This also includes ships, offshore units and marine equipment.

As a consequence, national oil and gas companies have adopted local content policies in their operating strategies. For instance, suppliers who want to provide services and products to Petrobras are, among other criteria that have to be fulfilled, also assessed according to their local content (Barroso & Macedo, 2010, p. 65).

3.5.2 Bargaining Power of Buyers

Powerful buyers are able to bargain prices, demand better quality and services and possess negotiation leverages relative to other actors of the industry (Porter, 2008a, p. 7).

As it is common in the oil and gas sector, in Brazil there is also one single dominating actor on the market (monopsony). Petrobras concentrates 79% of the total investments (Camerini, 2014, p. 6). This privileged position allows the company to control competition, select its vendors and set contractual conditions (Beato & Benavides, 2004, p. 97).

For Friesland Kabel, it is difficult to compensate this market power. The product type of the firm does not leave much room for differentiation, which means that Petrobras faces few switching costs between other suppliers. Nevertheless, the products present some favorable properties (more detailed information in chapter 4). In this connection, it has to be considered that the oil and gas industry is highly service-intensive. Due to the potential costs of breakdowns, service is more relevant than financial investments (Reynolds & Lancaste, 2002, p. 202).

3.5.3 Bargaining Power of Suppliers

Powerful suppliers affect the industry by charging higher prices, limiting production and services, or shifting costs to industry participants (Porter, 2008a, p. 6).

Friesland Kabel is a cable distributor which obtains the completed products from one single producer. This is why the company, even on other markets such as Brazil, does not require additional suppliers.

3.5.4 Threat of Substitutes

The availability of substitute products or services limits the profitability of an industry (Porter, 2008a, p. 8).

For marine cables and offshore network technology, only a few substitutes could be identified which are relatively similar in terms of type, quality and price. The marine cables

can be distinguished by the materials used. Especially with regard to additional safety requirements for offshore oil and gas operations, there are different technical solutions.

3.5.5 Competitive Rivalry

Rivalry between companies can limit industry profitability depending on the intensity and the form of competition (Porter, 2008a, p. 9).

Due to the fact that specific information about rivalry in the related industry could not be derived from secondary data, structured interviews have been conducted with the following marine cable producers and suppliers operating on the Brazilian market: Cross Fox, Dova Supply, Nexans, Prysmian Group and Telefio Cabos. The detailed questions and answers can be found in appendix 5.

The results of the interviews show that the overall market rivalry can be considered as moderate to highly competitive. On the one hand, only a few producers and suppliers could be identified. The major companies include Cofibam (Brazil), Eurocabos (Brazil), FNCE (Brazil), General Cable (Brazil), Nexans (France), Pan Electric (Brazil), Prysmian Group (Italy) and Wirex (Brazil). On the other hand, however, the market decline within the shipbuilding industry and the monopoly of Petrobras significantly intensify the market competition.

The sources of rivalry are mainly technology and price. Especially for activities in deep-water areas, technology that is advanced in terms of safety properties and physical resilience is of great importance. (Okun, et al., 2003, pp. 3-13). The individual companies offer different technical solutions. In this connection Friesland Kabel distinguishes itself by providing state-of-the-art technology in combination with a comprehensive service performance (see chapter 4).

Concerning the price competition, it has to be considered that Friesland Kabel has a price disadvantage compared to suppliers of locally manufactured products, since companies pursuing an import based strategy are affected by additional import and transportation costs. Furthermore, it has been shown that local content requirements additionally increase the rivalry among foreign suppliers.

3.5.6 Five Forces Summary

The analysis has shown that the competitive environment of the related industry is shaped by only a few forces. Among them, the suppliers' power and the threat of substitutes have the least potential effects on Friesland Kabel's business activities and even provide favorable

starting conditions. However, other aspects, in particular the predominance of Petrobras and local content policies have a great impact on Friesland Kabel's expansion plans and require well-considered strategic responses. In order to provide a concise overview, the most important forces are presented and evaluated in table 10.

Table 10: Overview of Porter's Five Competitive Forces (Own Presentation, 2014)

Competitive Force	Rating	Most Relevant Impacts
Supplier Power	Low	<ul style="list-style-type: none"> • Only one supplier
Buyer Power	High	<ul style="list-style-type: none"> • Predominance of Petrobras
Threat of Substitutes	Low	<ul style="list-style-type: none"> • Moderate product differentiation
Threat of Entrants	High	<ul style="list-style-type: none"> • Local content requirements
Intensity of Rivalry	Moderate/High	<ul style="list-style-type: none"> • Few producers and suppliers • State-of-the-art products • Market decline • Local content

4 Internal Analysis: Resources and Capabilities

The internal analysis is the third part within the strategic planning process. In contrast to the previous external analysis, this chapter has an internal focus on the strengths and weaknesses of Friesland Kabel. Only both perspectives seen together, external and internal provide a full overview, which is necessary for selecting an appropriate strategy and business model for the company (Hill, et al., 2013, p. 82).

The investigation starts with a brief presentation of Friesland Kabel and the determination of the company's tangible and intangible resources. In a second step, the competitive potential of the identified resources and capabilities will be assessed with the aid of the VRIO framework.

4.1 Company Profile

Founded in 2007, Friesland Kabel is a medium-size enterprise which currently employs worldwide 30 people. Headquartered near Hamburg (Germany), the company operates worldwide in on- and offshore projects and maintains subsidiary offices in Romania, Croatia, Czech Republic, Argentina and Brazil. Friesland Kabel is the exclusive distributor of the finish cable producer Helkama in almost all European countries, Russia and South America. The product portfolio includes marine- and industrial cables complying with the highest quality and safety requirements (Friesland Kabel, 2014).

Friesland Kabel possesses a variety of different capabilities. Based on the company's web presence the main tangible and intangible resources have been determined and complemented by the CEO of Friesland Kabel, Klaus Moorlampen. The results are outlined in the table below.

Table 11: Friesland Kabel - Types of Resources (Adapted from Grand, 1991)

Tangible Resources	
Financial	
Physical	<ul style="list-style-type: none"> • High quality & broad product range • Regional stock (Norderstedt) • Central warehouse (Hamburg)
Technological	<ul style="list-style-type: none"> • Oil-, fire- and temperature resistance (halogen-free) • Robust materials: SHF1 and SHF2 for cable sheath • Minimum weight materials (PUR, NEK 606) • Easy to install • Cuts refined (label, top, depth gauge) • Optimization of material usage • Ecological production processes • Recyclability
Organizational	<ul style="list-style-type: none"> • Customized delivery to determined deadlines all over the world • Marine logistics according to specified pull lists • JIT logistics (just in time); TTT logistics (time-to-time); night delivery • Packaging: shipping notice; export forms; weather and tension proof end caps • Cables delivery at the right temperature for being laid • Logistics and stock at the construction site • Fast production time
Human	<ul style="list-style-type: none"> • Quality management • Customization and service
Innovation and Creativity	<ul style="list-style-type: none"> • Products with different international approvals: IEC, DNV, GL etc.
Reputation	<ul style="list-style-type: none"> • Supply of wires and cables within different national and international projects: Offshore wind installations in the German North Sea (HelWin, BorWin and SylWin); Offshore Nord Stream gas pipelines
Organizational Capabilities	
	<ul style="list-style-type: none"> • Around the clock customer service • International subsidiary offices and distributors

4.2 VRIO-Analysis

4.2.1 Methodology

In competitive markets, the profitability and competitive position of firms is strongly dependent on resources and capabilities (Ahlstrom & Bruton, 2010, p. 101). Resources are the tangible and intangible assets of organizations. Resources allow companies to develop capabilities which in turn are the basis for competitive advantage (Hitt, et al., 2009, p. 76). According to Barney,

“a firm is said to have a (sustainable) competitive advantage when it is implementing a value creating strategy not simultaneously being implemented by any current or potential competitors (and when these other firms are unable to duplicate the benefits of this strategy)” (Barney, 1991, p. 102).

In view of the strong competition Friesland Kabel faces in the Brazilian oil and gas sector, it is crucial to offer products and services that distinguish themselves from those of its competitors.

An appropriate method for assessing whether resources of organizations provide them with sustainable competitive advantage is provided by the VRIO model. The acronym VRIO stands for four characteristics which determine the competitive potential of resources (Barney, 1991, pp. 105 - 106):

1. **Value:** Does the resource enable the company to exploit environmental opportunities, and/or neutralize threats?
2. **Rarity:** Is the resource exclusively possessed by only a small number of organizations?
3. **Imitability:** Is the resource imperfectly imitable in order to avoid that other firms cannot obtain them?
4. **Organization:** Does the firm’s organization enable the exploitation of its valuable, rare and imperfectly imitable resources?

According to the VRIO approach, resources can only lead to sustainable competitive advantage if you can answer all these questions with yes. The table below shows the competitive and economic implications, depending on which of the four criteria apply (Barney & Hesterly, 2010, pp. 68-86).

Table 12: VRIO Analysis: Competitive and Economic Implications (Adapted from Barney & Hesterly, 2010)

Valuable?	Rare?	Costly to Imitate?	Organized Properly?	Competitive Implications	Economic Implications
No			No	Disadvantage	Below Normal
Yes	No		↑ ↓	Parity	Normal
Yes	Yes	No		Temporary Advantage	Above Normal (at least for some amount of time)
Yes	Yes	Yes	Yes	Sustained Advantage	Above Normal

4.2.2 Application and Results

In order to determine which of Friesland Kabel’s capabilities actual sources of sustainable competitive advantage are, a series of qualitative interviews with internal executives and key employees of the company has been conducted. The interviews were individual and carried out via telephone. The sample consists of three respondents who were selected because of their strategic knowledge: the CEO, the sales manager in Germany and the head of sales in Latin America. Based on the VRIO framework the interview included two main questions:

1. Which are the main sources of Friesland Kabel’s competitive advantage and meet all the following criteria?
 - a) Valuable to the company’s goals.
 - b) Rare in comparison to competitors.
 - c) Difficult to imitate for competitors.
 - d) Exploitable by the company.

2. In which areas is Friesland Kabel not competitive and shows few or none of the criteria above?

For both questions, the experts were asked during the interview to determine a maximum of five resources and to justify their responses. This was intended to ensure that only the real core capabilities and disadvantages would be chosen.

Generally, the interview participants replied to the questions very similarly. All three experts specified the material properties of the marine cables as the key source of Friesland Kabel’s competitive advantage. In this connection, especially the security features and the light weight of the cables have been emphasized as unique properties compared to competitors. Moreover, the company’s customer services including the overall logistical concept, fast production times and the capability to adapt the products to the customer’s needs were also named among all respondents. Additionally, two of them mentioned the experience and reputation which Friesland Kabel has acquired in several international offshore projects.

The disadvantages included mainly the limited financial resources and the lack of price competitiveness against local suppliers. Moreover, it can be added that Friesland Kabel does not have long-standing knowledge about the Brazilian market.

The relevant aspects are presented once more in table 13.

Table 13: Corporate Strengths and Weaknesses (Own Presentation, 2014)

Strengths	Weaknesses
<ul style="list-style-type: none"> • Industry experience and reputation • Latest state-of-art products • Service: logistic, fast production time and on time, customization 	<ul style="list-style-type: none"> • No price competitiveness • Few market knowledge • Limited financial resources

5 Strategy Formulation

So far it has been analyzed which external and internal factors determine the scope of Friesland Kabel. On the basis of this analysis, the next major step is to select an appropriate set of strategic instruments through which the company is able to create and sustain competitive advantage.

An appropriate strategy should therefore build on Friesland Kabel's capabilities and compensate its weaknesses in order to take advantages of environmental opportunities and overcome external barriers (Hill & Jones, 2012, p. 7). Additionally, Porter considers the uniqueness of value proposition as the key success factor of a company's strategy (Porter, 1996, pp. 62-64).

According to Mintzberg, strategy is "a pattern in a stream of decisions" (Mintzberg, 1978, p. 935). Core elements of strategic decisions include objectives, power, relationships, performance, resources and competencies (Gupta, 2013, p. 86). Two levels of strategies can be distinguished: (1) The corporate strategy and (2) the business strategy. On a business level, companies compete in a specific business area. In the case of this project, the business scope is determined by a specific industry and geographical area: the Brazilian oil and gas industry.

A further distinction is to be made between global and national operations. Due to differentiated resource bases and more complex environments, MNEs in an international environment face a wider range of strategic choices compared to domestic companies. For that reason global strategy formulation is generally more complicated and time-consuming (Tallman, 2009, p. 12).

The literature provides several approaches to separating the individual components of market entry processes (Macharzina & Wolf, 2005, p. 946) or (Perlitz, 2004, p. 64). Adapted from Hill, Jones & Schilling, the strategy formulation of this project includes the following phases (Hill, et al., 2013, p. 11):

1. Mission, vision & objectives
2. Strategic position
3. Strategic actions
4. Entry mode
5. Marketing plan
6. Action plan

It is important to note that the strategic framework developed here cannot be seen as the final solution. Strategic plans frequently have to be adapted in view of appearing or changing opportunities and risks. In this connection, Mintzberg coined the term “emergent strategy” which refers to strategic measures that were not intended from the beginning of the planning process or that were not realized due to unrealistic expectations, misjudgments, or inadequate implementation approaches (Mintzberg, 1978, p. 945).

6 Mission, Vision & Objectives

Based on the assumption that the purpose of strategies is to ensure the achievement of corporate goals, the question arises which objectives Friesland Kabel actually pursues. In order to explicitly express corporate goals, statements of mission, vision and objectives are useful management tools. The correlation between these elements can be described as follows: A strategic plan determines the use of resources and objectives to accomplish the company's mission that in turn will lead to the achievement of the vision (Wallace, 2009, p. 29).

6.1 Mission Statement

The Mission is the overall purpose of a company and the reason for its existence (Ahlstrom & Bruton, 2010, p. 106). In the literature, the mission statement is often set as the first component of the strategic management process, since it constitutes a guiding framework that serves as an orientation for all business activities. Further functions of mission statements include legitimation, information, motivation, and public relations (Baldegger, 2012, p. 145).

There are no common rules regarding the content and elements of mission statements. Generally, mission statements are structured in three parts: First, an introduction describes the purpose of the statement. The second part covers the company's activities, including its products and markets. The third part defines the relationship with internal and external stakeholders. (Baldegger, 2012, p. 146).

Mission statements are effective if they present certain characteristics such as: relevant, clear, realistic and achievable, flexible, current, enduring and inspiring (Evans, et al., 2011, p. 16) or (Olsen, et al., 2004, p. 13).

Missions can not only be helpful for the entire company, but also for specific business units. Especially for international business operations it is important to adapt the overall goals of the company to a host country level (Ahlstrom & Bruton, 2010, p. 106). In this connection, three fundamental dimensions can be distinguished: (1) customer groups (whom to satisfy?); (2) customer needs (what to satisfy?) and (3) key capabilities (how to satisfy?) (Hill & Jones, 2012, p. 15).

Customer groups: Friesland Kabel's potential operations in Brazil are concentrated on Business-to-Business (B2B) markets in which the supply and the demand side exclusively consists of organizations (Wright, 2004, p. 3). The target organizations of Friesland Kabel can

be further distinguished into two groups. The first group is composed of the main oil and gas producers already presented in 3.2.2 and 3.2.3. These companies constitute the final customer. The second group consists of some major suppliers of oil and gas production, including private shipyards, shipbuilding or platform manufacturers and marine engineering companies.

Customer needs: Both types of customers need high complexity services and equipment. Which supplier requirements are actually demanded can be derived from Petrobras' qualification and register process regulations. According to these, suppliers must meet technical, economical, legal and classificatory criteria.

Technical requirements refer to the capacity of the company and the products of the firm. The economic stability is also important with regard to ensuring a reliable and continuous supply of products. Legal aspects include regulatory registration and a local representation in Brazil. Classificatory requirements cover health, safety, environmental and managerial standards (Petrobras, 2014b).

Key Capabilities: The key capabilities of Friesland Kabel have already been determined in chapter 4. Due to the highly competitive environment of the industry (see chapter 3.5) competitive competences are of particular importance.

Based on these principles, a preliminary business mission statement for Friesland Kabel's expansion to the Brazilian oil and gas market has been drafted:

Friesland Kabel provides the major producers and suppliers in the Brazilian oil and gas industry with reliable and on time supply of safe, high quality and state of art products. By constantly adapting these capabilities to changing requirements we are striving to add value to our customers operations.

6.2 Vision Statement

Like a mission statement, visions are fundamental for the strategic development of organizations or individual business units. However, visions are broader. They constitute the context in which missions are embedded and formulated. Visions are also more future-oriented and enduring, while missions are subjected to changing environmental conditions.

A vision can be defined as “a picture of what the firm wants to be and, in broad terms, what it wants to ultimately achieve” (Hitt, et al., 2007, p. 19). Thus, the vision sets the direction of the company or the intended corporate development. Three different functions of vision statements can be distinguished (Hungenberg, 2012, p. 26):

- Identity: The vision should give the enterprise a unique and distinctive identity.
- Identification: The vision should demonstrate to the members of an enterprise a deeper meaning and use of their work and thereby facilitate their identification with the organization.
- Mobilization: The vision should encourage the members of the enterprise to achieve the intended goals.

Moreover, vision statements must meet certain criteria including: concisely and clear, simple and short, unique and distinctive, suitable to the company, show the social and moral responsibility of the company and be credible for the stakeholders (Siller & Grausam, 2013, p. 204) and (Hitt, et al., 2007, p. 19).

The development of a vision is a creative and intuitive process. According to Collins and Porras, vision statements consist of two major components: Core ideology and envisioned future. The core ideology describes what a company stands for and why it exists. This aspect includes the core values and the core purpose of a firm. The term “envisioned future” refers to the goals of the company in a 10 to 30 years’ time horizon and the description of what it will be like to achieve these goal. (Collins & Porras, 1996, pp. 65-67). By means of this approach, a provisional vision statement for Friesland Kabel has been elaborated:

Through innovation, high quality and reliability the purpose of Friesland Kabel is to help oil and gas producers work more efficiently and to take part in the Brazilian offshore oil and gas exploration. Therefore, in the next 10 years Friesland Kabel will strive to become the premier contracted and most recognized supplier for marine cables, wires and network technology in the Brazilian oil and gas industry.

6.3 Objectives

Objectives are short term to long term goals that an organization pursues in order to accomplish its corporate or business unit mission. The main purpose of setting objectives is translating an organization’s mission and vision into precise and detailed performance targets. Further functions include legitimacy, orientation, evaluation, coordination and motivation (Rao, et al., 2008, p. 88).

A framework that helps in order to express strategic objectives is the SMART model, which describes the five most relevant criteria of corporate objectives: Specific, measurable, attainable, relevant, and time-relevant (Doran, et al., 1981, pp. 35-36). The table below explains the individual elements more precisely:

Table 14: SMART MODEL (Doran, Miller, & Cunningham, 1981)

S	The objective should specifically define what is to be achieved and what requirements are necessary for this.
M	An objective should be measurable through quantified or qualified indicators in order to evaluate its achievement.
A	The company’s objective should be attainable through its capabilities and resources.
R	The objective should be relevant to the key result areas and the overall success of the company.
T	Effective objectives should be set in a time-frame including a deadline until when the goals have to be achieved.

For Friesland Kabel’s market entry in the Brazilian oil and gas industry the key result areas of business activity, in which the firm will have to excel in order to beat competition and fulfill customer requirements, have been determined (Harvard Business Review, 2009, p. 37). Then, based on the SMART criteria, these areas have been converted into the following objectives:

- Market standing: To steadily gain market share and volume until becoming the market leader for marine cable after 10 years of market presence.
- Customer relationship: To become a main supplier for marine cables of Petrobras. Create incentives which increase the costs for Petrobras to switch to other supplier.
- Product innovation: To adapt the products steadily according to the customers’ needs and requirements.

- Customer service: Offering an overall exclusive service that meets all of the customer's requirements including logistical support and pre-sale service.
- Distribution and marketing: Intensifying and extending distribution. Creating new marketing channels and brand recognition.

7 Strategic Position: SWOT Analysis

One core element of strategic development is the assessment of an organization’s strategic position. An established framework for this purpose is the SWOT analysis. Consistent with Friesland Kabel’s mission, the SWOT framework helps to analyze whether the current situation of the company is appropriate in order to react to environmental influences. Thus, the overall aim of this approach is to provide a basis for deriving strategies that exploit an organization’s opportunities and strengths, while neutralizing threats it faces and avoiding its weaknesses (Griffin & Fleet, 2014, p. 157).

For the present SWOT analysis, the three to five most relevant external and internal factors from chapter 2, 3 and 4, have been determined with regard to potential business impacts. The results are presented in the matrix below:

Table 15: SWOT Analysis Matrix (Own presentation, 2014)

INTERNAL	
<p>Strengths</p> <ul style="list-style-type: none"> • Industry experience and reputation • State of the art products • Service: logistic, short production time, customization 	<p>Weaknesses</p> <ul style="list-style-type: none"> • No price competitiveness • Little market knowledge • Limited financial resources
<p>Opportunities</p> <ul style="list-style-type: none"> • Demand for marine equipment • Technological challenges • Economic growth on county Level • Market volume of the related segments 	<p>Threats</p> <ul style="list-style-type: none"> • Local content policies • Monopoly of Petrobras • “Custo Brasil”: Bureaucracy, corruption, etc.
EXTERNAL	

8 Strategic Actions

In a next step the previously determined SWOT-elements will be translated into practical strategic actions. In some cases it is necessary to develop new ways in order to accomplish positive outcomes, while in others, it is possible to complement individual SWOT elements in order to create mutual gain. With regard to the second option, three cases are possible (Andersen, 2013, pp. 64-66):

- Using strengths to leverage opportunities
- Take advantage of opportunities in order to overcome weaknesses
- Using strengths to avoid or reduce threats

8.1 Corporate Compliance

Corporate Compliance “relies primarily on controlling employees’ behaviors and decisions through a strict set of rules and laws” (Cremer & Lemmich, 2015). As mentioned before, recent corruption scandals have had significant impacts on the Brazilian oil and gas industry. In this context, it is important to understand that the companies involved are the victims of this situation. Especially for German companies, which have a good reputation in terms of compliance, this offers new opportunities. For that reason, Friesland Kabel should implement anticorruption programs and ethical guidelines in its corporate strategy in order to signal to its customers that the company is a fair and reliable business partner.

8.2 Value Based Marketing

Concerning product prices, Friesland Kabel cannot compete with local Brazilian producers. Thus, Friesland Kabel has to pursue a marketing strategy which emphasizes the company’s capabilities such as product quality, customer service, innovation and industry experience (Ferrell & Hartline, 2011). A more detailed marketing plan is described in chapter 10.

8.3 Staged Market Expansion

Internalization in new unknown markets is often a sequential process whereby companies gradually acquire market knowledge and capabilities. Especially for small and medium sized enterprises (SMEs) with limited financial resources, a staged market expansion represents a good approach (Johnson, et al., 2008, p. 311). This also applies to Friesland Kabel. The company must initially consider entry modes that allow the firm to accumulate knowledge

while minimizing the risks. Once Friesland Kabel has acquired sufficient cash flow and market experience, the company can then gradually increase its commitment.

8.4 Strategic Partnerships

Local content requirements are the most impactful business restrictions for Friesland Kabel. Moderate technological complexity and differentiation of Friesland Kabel's product segment offer companies such as Petrobras few incentives for contracting a foreign marine cable supplier (Petrobras, 2014c).

An effective solution to this might be strategic cooperation. Through alliances with local partners Friesland Kabel can overcome local content barriers and exploit its competitive advantage over local suppliers. A more detailed analysis of strategic partnerships is provided in chapter 10.

8.5 Industry Specialists

The term "Custo Brasil" summarizes different environmental factors identified in chapter 2 including bureaucracy, corruption or infrastructure. A valuable solution for the company to prepare itself for these types of business restrictions is obtaining professional support from market experts.

One option is to hire private experts such as local businessmen, lawyers and consultancies which are more familiar with the Brazilian market. A more cost-efficient alternative is requesting the support of governmental institutions such as embassies, industry associations, consulates or chambers of commerce.

On the German side, these include especially the chamber of commerce (AHK) in Rio de Janeiro, which among other sectors is specialized in the oil and gas industry. The AHK provides German companies with comprehensive services ranging from general market information to individual entry strategies (AHK, 2014a).

The Brazilian counterpart is the agency Apex-Brasil. By working closely together with Petrobras, ONIP, and other local trade associations, Apex-Brasil aims to facilitate the market entry of foreign investors through providing business information, network building, opportunity identification and support in site selection (Apex-Brasil, 2014b).

Another helpful institution is the Federation of the Industries of the State of Rio de Janeiro (FIRJAN). Besides other performance areas, the FIRJAN is specialized in the oil and gas industry and through its international business center (Centro Internacional de Negócios -

CIN) supports the market entry of national and foreign firms into the oil and gas supply chain (FIRJAN, 2015a).

8.6 Customer Acquisition and Retention

Due to Petrobras' privileged market position it is almost impossible to avoid this potential customer. For this reason, everything will revolve around the question how Friesland Kabel will manage to be selected by Petrobras.

One option is to directly apply through the supplier registration system "Petronect". For this purpose, it is essential to know how Friesland Kabel can present itself in the best way during this procedure. A guide about the registration process, requirements and key success factors for applicants is provided in the following (Petrobras, 2014c).

Petrobras' online registration system regulates the procurement process for contracting suppliers of goods and services. With the grant of CRCC, registered companies obtain access to different procurement parties, market demands and bidding rounds. The registration is valid for up to one year and has to be annually renewed by updating legal and economic documents. The initial registrations process starts with the login on the online portal Petronect (<https://www.petronect.com.br/>). At this stage, the firm has to provide information including the scope of goods and services, contact information, and local representation.

After successful completion of the "identification" phase, the company will be evaluated in the "questionnaire" phase. The scope of evaluation depends on the type of supplier. Friesland Kabel falls into the category "Trade Manufacturer" which is a "supplier that produces equipment, materials or inputs and trades them directly with Petrobras." In this case, the evaluation is based on technical, legal, economic, managerial, health, safety and environment criteria. The most relevant aspects to each criterion for the supply of products are summarized in the following:

Legal requirements

- Evidence that the company is regularly registered in the country of origin
- The company must have a legal representative in Brazil in form of a person or entity empowered to receive summons and to respond administratively and judicially. Additional commercial representation is not mandatory but advisable for foreign companies.
- Evidence that the company is not bankrupt or indebted.

- Commitment letter: Describes formally the interest of the company in being a supplier of Petrobras.

Economic requirements

- Economic stability is required in order to ensure a reliable and continuous supply of the products
- Accounting documents: balance sheet and income statement for the end of the last two fiscal years

Note: Financial statements must be delivered according to international standards including IFRS (International Financial Reporting Standards) or US GAAP (Generally Accepted Accounting Principles)

Technical requirements

- Technical capacity of production facilities and production units
- Product certification (API, ASME etc.)

Note: For different product types specific requirements exist. An overview is provided under <http://sites.petrobras.com.br/CanalFornecedor/portugues/index.asp>

Health, safety and environmental requirements

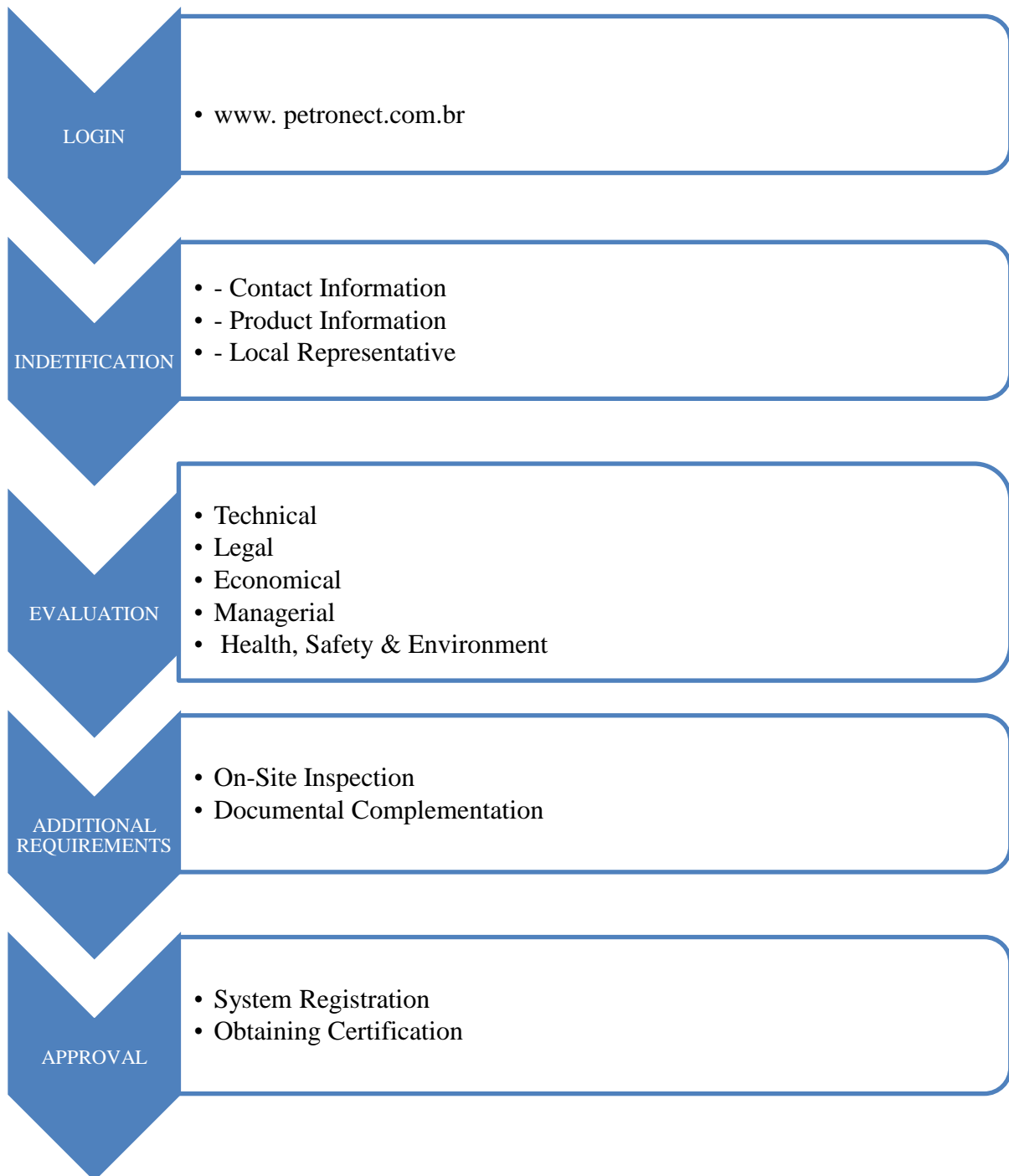
- Evaluation of how the company implements health, safety and environment criteria in the managerial system (on a scale from 0 to 10 points)
- Certification according to ISO-14001 and OHSAS 18001 (not mandatory)

Managerial requirements

- Refer to the evaluation of the quality of the company's corporate governance
- Certification of ISO-9001 (Mandatory)

After passing the evaluation phase, suppliers either obtain the certification or Petrobras optionally requires additional documents and sends technical experts in order to inspect the company on-site. Companies should take into consideration that the whole application procedure is very time-consuming and complex. It usually takes ca. 30 days after completing the questionnaire phase. However, required on-site inspections can significantly extend this period.

Figure 7: Petronect Supplier Registration (Own Presentation, 2014)



An alternative to applying for the registration system is to supply to a smaller producer, which in turn sell its products to Petrobras. Thus, Friesland Kabel would be able to narrow the options of Petrobras. The purpose of supplying initially to smaller companies in the industry is for Friesland Kabel to “get a foot in the door” and establish itself step by step.

Once having entered a contractual agreement with Petrobras, it has to find ways to create incentives for gradually establishing a long term relationship and “close the door” for other market entrants (Bryce & Dyer, 2007, p. 92). To this aim, Friesland Kabel should try to generate network effects and create brand recognition based on their sources of competitive advantage.

8.7 Product Segmentation

As already mentioned, marine cables and network technology are the two product types of Friesland Kabel which best fit the related industry. In particular, cables for fixed installations in offshore vessels show the highest potential in terms of demand. For that reason, Friesland Kabel should focus on products which meet the particular requirements of the oil and gas production. These characteristics include mainly resistance against flames, fire, heat, smoke and oil. In the following the products which fulfill all these needs are listed and briefly described.

Table 16: Product Segmentation (Own Presentation, 2015)

Product Name	Description
LKSM-EMC-FRHF	Fire-resistant armored power control cable with improved EMC screening 0,6/1kV
LKM-FRHF	Fire-resistant unarmored power and control cable 0,6/1kV
LKSM-FRHF	Fire-resistant armored power and control cable 0,6/1kV
LKAM-FRHF	Fire-resistant armored power and control cable 0,6/1kV
LKM-FRHF	Fire-resistant unarmored control and instrumentation cable 250V
LKSM-FRHF	Fire-resistant unarmored control and instrumentation cable 250V
LKAM-FRHF	Fire-resistant screened control and instrumentation cable 250V
RFE-FRHF	Fire-resistant armored instrumentation and communication cable 250V
RFE-FRHF (i)	Fire-resistant armored and pair screened instrumentation and communication cable 250V
RFA-FRHF	Fire-resistant screened instrumentation and communication cable 250V
RFA-FRHF (i)	Fire-resistant collectively and pair screened instrumentation and communication cable 250V

8.8 Warehousing

The oil and gas industry requires a quick supply according to the exact material needs of its customers. For that reason, it is advisable for Friesland Kabel to place a local warehouse in Brazil. In this warehouse, the finished products will be stored and delivered directly from there to the customer. This logistical approach enables Friesland Kabel to maintain a source of supply, react to demand and exploit its fast production time by overcoming time and distance restrictions (Voortman, 2004, p. 55).

Relevant aspects regarding the warehouse design are related to ownership and location. In view of financial constraints, Friesland Kabel should lease stock facilities and optionally share them with partners. Except for the cost advantage, a jointly owned warehouse offers Friesland Kabel further benefits including contractual adaption to the firm's requirements, risk minimizing and flexibility with regard of prospective changes (Voortman, 2004, p. 58).

For the strategic site selection of the warehouse, the most relevant criteria have been determined and rated based on their impact on costs and supply time.

Table 17: Criteria for Strategic Sitting (Own Presentation, 2015)

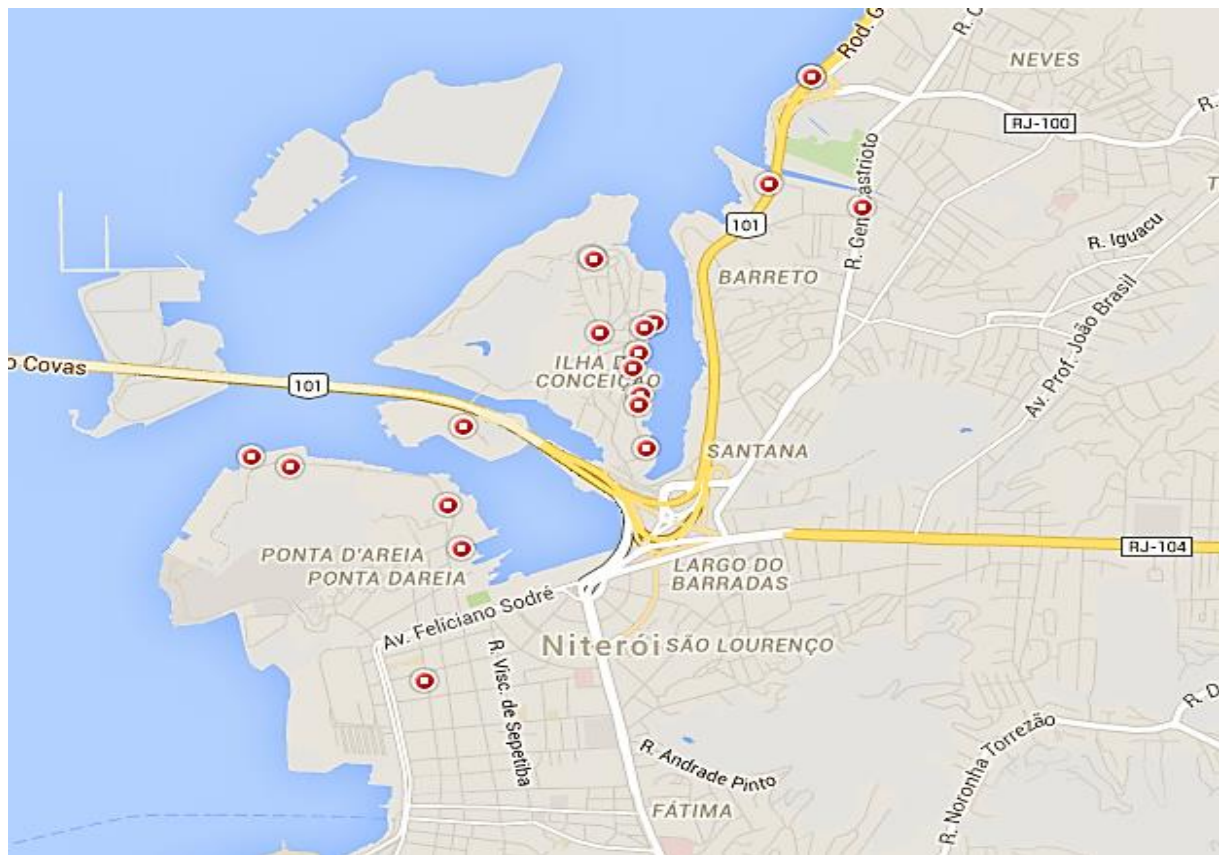
Criteria	Rate
Distance to Relevant Offshore Fields	10
Distance to Customer (Petrobras)	10
Costs of Basic Infrastructure	10
Access for Employees	10
Leasing Rate	1

Scale: Excellent=10; Very good=6; Good=4; Reasonable=2; Weak=1

Between the five states (Pernambuco, Rio de Janeiro, Rio Grande do Sul, Santa Catarina and São Paulo) that have been taken into consideration, Rio de Janeiro, as the center of the national oil and shipbuilding industry, represents by far the best location, despite having the highest renting costs in the country (FipeZap, 2015, p. 2). 60% of the national gas reserves and more than 80% of the oil reserves are concentrated in Rio de Janeiro. Moreover, 18 shipyards, more than 60 production platforms, 8 oil and gas terminals, 5 logistic bases (FIRJAN, 2015b), and different R&D centers are located in the state.

Within the state of Rio de Janeiro, the city Niteroi has been further identified as one of the most suitable sites. Niteroi is the principal center of the country's shipbuilding industry having the highest concentration of shipyards (see figure 8), of which the majority produces production units and offshore vessels for Petrobras. Only the 5 biggest shipyards located in the city, Aliança, Mauá, Vard, Brasa e Renave, comprise about 10.000 employees. Furthermore, 13 out of 50 associated companies of Sinaval and other major players of the industry including Enaval, Naproservice, UTC Engenharia, Equipemar and Dockshore are located in the city (SINAVAL, 2014).

Figure 8: *Shipyards in Niteroi (Google Maps, 2015)*



8.9 Research & Development

The Pre-Salt oil and gas exploration presents new challenges to technology. For that reason, Friesland Kabel should invest in research and development in order to constantly adapt its products and services to newly emerging customer requirements.

This can be done through cooperation with local research centers. One of the leading research institutions in Brazil within the field of oil and gas technology is the American multinational conglomerate General Electric (GE). The Oil & Gas business unit in Brazil employs more than 2.000 people between 6 different locations within the states São Paulo and Rio de Janeiro. Among other areas, the GE Oil & Gas is also specialized in technologies for the oil and gas offshore processing and subsea exploration (General Electric, 2014).

8.10 Strategic Activities at a Glance

The table above summarizes the proposed strategic activities according to its environmental and internal starting conditions.

Table 18: Summary Strategic Activities (Own Presentation, 2015)

Strategy	Starting condition
Compliance	Corruption
Value Based Marketing	Experience and reputation
	State of the art products
	No price competitiveness
Local Research Center	Technological challenges
Expertise	Little market knowledge
	“Custo Brasil”
Local Stock	Demand for marine equipment
	Fast production time
Segmentation	Market volume of the E&P segment
Strategic Partnerships	Local content policies
Customer Acquisition	Monopoly of Petrobras
Staged Market Expansion	Limited financial resources

9 Market Entry Mode

The choice of the entry mode is one of the central strategic decisions (“frontier issue”) for a company’s international expansion (Wind & Perlmutter, 1977). An international market entry mode is “an institutional arrangement that makes possible the entry of a company’s products, technology, human skills, management, or other resources into a foreign country” (Root, 1994, p. 41). Thus, the entry mode defines the framework of company’s international value-added activities and influences its future corporate governance. In this connection, it is important to note that the choice of foreign market entry mode often constitutes a sequential process in which companies depending on the course of internationalization gradually increase their commitment (Chang & Rosenzweig, 2001, pp. 750-751).

9.1 Types and Systematization

There are several types of international market entry modes. Buckley & Casson determine a set of 12 market entry strategies which in turn are subdivided into alternative variants (Buckley & Casson, 1998, pp. 547-549). The main entry mode types are: export, licensing, franchising, international joint ventures (IJVs) alliances and Greenfield investments (Johnson, et al., 2008, p. 31).

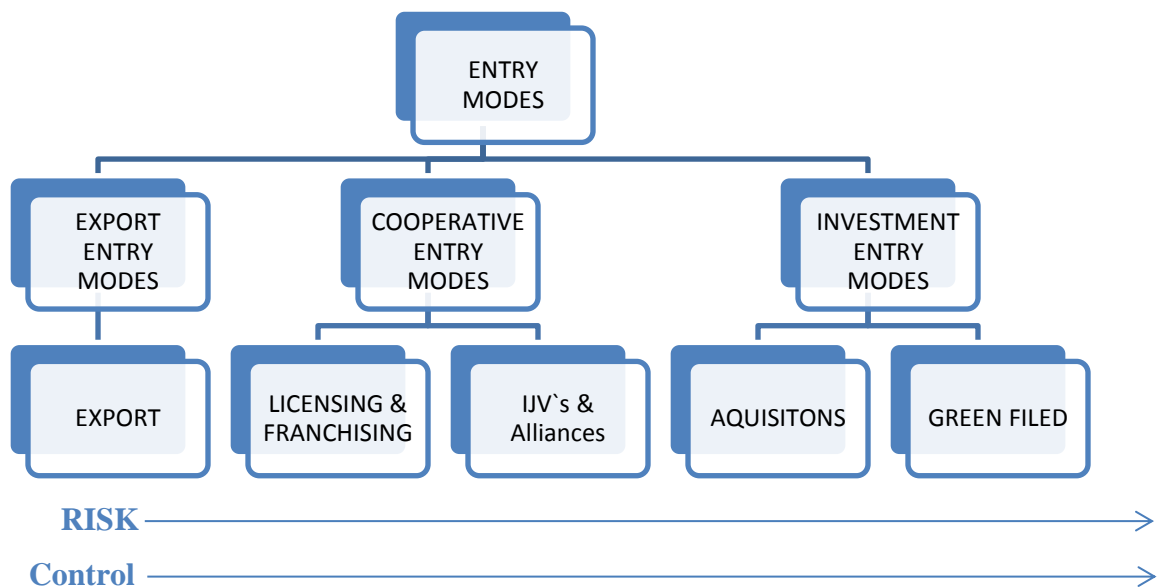
Entry modes differ basically in the local focus on company’s business operations. Thus, organizations can either emphasize domestic value addition or focus on the host country. This distinction criterion is directly linked to the organizational trade-off between a risk or control based management approach (Root, 1994). Based on this dichotomy, three main types of entry modes can be distinguished (Zentes, 2012, p. 26):

- **Investment entry modes:** The establishing of wholly-owned foreign subsidiaries can be realized in form of “Greenfield Investment” (new physical facilities) or through acquisitions of established local firms. Both types are considered the most host country based approaches which gives organizations effective control but involves high risks especially regarding the invested capital.
- **Cooperative entry modes:** This type of foreign market entry mode includes mainly contractual arrangements such as licensing, franchising, joint ventures or alliances. In comparison to investment entry modes, cooperative forms of institutionalization are

less risky, since a transfer of capital doesn't happen or is only marginal. However, the level of control is limited due to coordination costs with contractual partners.

- **Export entry modes:** Export through direct sale forces, agents, representatives or distributors constitute the most traditional entry mode on an exclusively market-driven basis. Exporting goods or services abroad requires the lowest resource commitment of organizations while the degree of control is very limited.

Figure 9: Systematization of Entry Modes (Adapted from Zentes 2012)



9.2 Entry Mode Decision

The choice of foreign market entry mode involves the consideration of different interrelated variables and dimensions including location costs, financial variables, cultural factors, market structure and adaption costs (Buckley & Casson, 1998, p. 543). Basically, it is possible to distinguish between external factors of the host country, external factors of the home country and internal factors (Davis, et al., 2000, p. 239) or (Root, 1994).

For the market entry of Friesland Kabel, the analysis follows a two-step approach. First, based on Root's decision matrix, the most relevant external and internal variables for Friesland Kabel will be selected. Then, these selected criteria will be used to evaluate the previously identified types of entry mode. This makes it possible to draw conclusions about

which entry mode best fits to preferences of Friesland Kabel. After this initial assignment, it will be analyzed which alternative variants of the selected entry mode exist and determined which is the most suitable with regard to Friesland Kabel's strategic situation.

9.3 Framework Application: Market Entry Decision Matrix

Based on the most relevant external and internal conditions of Friesland Kabel, the dimensions and variables in the left columns of table 19 have been selected. Every entry mode received an individual rating from 0 to 3 points for each criterion. Additionally, the variables have been roughly ranked according to their importance for Friesland Kabel from top to bottom whereby the most significant factors are located in the upper half.

Table 19: Market Entry Decision Matrix (Adapted from Root, 1994)

DIMENSION	VARIABLE	ENTRY MODE				
		Export	Licensing/ Franchising	IJV's Alliances	Acquisitions	Greenfield
HOST COUNTRY POLICY	Restrictive Import Policies		●	●●	●●●	●●●
	Restrictive Investment Policies	●●●	●●●	●●		
RISK	Low	●●●	●●	●●	●	●
STRATEGY	Long-term Investment		●	●●	●●●	●●●
RESOURCES	Limited Financial Resources	●●●	●●●	●●		
	International Expertise			●●●	●●●	●●●
CULTURE	Significant Differences	●	●●	●●●	●	●
COMPETITION	Monopsony			●●●	●●	●●
GEOGRAPHY	Long distance between Markets			●●	●●	●●
TOTAL		10	12	21	15	15
<ul style="list-style-type: none"> ● = Moderate conditions for entry-mode strategy ●● = Favorable conditions for entry-mode strategy ●●● = Perfect conditions for entry-mode strategy 						

9.4 Strategic Cooperation

IJVs and strategic Alliances are the most appropriate entry modes for Friesland Kabel. In the presented framework they obtained the highest number of points in total and show the best results with respect to the most important aspects. Strategic partnerships provide Friesland Kabel with favorable conditions regarding restrictive host country barriers and the competitive structure of the oil and gas industry. Furthermore, such a strategy is feasible in view of Friesland Kabel's financial resources and matches the company's long-term orientation on the Brazilian market. In summary, the main objectives of Friesland Kabel to go for a strategic cooperation are:

- Accelerated access to the market
- Overcoming business constraints (local content requirements)
- Risk minimization (compared to investment modes)
- Market knowledge of local partner
- Collaboration with competitors

In contrast, investment entry modes would exceed the financial means and thus imply too much risk for the firm.

Strategies on an exclusively sales-driven basis constitute an alternative for an initial market penetration. However, they do not offer a solution concerning the increasing local content requirements and the supremacy of Petrobras.

9.5 Joint Ventures vs. Strategic Alliances

JVs and strategic alliances are alternative types of cooperative strategies. Basically, the difference between both forms is that JVs involve the creation of a third-party legal entity, whereas strategic alliances do not necessarily require equity sharing. For that reason, strategic alliances require less investment capital, provide more exit options and show less involvement between the partners (Walters, et al., 1994, p. 5).

Despite these differences, the two terms will be used synonymously in the following analysis since such a determination requires more detailed information about the specific partners. Besides, the study focuses on the strategic settings of partnerships rather than on generic categories.

9.6 Joint Venture Formation

After deciding to engage in a cooperative strategy the next questions deal with finding the appropriate design and the right business partner.

9.6.1 Joint Venture Design

First, it will be analyzed how a potential JV between Friesland Kabel and a Brazilian firm may be broadly designed regarding the location and the ownership of production and distribution. Buckley & Casson distinguish in their international entry mode model five types of JV based market entry strategies (Buckley & Casson, 1998, p. 548):

- JV in production: Partner firms share the production whereas distribution is separated.
- JV in distribution: Partner firms share distribution whereas the production is separated.
- JV exporting: The foreign partner exports to a joint distribution facility in the host country.
- FDI/JV: The foreign partner alone owns the production whereas the distribution is shared.
- JV/FDI: The foreign partner alone owns the distribution whereas the production is shared.

Between these alternatives, in the first entry phase only the JV exporting option can be considered, since Friesland Kabel obtains the market relevant products already completed from its one single supplier. Thus, Friesland Kabel pursues a mutual distribution partnership which provides the company with different sorts of advantages including risk sharing, market knowledge of the local partner and product diversification.

9.6.2 Partner Selection

The success of JVs is crucially dependent on the right partner (Glaister & Buckley, 1999, pp. 136-138). According to Geringer, the partner selection “can influence the overall mix of available skills and resources, the operating policies and procedures and short- and long term viability of an IJV” (Geringer, 1991).

9.6.3 Partner Classification

The potential partner for Friesland Kabel can be categorized according to their size and product segment. Three different partner types have been considered as possible options.

Friesland Kabel should use all three strategies alternatively, with option A as a priority, followed by B and C.

Big scale MNC: The first choice for Friesland Kabel's partner is the market leader Petrobras. This option refers to a non-equity contract where Friesland Kabel directly exports its products to Petrobras after having been selected through the application process and entered into a contractual agreement.

This asymmetric type of partnership is mainly based on the task-related dimension. Big scales MNs typically provide greater 'staying power' and a greater volume of resources (Williams & Lilley, 1993, p. 234). For entering the market it constitutes the less risky option with the highest likelihood of returns of investment. However, the level of control for Friesland Kabel is very low in view of such a big partner. Therefore, it is crucial for the company to develop, in the course of time, further incentives for maintaining a long-term cooperation.

Middle scale producers: With regard to Friesland Kabel's target segments middle scale companies are platform manufacturer and a vessel producer. Here, the contractual framework again constitutes a non-equity alliance with an import based strategy.

Example 1: MODEC



Founded in 1968 and headquartered in Tokyo, MODEC is a multinational contractor specialized in engineering, procurement, construction and installation of floating production storage and offloading (FPSO) vessels, floating storage and offloading (FSO) vessels and tension leg platforms (TLPs). In Brazil the company produces FSPOs in the shipyard Brasfels located in the state of Rio de Janeiro (MODEC, 2015).

Example 2: BW Offshore



Headquartered in Singapore and Oslo, BW Offshore is a global operator of FPSO. In more than 30 years of experience, the company has executed 38 FPSO and FSO projects. In Brazil BW Offshore has offices in Rio de Janeiro, São Paul and Vitória and already launched joint projects with the shipyard Quip in the state of Rio Grande do Sul (BW Offshore, 2015).

Small scale producers: The third option is to cooperate with another smaller equipment producer. JVs of similar size companies generally are more compatible regarding the operational environment and corporate culture (Williams & Lilley, 1993, p. 234). However, to guarantee successful cooperation the partner-related criteria are more important in comparison to the previous cases.

Furthermore, the product relatedness is an essential factor since it determines to what extent Friesland Kabel can share the partner's distribution channels, brand and product image, industrial knowledge and facilities for potential prospective production relocation (Yan & Luo, 2001, p. 24) and (Geringer, et al., 1989). For that reason the product fit constitutes the most fundamental criterion for this option.

Example 1: Dova Supply



Founded in 1964, Dova Supply is a Brazilian supplier for electronic equipment with a focus on power cables, cables for application in the construction sector and marine cables for the oil and gas industry. The company has a local warehouse in Rio de Janeiro with a total area of 2.000m². In collaboration with the major distribution partner cofibam and Wirex the company already supplies its products to Petrobras. In the view of further expansion, Dova Supply is searching for acquisitions with other national or foreign cable suppliers (Dova Supply, 2015).

Example 2: HUMMEL



Founded in 1948, Hummel AG is a German multinational company specialized in connection systems. In Brazil, the company operates through its subsidiary Hummel Connector Systems Ltda., based in Tatui, São Paulo, since 2004. The company's products include cable glands, cable protection systems and plug-in connectors. These products are also certified according to several national and international approvals (Brasil Offshore, 2015).

9.6.4 Partner Selection Criteria

The specific partner selection has to be carried out based on appropriate criteria. Basically, two dimensions of partner complementarity can be distinguished. Task-related criteria include tangible and intangible resources which organizations require in order to achieve their corporate goals. Partner-related criteria refer to aspects which influence the efficiency and

effectiveness of partnerships (Geringer, 1989, p. 569). Based on this dichotomy, several dimensions can be subdivided (Glaister, et al., 2004, pp. 38-46) or (Yan & Luo, 2001).

For the prospective partner identification of Friesland Kabel, the most relevant selection criteria with regard to the firm's strategic goals have been determined and evaluated. In this connection, it must be emphasized that only aspects for initial partner identification were considered. A more detailed examination of compatibility requires contractual negotiations (Williams & Lilley, 1993, p. 234).

Table 20: Partner Selection Criteria (Own Presentation, 2015)

RANK	TASK-RELATED CRITERIA	VARIABLE
1	Market/Industry knowledge	Time on the market
2	Country knowledge	Local vs. International
3	Market power	Size & Number of customer
4	Financial resources	Financial statements
5	Product fit	Quality and relatedness
6	Technological resources	R&D
RANK	PARTNER-RELATED CRITERIA	VARIABLE
1	Strategic fit	Mission/Vision
2	Reputation	Size & Number of customers
4	Organizational	Management capacities
5	Cultural fit	Previous international alliance experience

10 Marketing Plan: The SAVE Framework

After having selected potential partners, the question arises how Friesland Kabel can convince them to collaborate. This is a matter of marketing. In the international entry strategy process, the development of a marketing plan is one of the basic elements (Root, 1994, p. 4).

For developing a marketing strategy, one has to take into consideration that Friesland Kabel targets business markets (B2B) rather than consumer markets (B2C). Particularities of B2B markets include the complexity of products and services, the nature and diversity of industrial demand, a lower number of customers, a larger volume of customers and a closer long-term supplier-customer-relationship (Kotler, et al., 2006, p. 21). However, the core difference is related to differentiation of products and services. In B2C environments, differentiation can be equated with competition between firms, whereas in a B2B context, the focus on differentiation is to provide a product or service that meets the particular needs of the customers.

Due to this distinction, for the marketing plan of Friesland Kabel, the so called SAVE framework will be applied since it considers the particularities of the business market environment. Based on the 4Ps (Product, Place, Price, and Promotion) (McCarthy, 1960, p. 45) model the SAVE framework also consists of four basic elements: Solution, Access, Value, and Education (Ettenson, et al., 2013).

10.1 Solution

Customers do not merely buy products; they buy solutions in order to solve problems. Selling appropriate solutions in turn requires identifying the problems of customers (Freese, 2010). So, what are the customer's requirements for Friesland Kabel's products? The most important aspect is that the products work reliably even under difficult environmental conditions. In other words, the function of the products is to avoid cause problems within already complex processes. In this regard, Friesland Kabel's products have all the necessary characteristics including robustness and oil-, fire- and temperature resistance.

Further customer needs are related to service. The firm has to be able to quickly adapt its products to the customer's needs. This applies to the product characteristics as well as to the number of required products. Friesland Kabel offers customization, innovation and approved experience within different environmental, technical and cultural contexts. Moreover, Friesland Kabel ensures through its comprehensive logistic concept that products are

delivered on time and complete and in case of increasing demand the company is able to deliver additional products from stock.

10.2 Access

Access is about making the product or service available to the customer. For this purpose, companies have to analyze where their customers are present and through what kind of channels they can reach them (Ettenson, et al., 2013).

In this connection, trade fairs or industry related events present the best opportunity. The table below provides an overview about the major Brazilian trade fairs of the offshore sector.

Table 21: Oil & Gas Trade Fairs (Own Presentation, 2015)

Event	Location	Date	Website
Brasil Offshore	Macaé	biennially 20. 23.06.2017	http://www.brasiloffshore.com/
Rio Oil & Gas	RJ	biennially 2016 Not released	http://www.rioilgas.com.br/main.asp?LangID=en (Website of 2014)
OTC Brasil	RJ	biennially 27.-29.10.2015	http://www.otcbrasil.org/pt/
Rio Pipeline	RJ	biennially 22-24.09.2015	http://www.riopipeline.com.br/
Marintec	RJ	yearly Sept 2016	http://marintecsa.com.br/pt

A cheaper solution than fairs are ads in trade journals. The journal TN Petróleo offers companies of the industry different formats in order to present their products and services in a print run of over 15.00 exemplars per edition (TN Petróleo, 2015).

Another approach is to intensify the local presence in Brazil via distributors and by establishing offices in the country. Due to the high concentration of oil and gas companies, suppliers, shipyards, industry-specific research centers and specialized labor, Rio de Janeiro constitutes the center of the Brazilian oil and gas industry. Further attractive industry related areas include the shipbuilding and maritime technology cluster in the southern state Rio Grande do Sul and the northern port complex Porto do Açu. (AHK; GTAI, 2014, pp. 52-54). At these locations, potential distributors of Friesland Kabel have to be present and build up networks.

Moreover, Brazil is one of the largest and fastest growing internet markets worldwide and is leading in the usage of social media (Barnett, 2011, p. 87). For that reason, investing in e-commerce constitutes another possibility. Friesland Kabel already possesses a web presence in Portuguese, which is the first step in order to facilitate the online access for potential customers. Other possibilities are intensifying the presence on industry-specific platforms and portals. These includes memberships in associations such as the ABPG (= Associação Brasileira de Pesquisa e Desenvolvimento em Petróleo e Gás), the ABPIP (=Associação A Associação Brasileira dos Produtores Independentes de Petróleo e Gás) or the search engine for operational ship suppliers SHIPSERV (Shipserv, 2015).

10.3 Value

According to the SAVE model firms should focus on “articulate the benefits relative to price, rather than stressing how price relates to production costs, profit margins, or competitor’s prices” (Ettenson, et al., 2013). This is because customers do not solely consider price but the value of products or services, which can be defined as the customer’s perceived benefits minus customer’s price (Leszinski & Marn, 1997).

Due to the fact that Friesland Kabel has to import its products, it must charge higher prices than local producers. Nevertheless, Friesland Kabel can compensate its lack in price competitiveness through offering safe and high quality products in combination with a comprehensive service.

By applying this to Porters’s generic framework, Friesland Kabel should follow a differentiation-focused strategy where the company concentrates on producing specified products for the unique needs of the customer (needs-based positioning) (Porter, 2008b, p. 42) (Porter, 1980, pp. 35-39). In contrast, cost leadership is of secondary significance.

10.4 Education

Instead of relying on advertising, PR and other promotional instruments Friesland Kabel should focus on providing information “relevant to their customer’s specific needs at each point of the purchase cycle” (Ettenson, et al., 2013).

At the pre-purchase stage, the main objective of customer education is to provide customers with knowledge in order to increase their awareness and understanding of the product (Best, 2005, p. 69). This especially applies to technological product types where customers have to be educated about the applications of the product in order to assess the suitability for their usage. For this purpose, Friesland Kabel should consider different types of

demonstration tools including face-to-face demonstration, video-clips, lectures and web-based presentations (Aubert, 2007, pp. 44-51).

At the post-purchase stage, customer education aims mainly to provide customers with knowledge about how to use the products. To this aim, the company can use tutorials, computer-based training software and user hotlines (Aubert, 2007, pp. 44-51).

For both purchasing phases, Friesland Kabel might additionally implement an internal system where into which all employees who are in direct contact with customers can enter customer requests in order to adapt the prospective communication process.

11 Action Plan

After having chosen an appropriate set of strategies in chapter 8, these have to be translated into concrete actions. For this purpose, action plans involve appropriate means and provide strategy leaders with information in order to achieve specific strategic objectives. Thus, an action plan constitutes a link between strategy formulation and strategy implementation and provides a basis for the evaluation of whether the developed strategies and objectives are achievable according to the capabilities and limitations of the company.

An action plan is a precursor of an implementation program and provides only broad directives without going into details. Moreover, an action plan cannot be seen as an ultimate solution but rather as a guideline which has to be adapted if objectives and strategies are not attainable (Rainey, 2010, pp. 413-415).

There are many ways to develop an action plan. Typically it contains the following components (Harvard Business Review, 2009, p. 29):

- Priority issue: Description of the broad area to be dealt with
- The objectives of the strategic initiatives
- The actions steps make up the main part of the action plan and specify in detail **who** will do **what**, by **when**, to make which changes happen.
- Resources (i. e., money, staff) which are necessary in order to carry out the actions
- Potential barriers
- Communication lines that need to be active

In the following, the different action steps according to the strategic objectives in chapter 9 will be briefly explained.

11.1 Compliance Officer

For the compliance strategy of Friesland Kabel, first of all a compliance officer has to be appointed and trained via seminars. For this, the German Technical Inspection Association (TÜV) offers an internationally accepted compliance officer certification (TÜV Rheinland, 2015). The chosen employee will be the first contact person for compliance issues and responsible for expressing the companies legal and ethical standards to the customers. The compliance officer will create a corporate code of conduction and work together with the

marketing department in order to communicate the compliance activities through different channels.

11.2 Customer Management

Friesland Kabel has to ensure that its performance is perceived positively by its customers. Therefore, the firm should conduct annual surveys to evaluate the customer's perception of Friesland Kabel's products and services compared to those of other suppliers. Major customers should be asked to give a monthly feedback about their satisfaction with Friesland Kabels performance. Additionally, regular personal contact to customers has to be maintained by local distributors. Implementing these measures will give Friesland Kabel a closer tie to its key customers and a certain level of market feedback (Kaplan & Norton, 1993).

11.3 Partnership with GE Oil & Gas

A first step to provide state of the art technology and to adapt the products of Friesland Kabel to the changing industry requirements is to build up partnerships with a local research center. As already mentioned, the Oil & Gas research center of the American multinational conglomerate General Electric in Rio de Janeiro offers excellent conditions for this. Friesland Kabel should try to get in contact with employees from the GE Oil & Gas department. This task can be taken over by a local Brazilian distributor who is also able to frequently arrange personal meetings in order to discuss future joint projects.

Furthermore, Friesland Kabel should register on the online GE online platform "Technical Enhancements & Notifications" in order to keep on the top of the latest technologies and technical upgrades applicable to their own products (General Electric, 2015).

The acquired information has to be directly reported to Friesland Kabel's supplier Helkma for the integration of new technological requirements into the production process.

11.4 Partner Relations

Similar to the contact with the research center, a regular exchange with the German-Brazilian Chamber of Commerce and Industry (AHK Rio) and the Brazilian Trade and Investment Promotion Agency (Apex-Brasil) has to be maintained in order to be informed about new possibilities to develop Friesland Kabel's business. The contact with the AHK Rio could be done on a monthly basis in German language with the expert for oil and gas, Thomas Olsinger. For the communication with Apex-Brasil and the FIRJAN a local distributor or Portuguese speaking employee of Friesland Kabel is advisable.

11.5 Stock Management

An investment in a local warehouse in Brazil should be first evaluated from a financial perspective. Therefore, the management and the accounting department should check their financial resources for such a project by considering the costs and return of investments. Once the available funds are set, potential equity partners have to be identified and contacted.

11.6 Product Segment: Oil & Gas

Friesland Kabel's products which are most suitable for the application in ultra-deep sea areas (see chapter 8.7) have to be segmented into a specific category "oil and gas". For any marketing strategies, these kinds of products and their special characteristics have to be emphasized.

11.7 Partnership Selection

Finding a strategic partner is a time-consuming task that should be carefully planned and divided into several steps. First, potential partners have to be determined. This can be achieved by internet research, visiting trade fairs and with the support of the institutions described above (AHK Rio, Apex-Brasil etc.). Then, these companies have to be contacted via letters and phone calls. In a next step, the interested firms will be evaluated based on the criteria outlined in chapter 9.6.4. Personal meetings complement the selection process and offer opportunities for first contractual negotiations.

11.8 Product Certification

The first step to becoming a supplier for Petrobras is to apply for the company's online registration system. For this, the guide in chapter 8.6 provides a basis. Of particular importance in this context is the presentation of technical and managerial certificates. As mentioned in chapter 4.1, Friesland Kabel's supplier Helkama already possesses some of these certificates such as ISO-9001, ISO-14001 and several technical approvals (DNV, GL, etc.) (Friesland Kabel, 2015). Additionally, Friesland Kabel and Helkama have to ensure that other certificates required by Petrobras including API, ASME and OHSAS 18001 will be obtained.

11.9 Market Entry Stages

In view of the economic crisis which seriously affects the oil and gas industry as well as the shipbuilding sector, it is advisable that Friesland Kabel momentarily keep its investments in Brazil low in order to grant the possibility of restructurings or a temporary market exit.

This applies especially to acquisitions of tangible assets. Thus, at this stage the company should focus on sales and marketing activities via on-site distributors on-site who are building up networks and trying to find commercial partners. Then, when the market begins to recover and the demand increases, Friesland Kabel should invest in a local stock facility with sales offices in order to exploit economies of scale and finally offer better prices and on-time delivery to its clients.

11.10 Action Plan Summary

Table 22 summarizes the recommendations and management implications for Friesland Kabel elaborated within the present chapter and chapter 8. Additionally, for every action step a timeline (completion date) has been set and responsible employees have been selected.

Table 22: Summary Action Plan (Own Presentation, 2015)

Issue	Strategy	Objective	Action Steps	Completion Date	Responsible
Corruption	Compliance	Represent the company as reliable and fair business partner	<ul style="list-style-type: none"> • Compliance Officer • Code of conduct 	December, 2015	CEO; Compliance Officer
Customer Management	Value Based Strategy	Guarantee a high level of performance	<ul style="list-style-type: none"> • Annual performance survey • Monthly customer feedback • Personal contact by local distributors 	December, 2015	Marketing Manager Latin America; Salesmen Brazil
Kow-How Transfer	Local Research Center	Keep the products and services up-to-date	<ul style="list-style-type: none"> • Partnership with GE Oil & Gas • Communication with Helkama 	December, 2016	Salesmen Brazil
Market Development	Expertise	Acquiring market knowledge and support	<ul style="list-style-type: none"> • Cooperation with AHK Rio; Appex Brasil, FIRJAN 	December, 2015	CEO; Salesmen Brazil
Logistic	Local Stock	Reducing import costs and supplying time	<ul style="list-style-type: none"> • Analyze financial resources • Determination and contacting of potential equity partners 	December, 2016	Accounting Manager; Stock Manager;
Marketing	Segmentation	Product placing	<ul style="list-style-type: none"> • Definition and placement of offshore products and services 	December, 2015	Marketing Manager
Entry Mode	Strategic Partnerships	Accelerated market access; Overcome local content restrictions; Compensate lack of market knowledge; Risk minimization	<ul style="list-style-type: none"> • Research • Contacting • Evaluation • Meetings and contracting 	December, 2016	CEO; Key-Account Manager
Customer Acquisition	Product Certification	Acquiring Petrobras as the major customer;	<ul style="list-style-type: none"> • Online registration system • Acquiring certifications (API, ASME, OHSAS 18001) 	December, 2016	Key Account Manager
Market Entry	Staged Market Expansion	Risk minimization	<ul style="list-style-type: none"> • Phase 1: Import-focused strategy • Phase 2: Local stock with sales office 	December, 2016	Salesmen Brazil; Stock Manager

12 Summary and Outlook

In the first section of this study, Friesland Kabel's potential to create economic value within the Brazilian oil and gas industry has been investigated on three dimensions: First, the macro environment, second the offshore oil and gas industry, and third the company's internal resources and capabilities.

Based on several macroeconomic forces such as a fast growing middle class, vast reserves of commodities and a diversified economy, Brazil is one of the most attractive emerging markets for foreign investment. However, investing in Brazil is associated with different sorts of business risks including corruption, inflation, infrastructure deficiencies and bureaucratic burdens. This is why Brazil is not the right place for short term and aggressive investments. In contrast, long-term commitment and thorough strategic preparation are key success factors for the performance in this dynamic market.

After the economic boom in 2009, Brazil is currently fighting a "crisis of credibility" in which the country has to regain the confidence of the population and foreign investors. At this point, it is difficult to assess whether and when this downturn will stop. At any rate, in such a situation and especially for new market entrants and SMEs such as Friesland Kabel, it is important to adapt the company's strategies to this situation in order to avoid expensive and time-consuming returns.

Similar to the overall macroeconomic situation, the oil and gas sector as one of the major industries within the country is simultaneously experiencing a tangible decrease in growth. This is mainly caused by two factors: the fall in global oil prices and a series of corruption affairs involving the national energy cooperation Petrobras. Nevertheless, the market still offers huge potentials. This is especially true for the offshore sources in the pre-salt layer, where the production rates have been growing steadily over the last years and discoveries of new sources are expected. Although the current four-year business plan of Petrobras provides a reduction of expenses by 37%, the remaining amount of US\$ 130,3 billion still represents a huge investment volume which corresponds to a value of US\$ 3,7 million per hour.

With regard to Friesland Kabel's target market, three segments have been determined and analyzed: First, the E&P sector as the overall segment, second the shipbuilding industry and third, the marine cable and network industry. Within the Brazilian oil and gas supply chain, E&P activities, which concentrate 83% of Petrobras future investments, show by far the

biggest market size and highest growth rates. On the contrary, the shipbuilding industry as a sub-market of the E&P segment is experiencing a substantial contraction in which orders for tanker vessels, production units, supply vessels and drilling rigs have been radically reduced. For the specific product segment of Friesland Kabel, little information could be obtained. However, due to the fact that marine cables and individual parts of network technology appear on former procurement lists of Petrobras and Sinaval, a certain demand can be assumed.

Concerning the competition within the industry, the Porter 5 Forces analyses highlighted the market predominance of Petrobras and the local content requirements as the key competitive factors. Whilst Petrobras already concentrates almost all suppliers of the market, local content requirement still increases the competition between foreign companies.

From an internal perspective different tangible and intangible resources of Friesland Kabel could be identified. Among them, the specified product properties, the comprehensive customer service and the experience in international projects have been determined as sources of competitive advantage. Weaknesses of the company are mainly related to the absence of price competitiveness, few financial resources and limited market knowledge.

In total, on all three investigated dimensions favorable aspects as well as business restrictions for Friesland Kabel have been identified. Despite the crisis within the country in general and within the oil and gas industry in particular, both markets still offer certain potentials. Moreover, Friesland Kabel's services and products show characteristics that are sources of sustainable competitive advantage and requested on the market.

Concerning the temporary crisis it has to be considered that other main oil and gas producing countries are also affected of the declining oil prices. Against the background of increasing global demand of energy resources by fast growing economies like India and China and in expectations of future rising oil prices, it can be assumed that the market will recover in the medium and long-term.

For the strategy formulation of Friesland Kabel's market entry into the Brazilian oil and gas industry, the following six strategy components have been developed (1) mission, vision & objectives; (2) strategic position; (3) strategic actions; (4) entry mode; (5) marketing plan and (6) action plan.

By defining Friesland Kabel's mission, vision and objectives it was possible to clarify the fundamental goals of the company within the market. As a first guiding framework, the

mission statement includes information about the target customers, their needs and the key capabilities of the company. From a more contextual perspective, the vision statement focuses on the core purpose and the long term goals of the firm. In order to translate these two concepts into precise performance targets, basic objectives for Friesland Kabel's key result business areas were set.

The SWOT analysis served to specify the strategic starting position of Friesland Kabel by determining the most impactful external and internal factors from the first part of the study. On this basis, the following strategic actions in order to leverage market opportunities and overcome business restrictions have been developed:

- Due to recent corruption scandals within the industry, a corporate compliance strategy signalizes to Brazilian customers that Friesland Kabel is a reliable and fair business partner.
- A value-based marketing strategy emphasizes the company's internal strengths and compensates the fact that the firm cannot compete on product prices with suppliers of locally manufactured products.
- The cooperation with research centers such as GE has the objective to constantly keep the products and services adapted to the fast changing technical requirements of the industry.
- Collaborations with institutions like the AHK Rio Janeiro, Appex Brasil or FIRJAN offer reliable support, especially in the first phase of the market entry.
- The acquisition of a local warehouse in Brazil leads to reduced supplying times and import costs, which in turn will have positive effects on service quality and price competitiveness.
- Through product segmentation, Friesland Kabel can increase its marketing efficiency by offering the individual products to a specific market segment in accordance with the customer's needs.
- Through strategic collaboration with a Brazilian company, Friesland Kabel might be able to overcome local content barriers, share risk and use the market knowledge of the local partner.

- The customer acquisition of Petrobras can be achieved by applying directly for the registration system or via an intermediary company which is already registered as a supplier of Petrobras.
- A staged market expansion by which Friesland Kabel gradually increases its market commitment allows the firm to accumulate knowledge while minimizing the investment risk.

Concerning the market entry, a strategic partnership is the most appropriate entry mode for Friesland Kabel. The main motives to choose a cooperative strategy are an accelerated market access, overcoming local content restrictions, financial risk minimization, compensating the lack of market knowledge and the reduction of competition.

Based on the business model of Friesland Kabel, it has been shown that an export cooperation, by which the company exports its products directly to a joint distribution facility in the host country, is the most suitable option. This export variant is applicable to all three size categories of partners, big, medium and small size. Here, Friesland Kabel does not have to commit itself since at this stage all three strategies are consistent with the company's vision and can be pursued simultaneously. For the evaluation of specific partners a framework based on the most relevant selection criteria has been additionally elaborated.

In terms of Friesland Kabel's marketing strategy, the SAVE model, as a special approach for B2B environments, has been applied. The concept has demonstrated that for the most relevant needs of Friesland Kabel's potential customers, the company provides state-of-the-art solutions and comprehensive logistical services.

Based on these capabilities and the cost-disadvantage in relation to local competitors Friesland Kabel should follow a differentiation-focused marketing strategy by which the company concentrates on producing specified products rather than pursuing cost leadership.

In order to make these solutions accessible to its customers, international trade fairs and road shows represent the most convenient distribution channels. Other sales tools include local distributors, advertisements in trade journals, e-commerce and memberships within industry-specific platforms and portals.

In regard to the message that will be transmitted through these channels at the pre-purchase stage, the objective is to increase the customer's awareness and understanding of the products.

The aim at the post-purchase stage is to provide knowledge about how to use the products. An internal customer system additionally helps to update both types of information.

To sum up, the developed strategic tools provide an effective basis in order to overcome most of the identified business barriers, exploit market opportunities and leverage internal strengths. Nevertheless, the crisis in the related markets and segments still represents a huge challenge which is outside of Friesland Kabel's sphere of influence. For this reason, a market entry at that time cannot be recommended without restrictions. In any case, Friesland Kabel should temporarily keep its commitment at a low level. This applies in particular to high financial investments such as the acquirement of equities. A sales-based strategy with a special focus on network-building is currently the best approach. However, it is important for the company to build a solid foundation at this stage, in order to be prepared when the market starts to return to grow.

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14 Appendices

Appendix 1: Tanker Vessels - Main Demand for Equipment 2013-2020

EQUIPMENT	DEMAND
MAIN ENGINE (UN)	61
AUXILIARY ENGINE (UN)	177
PROPELLERS (FPP & VPP) (UN)	61
AZIMUTAL & TUNNEL THRUSTERS (UN)	12
AUXILIARY BOILERS(UP TO 35 TONS PER HOUR) (UN)	66
EXHAUSTED GAS ECONOMIZER/COMPOSED BOILER (UN)	51
THERMAL OIL HEATER (UN)	12
START AIR COMPRESSORS (30 BAR) (UN)	111
AIR COMPRESSOR (UN)	170
PLATE HEAT EXCHANGER (UN)	333
FRESH WATER GENERATOR (UN)	55
VALVES (UN)	75.270
ELETRIC(MAIN/AUX) SWITCHBOARDS (UN)	120
WINDLASS / WINCH (UN)	346
CHAINS (KM)	39
CRANES (3 TO 20 TONS) (UN)	214
ANCHORS (UN)	144
LIFEBOAT (UN)	72
INFLATABLE BOATS (UN)	355
TOILET UNITS (UN)	1.849
PURIFIERS (UN)	293
INTEGRATED BRIDGE (UN)	61
CARGO PUMPS (FUEL OIL, DIESEL OIL, LUB. OIL) (UN)	67
CARGO PUMP (DEEP WELL) (UN)	384
MOORING LINES (UN X 200 METRES)	840
CHOCK, BOLLARD (UN)	7.271
ACCESS HATCH (UN)	1.220
VACUUM SEWAGE SYSTEMS (UN)	61
INERT GAS GENERATION UNIT (UN)	53
LIFE BOATS + DAVIT (UN)	72
ARCHITECTURE MATERIALS(ACCOMODATION PACKAGE)	61
MANUAL OPERATED VALVES (TON)	58.500
PIPES (TON)	9.800
FITTINGS (TON)	7.900

Appendix 2: Supply Vessels - Main Demand for Equipment 2013-2020

EQUIPMENT	DEMAND
CLASSIFIED PROFILES (TON)	59.400
SHOCK FAST (UN 300L)	1.584
DIRECTIONAL PROPULSION SYSTEM (UN)	396
TRANSVERSE THRUSTERS (UN)	396
GENERATOR SET (UN)	792
EMERGENCY GENERATOR - PORT (UN)	198
COMPRESSORS (UN)	594
OIL PURIFIER (UN)	396
OIL WATER SEPARATOR (UN)	198
HEAT EXCHANGER (UN)	792
FANS AND BLOWERS (UN)	7.326
VACUUM SEWAGE SYSTEM (SYSTEM)	198
AIR-CONDITIONING SYSTEM (SYSTEM)	198
FRESH WATER HEATER (UN)	198
DOMESTIC REFRIGERATION (SYSTEM)	198
LAUNDRY EQUIPMENT (SET)	396
TRAILER/MOORING WINCH (UN)	396
PROVISIONS CRANE (UN)	198
COMPRESSORS FOR BULK (UN)	198
CARGO PUMP (UN)	1.188
CONTROL SYSTEMS AND SUPERVISING MACHINES(SYSTEM)	198
METAL PIPES (YARDS) (METERS)	1.584.000
VALVES (ESTIMATED) (PIECES)	74.250
MANUAL OPERATED VALVES (ESTIMATED) (PIECES)	55.700
FITTINGS (ESTIMATED) (TON)	4.800
PARTS PASSAGE (UN)	19.800
MAIN SWITCHBOARD (SET)	198
DISTRIBUTION PANELS (UN)	3.960
NAVIGATION LIGHTS (SET)	198
ALDIS LAMP (UN)	198
BATTERY CHARGER (UN)	198
STATIC INVERTER/FREQUENCY CONVERTER (UN)	792
ROTARY GUARD AND CLEANER (UN)	4.950
SELF EXCITED PHONE (UN)	792
FONOCLAMA AND TV AND SOUND SYSTEM (SYSTEM)	198
TRANSFORMERS AND RECTIFIERS (UN)	396
RADAR (UN)	396
NAVIGATION, COMMUNICATION AND SIGNALING EQUIPMENTS (SET)	198
ECO-PROBE AND ECHOBATHYMETER (UN)	198
VHF RADIO (UN)	792
SSB RADIO (UN)	396
ODOMETER (UN)	198
AUTOMATIC PILOT (UN)	198

SATELLITE NAVIGATOR+ PLOTTER (UN)	396
AUTOMATION SYSTEM/MICRO FULL (SYSTEM)	198
DYNAMIC POSITIONING SYSTEM(SYSTEM) (SYSTEM)	198
STEEL DOORS (UN)	5.940
DUCTS OF NATURAL AND FORCED VENTILATION (UN)	594
WINDOWS (UN)	7.524
GUARDS AND WIDE EYES (UN)	5.940
FIXED FIREFIGHTING SYSTEM (SYSTEM)	198
SMOKE AND HEAT DETECTORS (SET)	198
GENERAL ALARM (SYSTEM)	198
WHISTLE (UN)	198
MAGNETIC NEEDLE (UN)	198
GENERAL BULKHEADS (M 2)	396.000
CEILING AND BULKHEAD LINERS (M 2)	396.000
PAVING (M 2)	178.200
DOORS CLASS B (UN)	9.900
ANCHORS (UN)	396
MOORING LINES (UN)	396
CABLES MOORING AND TRAILER (UN)	1.782
RUBBER FENDERS (UN)	3.960
MOTORIZED SERVICE BOATS (UN)	198
SMALL LIFEBOAT (UN)	1.188
BUOYS AND LIFE JACKETS (UN)	1.584
BOATS TRANSCIVERS (UN)	1.188

Appendix 2: Production Units - Main Demand for Equipment 2013-2020

EQUIPMENT	DEMAND
ELETRO CHLORINATION UNIT	31
VAPOR RECOVERY UNIT	54
GAS DEHYDRATION UNIT	27
VACUUM DEAERATOR UNIT	27
CHEMICAL INJECTION UNIT	81
H2S REMOVAL UNIT	27
NITROGEN GENERATOR UNIT	27
SULPHATE REMOVAL UNIT	27
ELECTROSTATIC TREATERS PACKAGE	27
PRODUCED WATER TREATMENT	27
FLARE GAS RECOVERY COMPRESSION UNIT	27
FLARE	27
FRESH WATER MAKER	27
SHELL&TUBES HEAT EXCHANGE PACKAGE	27
PLATE HEAT EXCHANGERS PACKAGE	27
PRESSURE VESSELS / SEPARATORS PACKAGES	27
CENTRIFUGAL PUMPS PACKAGE	27
SEA WATER LIFT PUMPS PACKAGE	27
WATER INJECTION PUMPS PACKAGE	27
WELL SERVICE PUMP PACKAGE	27
RECIPROCATING PUMPS PACKAGE	27
POSITIVE DISPLACEMENT PUMPS PACKAGE	27
FILTERS PACKAGE	27
PIG LAUNCHERS & RECEIVERS PACKAGE	27
MECHANICAL HANDLING EQUIPMENT PACKAGE	27
ICSS – INTEGRATED CONTROL & SAFETY SYSTEM	27
HYDRAULIC POWER UNIT - HPU	27
FISCAL METERING SKID	27
ELECTRICAL AND AUTOMATION MODULE	27
HVAC SYSTEM	27
EXPORTATION GAS COMPRESSION UNIT	27
CO2 COMPRESSION UNIT	27
MAIN GAS COMPRESSOR	27
INJECTION GAS COMPRESSION UNIT	27
MAIN TURBOGENERATOR UNIT	27
COMPRESSOR	567
PRESSURE VESSEL (Scrubber/Separator/K.O.Drum)	1.674
TANK	729
CONTROL PANEL (Distribution panel)	2.241
PUMPS	2.808
HYDROCYCLONES / GAS FLOTATION	189
FILTER	594
SHELL&TUBES HEAT EXCHANGER	1.269
PLATE HEAT EXCHANGER	486

MECHANICAL HANDLING EQUIPMENT	2.862
OIL DEHYDRATOR / PRE-OIL DEHYDRATOR	54
OIL DEHYDRATOR DEGASSER / PRE-OIL DEHYDRATOR DEGASSER	54
PIG LAUNCHERS & RECEIVERS	648
CONTROL, SHUTDOWN, CHOKE, PRESSURE SAFETY, DELUGE VALVES	21.600
MANUAL VALVES (un)	189.000
PIPING (ton)	54.000
FITTING (ton)	43.200
CABLE (Electrical/Instrumentation/Telecom) (km)	13.500
INSTRUMENTATION (Transmitter/Gauge/Indicator) (un)	54.000
COMPRESSOR	567
PRESSURE VESSEL (Scrubber/Separator/K.O.Drum)	1.674
TANK	729
CONTROL PANEL (Distribution panel)	2.241
PUMPS	2.808
HYDROCYCLONES / GAS FLOTATION	189
FILTER	594
SHELL&TUBES HEAT EXCHANGER	1.269
PLATE HEAT EXCHANGER	486
MECHANICAL HANDLING EQUIPMENT	2.862
OIL DEHYDRATOR / PRE-OIL DEHYDRATOR	54
OIL DEHYDRATOR DEGASSER / PRE-OIL DEHYDRATOR DEGASSER	54
PIG LAUNCHERS & RECEIVERS	648
CONTROL, SHUTDOWN, CHOKE, PRESSURE SAFETY, DELUGE VALVES	21.600
MANUAL VALVES (un)	189.000
PIPING (ton)	54.000
FITTING (ton)	43.200
CABLE (Electrical/Instrumentation/Telecom) (km)	13.500
INSTRUMENTATION (Transmitter/Gauge/Indicator) (un)	54.000
OFFSHORE CRANE API-2C (50T)	81
ALUMINIUM HELIDECK	27
LIFEBOAT & DAVIT	108
RESCUE BOAT & DAVIT	108
FOAM FIREFIGHTING SYSTEM	27
CO2 FIREFIGHTING SYSTEM	27
OFFLOADING SYSTEM	54
INERT GAS SYSTEM	27
SEWAGE TREATMENT & VACUUM UNIT	27
AUXILIARY & EMERGENCY DIESEL GENERATOR	54
DIESEL FIRE WATER PUMP	54
BALLAST PUMPS	108
COOLING WATER PUMPS	54
FRESH WATER GENERATOR	54
PORTABLE WATER GENERATOR	54

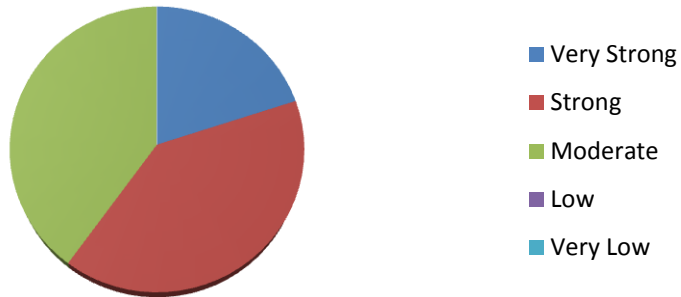
FIRE DETECTION SYSTEM	27
ENVIRONMENTAL & POSITIONING SYSTEM	27
NAVIGATION AID SYSTEM	27
OFFLOADING SYSTEM	27
MOORING SYSTEM	108
PULL-IN / PULL-OUT SYSTEM	27
SUBMERGED CARGO PUMPS	378
SUBMERGED DEBALLAST PUMPS	162
CONTROL VALVES SYSTEM (un)	5.400
HELICOPTER REFUELING SYSTEM	27
DIESEL PURIFIER	27
VAC SYSTEM	27
ACCOMODATION PACKAGE	27
AUTOMATION & ELECTRIC PACKAGE	27

Appendix 3: Drilling Riggs - Main Demand for Equipment 2013-2020

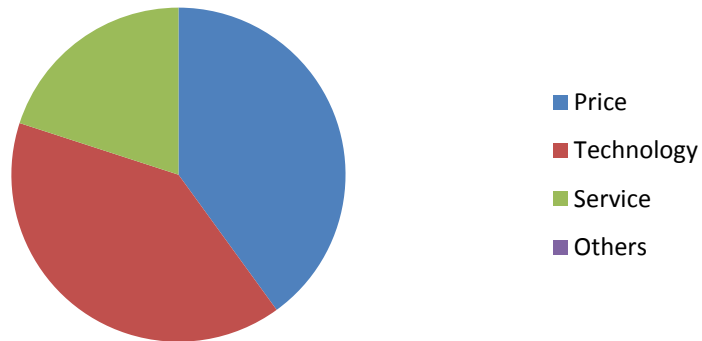
EQUIPMENT	DEMAND
ELECTRICAL & INSTRUMENTS AUTOMATION SYSTEM (ESD, -re/gas detection, ship sever, electrical power - transformers/switch borders, system, UPS system)	29
HEAVE COMPENSATION SET	29
TOPDRIVES & ASSOCIATED EQUIPMENT(907 mt x 2 x 857 KW)	29
VERTICAL PIPEHANDLING – STANBUILDING	29
TRAVELING EQUIPMENT – GENERAL	29
DRAWWORKS AND MACHINERY(8.508 KN/10.056KN)	29
ROTARY TABLE & ASSOCIATED EQUIPMENT(47,5KN, 40 rpm)	29
HYDRAULIC ROUGHNECKS FOR WELL CENTRE & STADBUILDING	29
RISER & PIPE RACK HANDLING SYSTEM	29
HYDRAULIC POWER UNIT(4 x 150 KW + 1 x 9 KW)	145
MUD SYSTEM (pumps, accessories, mixer) 7.500 psi x 4 un.	29
CHOKE & KILL MANIFOLD	29
DRILLERS CONTROL CABIN & CONTROL SYSTEM	29
BOP / XMAS TREE TRANSPORTATION / HANDLING SYSTEM	29
RISER TENSIONING SYSTEM	29
BULK MUD & CEMENT SYSTEM	29
SUBSEA PACKAGE	29
MAIN DIESEL GENERATORS SETS(7.680 KW x 720 rpm x 11.000 V)	174
EMERGENCY GENERATOR SET(1.180 KW x 1.800 rpm x 600 V)	29
DECK CRANES-Lattice boom 25 t x 42 m	87
DECK CRANES-KNUCKLE BOOM25 t x 45 m + 1 x 85 t x 19 m	58
AZIMUTH-Antriebe (4.500 KW x 4,50 m dia)	174
ANCHORING & MORING EQUIPMENTS(electricalhyd. driven)	29
PUMPS (centrifugal, pneumatics, positive displac.)	2.813
HVAC SYSTEM (main machines)	87
HVAC SYSTEM (self-container)	870
ACCOMODATION MODULE (persons)	29
PIPING (ton)	17.576
FITTINGS (ton)	11.424
CABLE (electrical / instrumentation / telecom) (km)	23.200
VALVES (ton)	21.490

Appendix 5: Interview questions and results

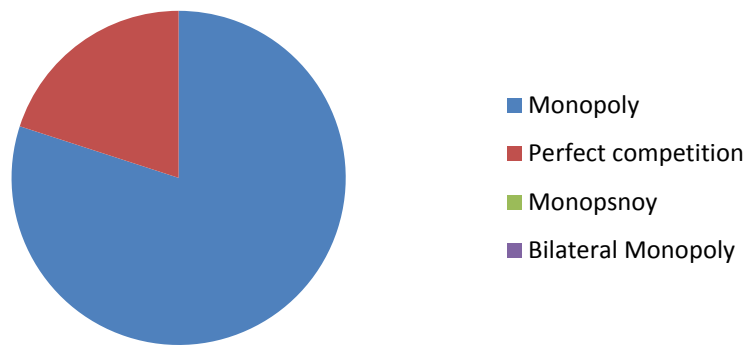
How do you assess the competition between marine cable suppliers on the Brazilian market?



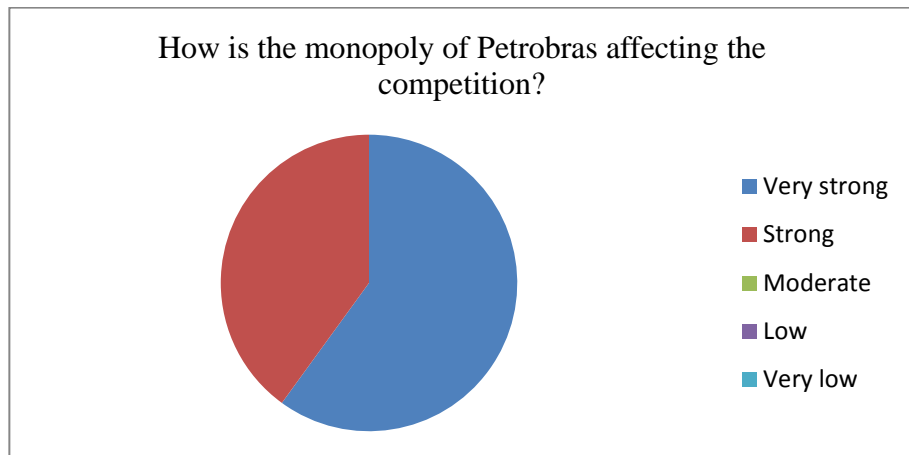
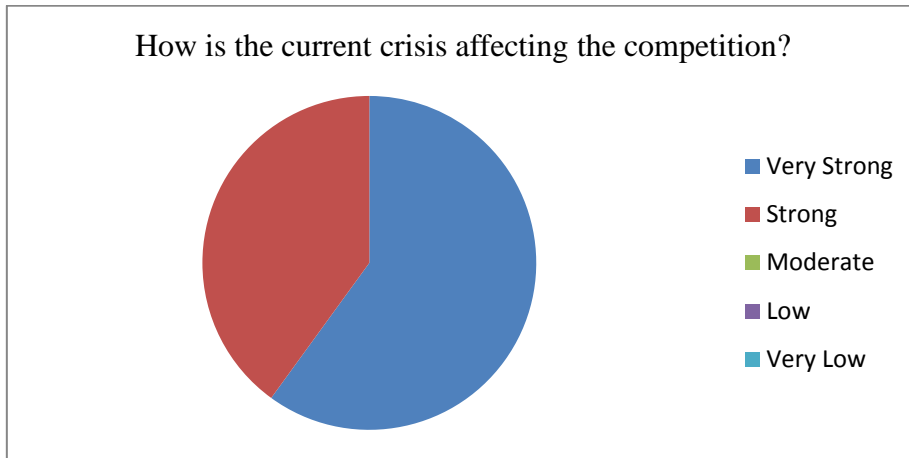
Which are the main sources of competition ?



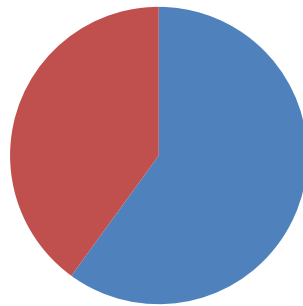
Structure of competition ?



Which companies are the market leaders?	
Company	Mentions
Prysmian	5
Nexans	5
Telefio Cabos	3
Eurocabos	3
General Cabel	2
FNCE	2
Cofibam	1
Pan Electric	1
Wirex	1



How are local content requirements affecting the competition between foreign suppliers?



- Very strong
- Strong
- Moderate
- Low
- Very low

Appendix 6: Offshore Oil & Gas Basins Brazil

