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Business Models and Internationalization Decisions: The Case of Galp

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Abstract

English

Title: Business Models and Internationalization Decisions: The Case of Galp Energia

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Educators must modernize their teaching continuously to educate future global leaders and to keep the teaching of international business relevant, engaging and innovative. Recent years have seen a shift away from lecturer-centered pedagogy and towards active learning and the use of cases. The goal of this thesis is to keep the latter approach up to date by designing a teaching case that reflects a novel international business theory. Gaps in previous teaching cases were identified. An example company was selected in accordance with various criteria. Semi-structured interviews and primary data were then used to make the case richer. These steps revealed that the role of business models and internationalization is poorly covered in international business cases. The theory from Bohnsack, Ciulli and Kolk's (2020) article "The role of business models in firm internationalization: an exploration of European electricity firms in the context of the energy transition" was identified as a relevant basis for a teaching case. Through the example of Galp Energia, the case teaches students how to build on the analysis of the location boundedness of business models and recombination barriers to develop action plans for internationalization. More specifically, the students are taught to assess feasibility, to select business model components for modification (where necessary) and to anticipate barriers to internationalization.

Keywords: internationalization; business model specific advantages; location-bound/non-location-bound; business model; recombination barriers; international business teaching

Portuguese

Título: Business Models and Internationalization Decisions: The Case of Galp Energia

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Os educadores devem modernizar continuamente o seu ensino para educar futuros líderes globais e para manter o ensino dos negócios internacionais relevante, envolvente e inovador. Nos últimos anos, verificou-se uma mudança da pedagogia centrada no docente para uma aprendizagem activa e para a utilização de casos. O objectivo desta tese é manter esta última abordagem actualizada através da concepção de um caso de ensino que reflicta uma nova teoria empresarial internacional. Foram identificadas lacunas em casos de ensino anteriores. Foi seleccionada uma empresa exemplo, de acordo com vários critérios. Foram então utilizadas entrevistas semiestruturadas e dados primários para tornar o caso mais rico. Estas etapas revelaram que o papel dos modelos de negócios e da internacionalização é mal coberto em casos de negócios internacionais. A teoria do artigo de Bohnsack, Ciulli e Kolk (2020) "The role of business models in firm internationalization: an exploration of European electricity firms in the context of the energy transition" foi identificada como uma base relevante para um caso de ensino. Através do exemplo da Galp Energia, o caso ensina os estudantes a construir sobre a análise dos limites de localização dos modelos empresariais e das barreiras de recombinação para desenvolver planos de acção para a internacionalização. Mais especificamente, os estudantes são ensinados a avaliar a viabilidade, a seleccionar componentes de modelos de negócio para modificação (quando necessário) e a antecipar barreiras à internacionalização.

Palavras-chave: internacionalização; vantagens específicas do modelo de negócio; localização-imposto/não-localizado; modelo de negócio; barreiras de recombinação; ensino empresarial internacional

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List of Abbreviations

BM	Business model
BMC	Business model canvas
BMI	Business model innovation
BMSA	Business model specific advantages
EI	Energia Independente
FSA	Firm specific advantages
IB	International business
JIBS	Journal of International Business Studies
MNE	Multinational enterprises
SME	Small and medium-sized enterprises

1 Introduction

As the practice of international business (IB) evolves with the rapid growth of the world economy, IB educators develop their teaching styles to educate future global business leaders. "Among other things, business educators need to reflect new realities, such as the digital transformation of business and the growing importance of business models, to make the teaching relevant, engaging, and innovative" (Akdeniz, Zhang and Cavusgil, 2019, p. 96). Inevitably, these developments pose new challenges to IB educators. Consequently, in the last few decades, innovative teaching methods, broadly termed "active learning approaches", have increasingly been applied (e.g., Faust and Paulson, 1998; Aggarwal and Goodell, 2014; Aggarwal and Wu, 2019).

Active learning approaches are described as "anything that students do in a classroom other than merely passively listening to an instructor's lecture" (Faust and Paulson, 1998, p. 4). As IB education extends beyond the acquisition of concrete facts and concepts, active learning approaches enable students to internalize the complexities involved in IB (Aggarwal and Wu, 2019). One example of an active learning approach is the case method, which was pioneered by the Harvard Business School and remains a significant component of its teaching program (Christensen, 1981).

With the shift from lecturer-centered learning to active involvement and participation in the educational process, the pedagogic use of cases has increased. Its goal is to develop the student's critical thinking and their problem-solving skills. In fact, McEwen (1994) posited that case studies are the most effective method for developing critical thinking in the classroom. At the same time, studies show that students prefer courses with case studies to those that adopt the traditional lecture approach (Scott, 2007). In particular, modern students who are familiar with applied exercises in lectures find that the case method gives them a sense of active involvement and decision-making (Stitt-Gohdes, 2001).

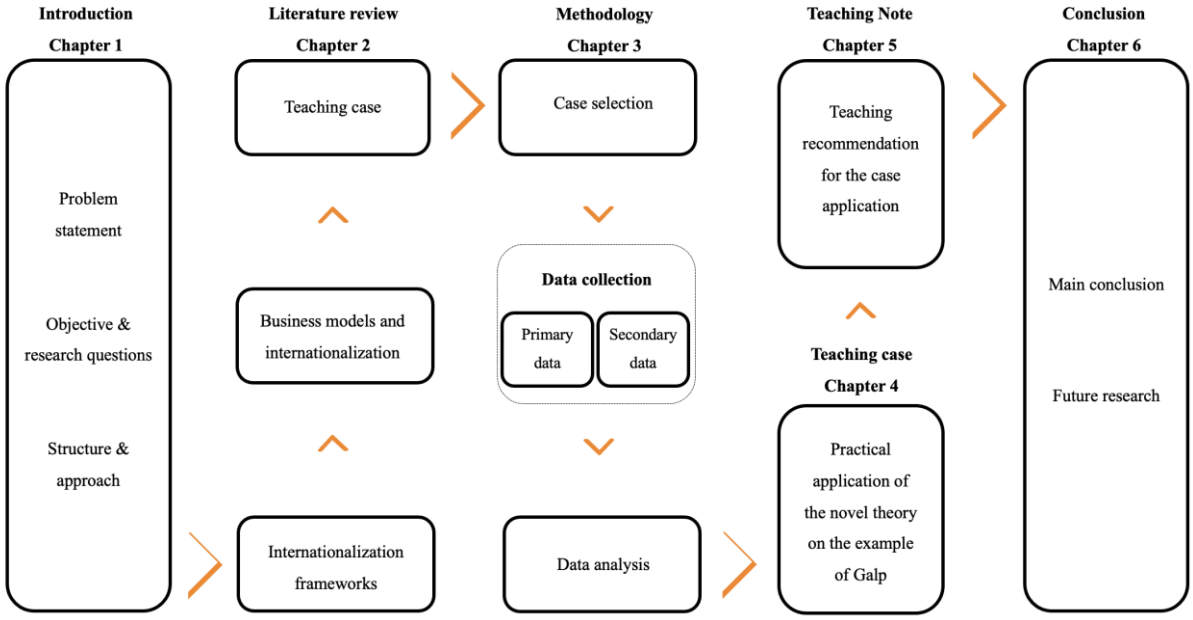
There is thus a general consensus in the literature on the benefits of experimental learning methods, such as case studies, in IB education (Akdeniz, Zhang and Cavusgil, 2019). Accordingly, new teaching cases must be developed constantly to reflect theoretical developments and to keep the case method up to date. IB teaching cases are central to this thesis. It addresses the following research questions:

- *RESEARCH QUESTION 1:* Which aspects of IB theory are currently left unaddressed by teaching cases?

- *RESEARCH QUESTION 2:* What examples are suitable for the explanation and application of the theories that are taught?
- *RESEARCH QUESTION 3:* How should new theories of internationalization and business models be taught to students through teaching cases?

This thesis, *Business Models and Internationalization Decisions: The Case of Galp*, consists of three chapters. It is structured as follows: the second chapter discusses the theoretical foundations that underpin the thesis and demonstrates the relevance of its topic to the development of teaching cases. Followed by the third chapter, which elaborates the methodology used to collect the data for this thesis. The fourth chapter presents a teaching case. The Portuguese energy company Galp Energia is described in detail for the benefit of a target group of students. The company is analyzed from the perspectives of BM theory and internationalization. The fifth chapter of the thesis is a teaching note. It contains a detailed description of how the case can be applied when teaching IB classes. This teaching note is intended to support lecturers in extracting as much value as possible from the case when they use it to consolidate theory and practice. Finally, the sixth chapter of the thesis presents its main conclusions as well as suggestions for future research.

Figure 1: Thesis Structure



2 Literature Review

2.1 Internationalization frameworks

Over the past three decades, managers and investors, but also academics, have become increasingly interested in internationalization (Amal and Filho, 2010), which has been described as "the process of increasing involvement in international operations" (Welch and Luostarinen, 1988, p. 36). This attention has been stimulated significantly by globalization and the accompanying changes, that is, the gradual removal of barriers (Levitt, 1983) that segmented national and international markets and the competitive spaces of small and large firms (Fraser and Oppenheim, 1997).

The academic literature has changed over time to reflect the increasing internationalization of companies (e.g., Aharoni, 1966; Johanson and Valhne, 1977; Welch and Luostarinen, 1988; Johanson and Vahlne, 2009; Vahlne and Johanson, 2013 etc.). For example, in the early stages, scholars focused on documenting and explaining the spread of multinational enterprises (MNEs) (e.g., Brash, 1966). Later scholars analyzed the specific steps in the internationalization process (e.g., Bilkey and Tesar, 1977). In the pages that follow, the most pertinent internationalization frameworks that evolved from this process are explained. The focus is on the "why", the "where" and the "how" of internationalization.

Ghemawat developed the internationalization literature by creating the ADDING value scorecard. Its purpose is to determine whether and why businesses should internationalize. According to Ghemawat, a decision for or against an international business strategy should be based on a detailed analysis of "the individual levers via which value is created" (Ghemawat, 2007a, p. 1):

The first lever, "adding volume or growth," helps assess the potential of cross-border operations to generate valuable economic growth, say through economies of scale and scope. The second lever on the scorecard concerns the appraisal of "decreasing costs" through, among others, assessments of potential cost increases and decreases. The third lever, "differentiating or increasing willingness to pay," is related to the operational transformations that internationalization requires and their efficiency implications. "Improving industry attractiveness and bargaining power," for example through the identification of changes to industry structure, is the fourth lever that can add value to internationalization. "Normalizing risk" involves investigating the critical sources of risk in cross-border operations and the extent of the resultant exposures. The

lever "generating knowledge and other resources and capabilities" calls for an analysis of the potential development of capabilities, such as value-creating knowledge (Ghemawat, 2007b).

The failure of the Daimler-Chrysler merger illustrates the importance of a value-added perspective on internationalization (Ghemawat and Ghadar, 2000). At the time of the merger, the two companies aimed to become one of the largest car manufacturers by volume. However, in the luxury segment of the automotive industry, profitability is not related to volume. Consequently, the merger and the internationalization that accompanied it did not enhance profitability (Ghemawat, 2008).

The application of the ADDING Value scorecard provides a basis for assessing whether a particular internationalization strategy is desirable. However, at a higher level of abstraction, it does not determine whether the business model (BM) of a company, taken as a whole, enables value to be created and captured in foreign markets (e.g., Bohnsack, Ciulli and Kolk, 2020). Consequently, the scorecard is not sufficient for a company to decide whether to internationalize.

Other frameworks that have been developed by IB scholars focus on the role of location. Here, the CAGE distance framework commands wide acceptance (e.g., Jackson and Deeg, 2008; Campbell, Eden and Miller, 2012). The framework helps managers select a foreign country to enter on the basis of four dimensions of (or distances between) the home market and the host market (Ghemawat, 2007c).

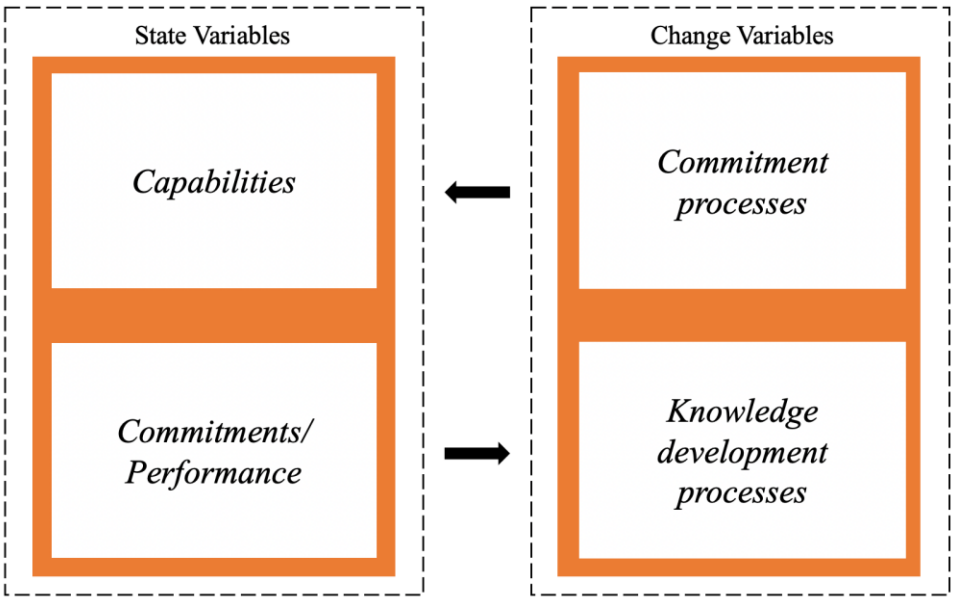
The first dimension, "cultural distance," captures the manner in which people interact with each other, with companies and with institutions. For example, cultural attributes create distance by influencing consumer product choices. The second dimension, "administrative and political distance," reflects the distance created by government policies, such as tariffs. The third dimension is "geographic distance." The greater the physical distance between host country and home country, the greater the difficulty of the company's international operations. The fourth dimension, "economic distance," covers differences in consumer wealth and income, such as purchasing power differentials (Ghemawat, 2001).

The framework is useful in supporting the choice of internationalization location. For example, for Grolsch, an international brewery company, differences in country attributes, such as prevalent tastes, excise duties and channel structures (the level of organized retail development), are essential for identifying locations where internationalization would require the least effort (Ghemawat and Mitchell, 2011).

While the CAGE distance framework circles on differences between countries, it also reveals the varying intensity of barriers. Therefore, its application helps companies to assess the attractiveness of potential host countries. However, limiting the analysis to distance creates a risk of superficiality. For example, if managers do not consider the BM of the company when assessing barriers, then barriers which obstruct a specific element of the company's business may be ignored. Therefore, in the CAGE framework, the absence of an internal company analysis can be a significant hindrance to the adequate selection of internationalization locations.

The Uppsala model, which was first published by Johanson and Vahnle in 1977, is also used to determine where and how to internationalize. In the model, internationalization is seen as a process in which companies "go abroad to close and familiar markets to start with and gradually extend foreign operations to more distant and unfamiliar markets" (Johanson and Vahlne, 2003, p. 90). It contends that firms begin by internationalizing towards countries that are their cultural and geographic neighbors and that they move to psychically distant countries as they build expertise. Then, resource commitments are increased incrementally with the accumulation of foreign market experience. Over time, Vahlne and Johanson refined the framework to accord with the evolution of internationalization theory (Johanson and Vahlne, 2009; Vahlne and Johanson, 2013; Vahlne and Johanson, 2017). In 2017, they published an enhanced framework which explains the evolution of MNEs holistically. Figure 2 shows its main components and their relationship.

Figure 2: The Uppsala Model



Adapted from: Vahlne and Johanson (2017)

In the framework, the components "commitment processes" and "knowledge development" are defined as change variables. These processes indirectly affect each other by impacting both state variables, "capabilities" and "commitments/performance," which triggers more change (Vahlne and Johanson, 2017). Therefore, the model is dynamic; it does not have a beginning or an end. The first change variable, "commitment processes," includes two sub-processes: reconfiguring and coordinating. The second change variable is "knowledge development process." The processes comprises learning, creating and building trust, which occur in all internal and external network units (Johanson and Vahlne, 2009). The first of the two state variables, "capabilities," relates to firm-specific advantages (FSAs) – a firm's unique capabilities (Lee and Rugman, 2012). It is closely linked to resource commitment and the knowledge development processes (Vahlne and Johanson, 2013). According to Teece (2014), the use of operational capabilities amounts to utilizing existing FSAs, whereas dynamic capabilities – "the firm's ability to integrate, build, and reconfigure internal and external competences to address rapidly changing environments" (Teece, Pisano and Shuen, 1997, p. 516) – allow the development of operational capabilities. Therefore, in most cases, internationalization requires dynamic capabilities. Those capabilities have to be built internally, and they are not easily imitated (Vahlne and Johanson, 2017).

The Swedish company IKEA embarked on its cross-border operations in a manner that was consistent with the emphasis on sequential and incremental internationalization that typifies the Uppsala model. Firstly, the company internationalized to neighboring states, such as Norway and Denmark to generate knowledge and experience through test stores. Later, IKEA increased its commitment to other foreign markets, such as Germany (Jonsson and Foss, 2011).

While the Uppsala model focuses on market knowledge as the main factor that influences the internationalization of a firm, it does not account for the possibility that recombination barriers might prevent internationalization despite the knowledge generated from foreign operations. For example, knowledge cannot dissolve regulations that prohibit foreign companies from entering a market. The barriers might be insurmountable and thus prevent expansion into the country. Therefore, the Uppsala model is not sufficiently detailed to guide the internationalization decisions of a company.

Like the Uppsala model, the IB literature has centered on company resources and adaptive company strategies (Peng, 2001). The emergence of firm resources as an influential theoretical perspective in IB research was spearheaded by the development of the resource-based view.

The resource-based view is the notion that the exploitation of valuable rare resources and capabilities contributes to the competitive advantage of a firm, which, in turn, improves its performance (Newbert, 2010; p. 745; Wernerfelt, 1984; Barney, 1991; Mahoney and Pandian, 1992; Amit and Schoemaker, 1993).

Scholars who subscribe to this view of internationalization theory posit that successful international expansion depends on FSAs (Narula and Verbeke, 2015). These FSAs help the firm distinguish itself from rivals. It thus acquires a competitive advantage (Rugman, Verbeke and Nguyen, 2011) and the ability to ”engage in foreign activities” (Narula et al., 2019, p. 1234). A central principle of IB theory is that in order to become an MNE and compete against domestic rivals, companies must have significant FSAs vis-à-vis their competitors. These FSAs allow MNEs to compensate for their disadvantages when competing abroad (Hymer, 1976; Dunning, 1980).

A distinction is made in literature between non-location-bound FSAs and location-bound FSAs (Rugman and Verbeke, 2001, 2003, 2004). To compete successfully, “both location-bound FSAs and non-location-bound FSAs are needed” (Grøgaard, Colman and Stensaker, 2019, p. 2). Non-location-bound FSAs, as final goods or essential routines, create value in various markets and can be transferred effortlessly across countries (Rugman and Verbeke, 2001), enabling rapid, easy internationalization (Grøgaard, Colman and Stensaker, 2019). When internationalizing firms can increase the value of their non-location-bound FSAs (Pitelis and Verbeke, 2007) by combining them with location-specific assets in the host country (Coviello, Kano and Liesch, 2017), an FSA recombination is said to occur. This recombination is likely to ensure competitiveness abroad (Rugman and Verbeke, 2001; Grøgaard, Colman and Stensaker, 2019) by fulfilling local needs and requirements. For example, to reach customers in a foreign country, a local distribution network is crucial (Rugman, Verbeke and Nguyen, 2011). Conversely, location-bound FSAs, as local network and local reputation, are tied to specific localities, making it difficult to transfer them across countries (Rugman and Verbeke, 2001). Therefore, the value of a location-bound FSA cannot be exploited in other countries (Grøgaard, Colman and Stensaker, 2019). Authors argue that “location-bound and non-location-bound FSAs are often developed from the inception of the firm, imprinted by founders and are continuously shaped by external circumstances” (Bohnsack, Ciulli and Kolk, 2020, p. 3).

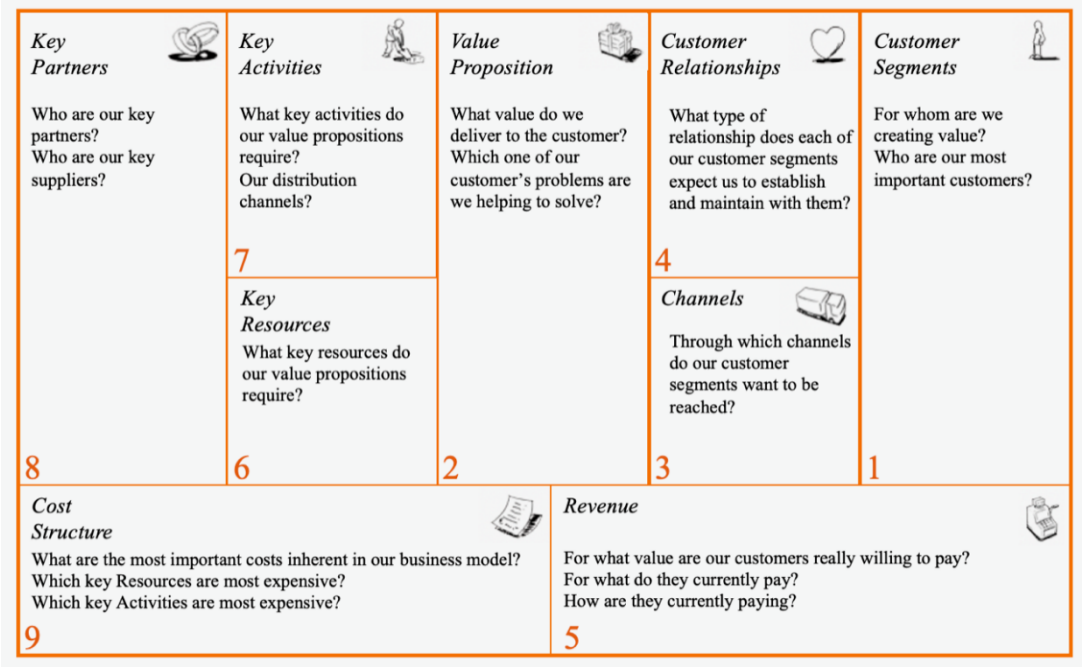
2.2 Business models and internationalization

Although BMs already featured in barter exchange, driving forces, such as the growth of the Internet, have increased the salience of the BM concept (Teece, 2010; Zott, Amit and Massa, 2011). Today, companies must rethink their strategies and their entire BMs (Teece, 2010) in order to answer fundamental questions about creating, delivering and capturing value (Osterwalder and Pigneur, 2010; Teece, 2010; Zott, Amit and Massa, 2011).

A firm's BM describes its underlying dominant logic and its strategic choices, including the financial architecture associated with the enterprise. In this way, the BM creates value (Mahadevan and Series, 2000; Shafer, Smith and Linder, 2005; Osterwalder and Pigneur, 2010; Zott, Amit and Massa, 2011). In essence, a BM is conceptualized by making assumptions about customers, revenues and costs, the changing nature of customer needs and likely competitor responses (Teece, 2010). In this regard, Baden-Fuller et al. (2017, p. 4) describe the BM as "how firms can engage with consumers to create value for them in different ways."

BMs allow firms to bring innovations to market and to satisfy customer needs (Teece, 2010). History has shown that new BMs can facilitate innovation: "without a well-developed business model, innovators fail to either – deliver – or capture – value from their innovations" (Teece, 2010, p. 172). BMs can also be innovations in their own right. However, BMs can only create a substantial advantage if they are difficult to imitate (McGrath, 2010). Business model innovation (BMI) plays a vital role in this context. Through continuous change and adaptation, it prevents a BM from becoming imitable (Rask, 2014). The internal capabilities and resources of companies (e.g., superior technology, exemplary leadership) cannot create a sustainable, profitable company if the BM is not adapted continuously to the external environment (Teece, 2010). According to Bohnsack, Pinkse, and Kolk (2014, p. 297), "regulation, customer preferences, competitive moves of rivals, technological developments, and the emergence of best practices" are among the various factors in the external environment of companies which contribute to BMI. To help managers formalize a BM concept and to guide a structured "conceptualization for evaluation," Osterwalder and Pigneur (2010) developed the business model canvas (BMC) design approach (p. 14). The authors describe four main elements of the business of a company: infrastructure, benefits offered, customers and financial structure. The four are addressed by nine "building blocks" of BM design and innovation (p. 15).

Figure 3: Nine Building Blocks of the BMC



Adapted from: Osterwalder and Pigneur, 2010, p. 16-17 & 44

The launch of the Apple iPod and iTunes in 2001 was an example of successful BM creation. The combination of device, software and online store was an innovative form of distribution in the music industry at that time, which enabled Apple to secure a dominant market position. Although Apple was not the first company to launch a portable media player, it had a better BM than its competitors. First, the product offered a seamless music experience by combining the iPod device with the iTunes software and the online store. In this way, Apple's value proposition allowed customers to easily access, buy and enjoy digital music. Second, to effectuate its value proposition, Apple struck deals with all the major record companies, creating the world's largest online music library. (Osterwalder and Pigneur, 2010).

Beyond protection from rivals, a unique BM also enhances company performance. It thus fosters early, rapid internationalization (Zott, Amit and Massa, 2011). At the same time, when an internationalization decision is made, the focus of the company lies on BMI. Internationalization requires the holistic enhancement of the BM, a "process of adaptation, change and development in a long range of successive transformations within the firm's fundamental function, systems and structures" (Rask, Strandskov and Håkonsson, 2008, p. 320). Accordingly, Albaum, Duerr and Strandskov (2005) argue that successful domestic BMs require adjustments to fit foreign economic, political, legal and cultural environments. Furthermore, some authors posit that BMs should be adapted to geographical locations (Onetti *et al.*, 2012) in order to serve as critical tools for the realization of competitive advantages (Rugman and Verbeke, 2004).

Bohnsack, Ciulli, and Kolk (2020) extend BM and internationalization theory through an FSA concept, the business model specific advantage (BMSA). BMSA is used to analyze the location-boundedness of a firm's activities. This assessment is critical for internationalization decisions, as it determines whether the BM enables the company to create and capture value in a foreign market. For specific BMSAs, the degree of location-boundedness depends on three core BM components (Bohnsack, Ciulli and Kolk, 2020): the value proposition, how a firm creates value for its customer; the value network, a firm's relationships with its suppliers, distributors, customers and competitors; and the revenue-cost model, the most important costs and revenue streams of the firm (Chesbrough and Rosenbloom, 2002; Baden-Fuller and Haefliger, 2013).

Linking FSA theory to BMs results in two advantages: "the higher-order configurational character and the link to external actors" (Bohnsack, Ciulli and Kolk, 2020, p. 5). The higher-order configurational character is attributable to the proposition that resources by themselves do not have economic value (Massa, Tucci and Afuah, 2017). Their value is realized when they are processed into outputs through a BM. In other words, to create value, a firm needs to combine a resource, such as a technology, with a suitable BM. Value is created and captured on the home market and abroad as a result of these configuration activities. In addition, each of the configuration activities can be linked to a BM component, which enables the analysis of the BM's location-boundedness (Bohnsack, Ciulli and Kolk, 2020). In this analysis, co-creation with external firms has become increasingly important when internationalizing (Coviello, Kano and Liesch, 2017): partnering with external companies which hold or manage critical location-specific assets in a host country enables FSA recombination (Verbeke and Kano, 2015; Narula, 2019). The BM concept subsumes the external network of the firm (Amit and Zott, 2010). As a result, it highlights the central role of external partners in the international expansion of firms (Bohnsack, Ciulli and Kolk, 2020).

The BMSA concept encompasses all value creation and capture processes, that is, all activities, be they location-bound or not, which produce a firm-specific advantage when combined. If all three BM components are not location-bound, managers might internationalize the BMSA of a company with no or minor adaptations. However, firms for which all three BM components are location-bound might find it difficult to internationalize. The BM of such firms must be adapted through recombination with location-specific assets to ensure that value is created and captured in foreign markets (Bohnsack, Ciulli and Kolk, 2020).

For instance, when Bohnsack, Ciulli and Kolk (2020) studied 14 firms in the European electricity sector, they found that the BM of traditional utility companies is markedly location-

bound. One example is the company ASM, whose value proposition, value network, revenue cost model are location-bound. Therefore, its BMSA is also location-bound.

Table 1: ASM - Value Proposition, Value Network, Revenue-Cost model

Company	Value Proposition	LB vs. NLB	Value Network	LB vs. NLB	Revenue-Cost-Model	LB vs. NLB	BMSA Location Boundedness
ASM	• Management of local gas, electricity and water networks • Supply of local energy services and grid management • Smart grid technology (in the future)	LB	• Strategic partnership with the local municipality • Coordination of activities across the value net by gathering, synthesizing, and distributing information • Ownership control over several companies, including an electricity retailer	LB	• Revenue from billed retailers and the local municipality • Efficiency gains, economies of scope, and lower dependencies from suppliers decrease costs • Dependence on government incentives for demand response	LB	High

Adapted from: Bohnsack, Ciulli and Kolk, 2020, p. 10

In contrast, some companies rely on new technologies, or they offer them to customers. Thus, they operate with novel BMs. Such companies tend not to be location-bound from the perspective of the three BM components. Watt + Volk exemplifies this proposition.

Table 2: Watt + Volt -Value Proposition, Value Network, Revenue-Cost Model

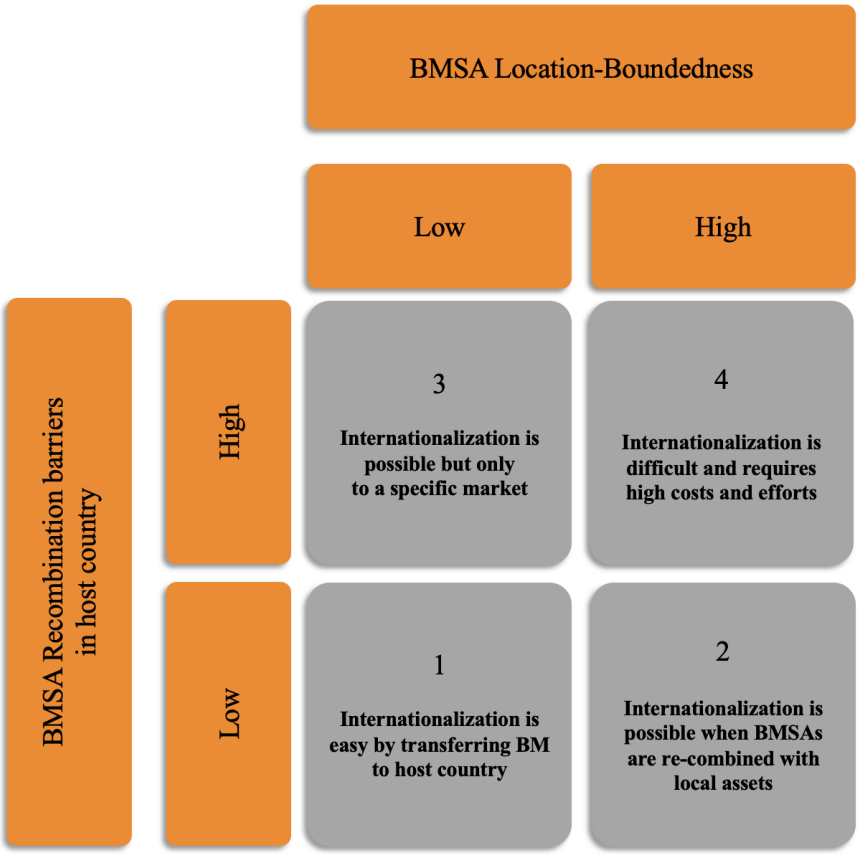
Company	Value Proposition	LB vs. NLB	Value Network	LB vs. NLB	Revenue-Cost-Model	LB vs. NLB	BMSA Location Boundedness
Watt + Volt	• Smart technology for value-added services • Sale of low-consumption lighting products • Energy management platform	NLB	• Providing a 'one-stop solution' energy service to residential and commercial customers • Strategic partnerships with local energy companies • Establishment of subsidiaries	LB	• Revenue from billed customers and energy charges • Service extension for additional revenue	NLB	Low

Adapted from: Bohnsack, Ciulli and Kolk, 2020, p. 11

Bohnsack, Ciulli and Kolk (2020) argued that internationalization potential also depends on barriers to recombining BM components in the host country, which can obstruct or altogether prevent a company from accessing location-specific assets. They identified three barriers. First, regulatory barriers prevent a firm from connecting its BMSA to local assets. For example, firms in their study argued that various countries had failed to provide regulatory support for new electricity-related technologies, making internationalization difficult. Second, infrastructural barriers are present when missing infrastructure or infrastructural shortcomings prevent a firm from connecting its BMSA to local assets. For example, gas providers might find that physical connections (i.e., gas pipelines) are absent in a foreign country, which constitutes an infrastructural barrier. Third, market barriers, such as culture or an oversaturated market, may also prevent a firm from connecting its BMSA to its local assets.

The authors posit that whether and how firms enter foreign markets depends on two factors: "(1) whether a firm's BMSA is non-location or location-bound, and (2) whether the recombination barriers in a (potential) host country are high or low" (Bohnsack, Ciulli and Kolk, 2020, p. 2). These two dimensions, which impact the internationalization of a firm or a business unit, are incorporated into the internationalization matrix. For example, firms located in the first cell (i.e., low BMSA location-boundedness and low BMSA recombination barriers) might internationalize quickly by transferring their BM to the host country. Conversely, firms in the fourth cell (i.e., high BMSA location-boundedness and high BMSA recombination barriers) face difficulties and high costs when internationalizing, as shown in Figure 4.

Figure 4: Internationalization Matrix



Adapted from: Bohnsack, René, Ciulli and Kolk, 2020

2.3 Teaching case

Now that the theory of firm BMs and their relation to internationalization have been evaluated, the thesis proceeds to the identification of IB theory currently left unaddressed in teaching cases. Therefore, the ten most relevant cases in the field of internationalization on Harvard Business Review Publishing, were screened. These cases and the accompanying teaching notes

were analyzed through an explorative qualitative research design to isolate the internationalization variables addressed in the cases. These variables were labelled and listed in a table. In the course of this exercise, it was found that, the teaching cases do not address the relationship between the location-boundedness of firm BMs and market barriers (*Appendix I*). Most scholars analyzed businesses internally, for instance by assessing their supply chain or their financial performance, but did not introduce the BM as a dimension that may affect the international expansion of a firm. Two cases included an examination of a BM and its location-boundedness. However, even those did not present a clear concept that would allow a student to assess the strength of the bond between the BM of a firm and the host location (e.g., Hoffman, 2016; Pastoriza and Coulombe, 2018). As far as internationalization barriers were concerned, authors mainly concentrated on competition in foreign markets and regulatory barriers (e.g., Guillotin, 2018). However, the holistic consideration of multiple potential barriers and their categorization were absent. Thus, students might fail to learn about the variety of market barriers that exist and the variability of their intensity, which influences internationalization opportunities. In summary, then, a teaching case on the novel BM and internationalization theory of Bohnsack, Ciulli and Kolk (2020) needs to be written to fill existing teaching gaps.

3 Methodology

3.1 Case selection

This thesis used an in-depth case study approach to develop insights into the internationalization of one selected company. This research method allows numerous analysis levels to co-exist within a single study (Yin, 1984). The simultaneous analysis of the BMs of the company's business units and their degree of internationalization becomes possible. Furthermore, the case study method is considered appropriate for early research into a new phenomenon and its context (Yin, 1981; Eisenhardt, 1989). Therefore, it was employed in the article by Bohnsack, Ciulli and Kolk (2020), and it is now used to extend the application of their theory to the level of business units, a new field.

After discussing the case, students should significantly expand their knowledge of IB, their strategic acumen and their managerial thinking. In line with these goals, they should be able to identify BM components, to recognize recombination barriers and to employ the internationalization matrix. Furthermore, they should be able to make internationalization decisions on the basis of the acquired theory. Accordingly, three criteria were formulated in the process of case selection to ensure that a suitable company would be chosen to exemplify, explain and apply the theory.

- *Criterion 1: Multiple business units with different BMs*

Bohnsack, Ciulli and Kolk's (2020) study aimed to explore the role of BMSAs and recombination barriers in the internationalization of companies. To demonstrate the manifold applications of the theory, it was applied on a more granular level: the goal of the teaching case was to teach students how to design an internationalization strategy for a company while considering the different BMs of business units. Thus, multiple business units with different BMs was evaluated as necessary criteria for selecting an exemplary company.

- *Criterion 2: Business units with different degree of internationalization*

The selection of a company with multiple business units and different degrees of internationalization also guaranteed that the internationalization of individual business units would be feasible. An adequate and sufficient collection of information why some business units fail to internationalize and the difficulties (recombination barriers) faced by business units which have already internationalized was required. Accordingly, ample details could be presented in the case to allow students to gain a holistic view of BMSAs and internationalization.

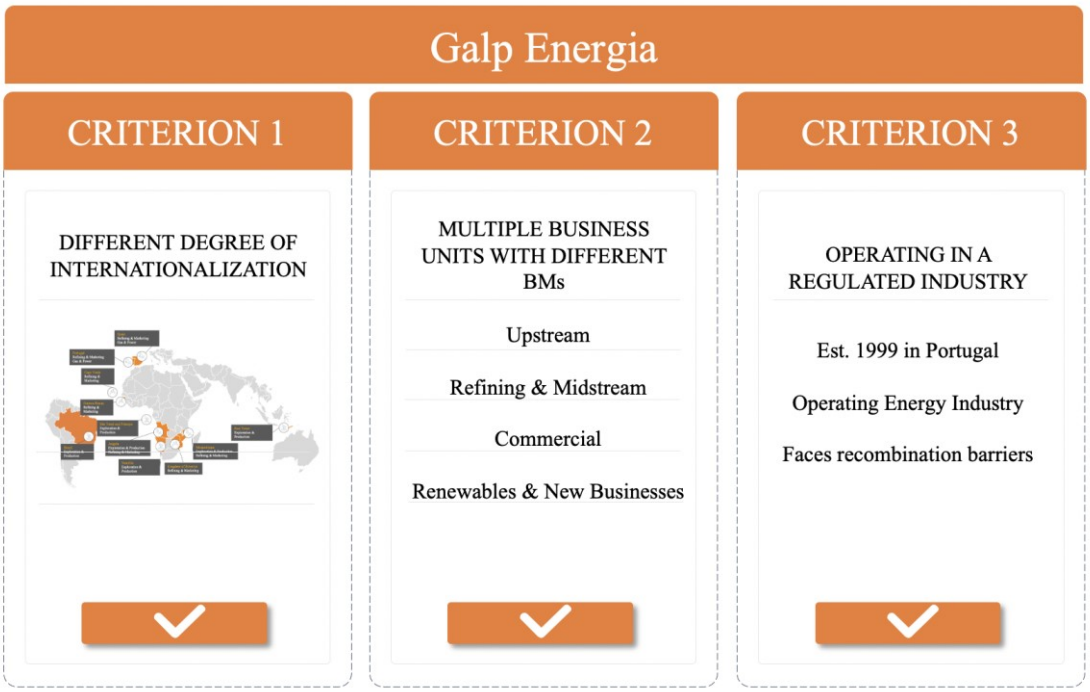
- *(Optional) criterion 3: Company operating in a regulated industry*

The third criterion for selecting the focus of the teaching case was that the company should operate in a regulated industry. This condition was optional but helpful as it guaranteed the existence of barriers to recombination. Consequently, a company from a regulated industry was chosen in order to highlight the influence of "various barriers in the host country that may complicate recombination of firm's BMSA with local assets" to students (Bohnsack, Ciulli and Kolk, 2020, p. 18).

Because of the parallels with Bohnsack, Ciulli and Kolk's article, the choice fell on the European electricity industry, defined as the production, transmission, distribution and sale of electricity (Erbach, 2016), which has undergone significant changes since the 1990s (Hoffmann, 2006; Green, 2008).

With these criteria in place, a wide range of companies were considered and assessed extensively. Eventually, a decision was made to address the gaps identified in the teaching cases by incorporating the example of Galp Energia, Portugal's largest integrated multi-energy operator, into a new teaching case. In line with the formulated criteria, it is a company with different BMs and degree of internationalization, as it engages in upstream, refining and midstream, commercial, and renewables and new business activities in multiple markets. Additionally, the company has operated in the European electricity market since 1999. Galp's Portuguese origin and previous work experience with the company were the final reasons for its selection.

Figure 5: Galp Energia Selection Criteria



3.2 Data collection

In line with the exploratory case study approach, the study relied on six in-depth interviews with Galp managers for its primary data. The primary data source was then enriched with secondary data to minimize the biases that result from the adoption of a personal perspective and to enhance the validity of the study (Yin, 1981).

3.2.1 Primary data

Semi-structured interviews were conducted to collect core data for the teaching case. This format enabled an open discussion and increased the volume of in-depth information about the research topic. Questions were prepared, but room was left for follow-up questions to facilitate the discussion (Longhurst, 2009; Qu and Dumay, 2011). Furthermore, complex questions or issues that arose during the interviews could be clarified, (Adams, 2015) and questions could be adapted spontaneously to the course of the interview (Saunders, Lewis and Thornhill, 2009, p. 320). The aim was to leverage the participants' experience and knowledge to generate in-depth research insights (Galetta, 2013).

However, it must be noted that the high complexity and rich details of semi-structured interviews impede the generalization of outcomes (Adams, 2015). Additionally, a lack of standardization may lead to reliability concerns and various forms of bias, such as the influence of non-verbal communication on the information conveyed during the interview (Easterby-Smith, Thorpe and Jackson, 2015, p. 417). Yet the interview format was considered appropriate due to the complex theory that was being analyzed, that is, the elaboration of the internationalization framework and the theory of BM components. Questions in that domain may be challenging, and they may require clarification or reformulation. In addition, questions could be adapted continuously to the state of the participant`s knowledge.

Preparations for the primary research followed Galetta's (2013) preliminary steps to performing insightful interviews (*Appendix 2*). A semi-structured interview guide was formulated on the basis of previous knowledge, and then tested and presented (Kallio et al., 2016) to the thesis supervisors. In the next step, one interview with the former CEO of Galp Spain were conducted to refine the questionnaire, to clarify the organizational structure and to receive feedback on the interviewer's initial application of the theory to Galp (*Appendix 3 – Part I*).

Two managers at the strategy department, the head of innovation and the head of special projects at the Galp venture Energia Independente (EI) were interviewed, followed by a second interview with the former CEO, to gain holistic insights into the different business units at Galp (*Appendix 4*). Each one lasted between 30 and 60 minutes. The interviews were performed

online via Zoom due to the ongoing COVID-19 pandemic. All were recorded and later transcribed. The transcripts take up more than 65 pages of text. The questions related to the BMs of the different business units, their degree of internationalization and internationalization barriers (*Appendix 3 – Part II*).

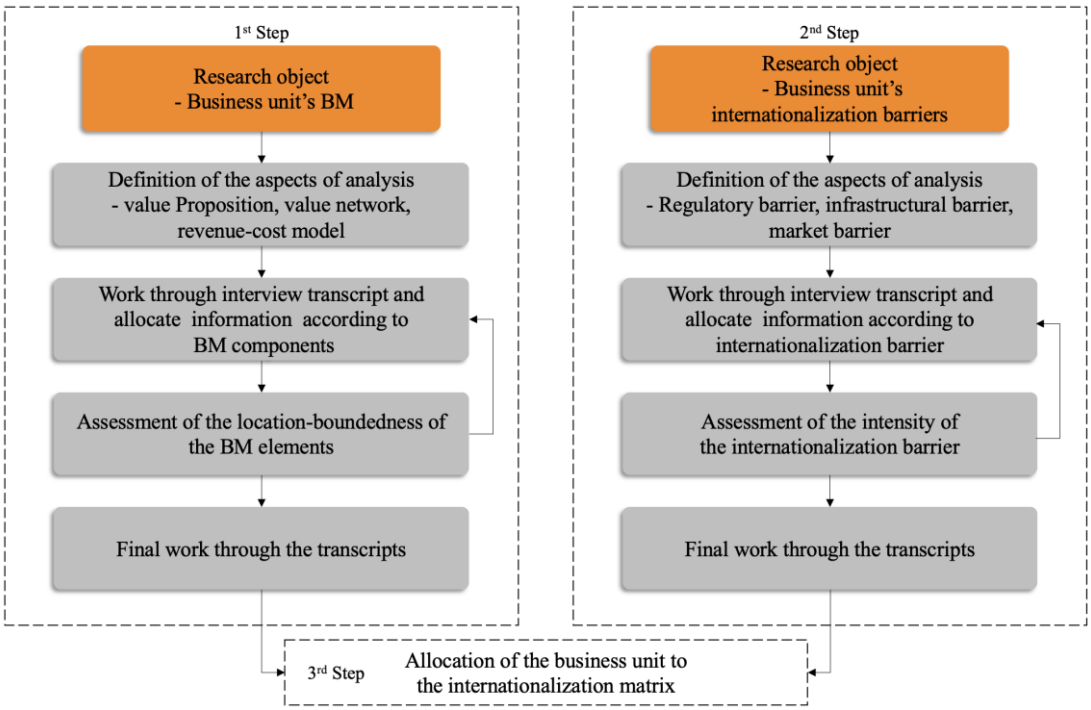
3.2.2 Secondary data

Secondary data was used to prepare the primary research and to enrich the teaching case with details about Galp. For this reason, qualitative and quantitative information was screened to prepare a structural overview of the company and its business units. This data was then collated into a table (*Appendix 5*) to serve as a basis for the teaching case later. Furthermore, Galp's history was examined and processed. Sources such as the Galp company website, annual reports and internal presentations were used for the secondary research.

3.3 Data analysis

The individual business units were allocated to Bohnsack, Ciulli and Kolk's (2020) internationalization matrix on the basis of the interview data. The analysis of the interview transcripts followed the application of deductive categories (Mayring, 2000). A table was compiled before the interviews. It incorporated categories that targeted details about the elements of each unit's BM and internationalization barriers. The analysis was deductive because the categorization was derived from the work of Bohnsack, Ciulli and Kolk (2020).

Figure 6: Step Model of Deductive Category Application

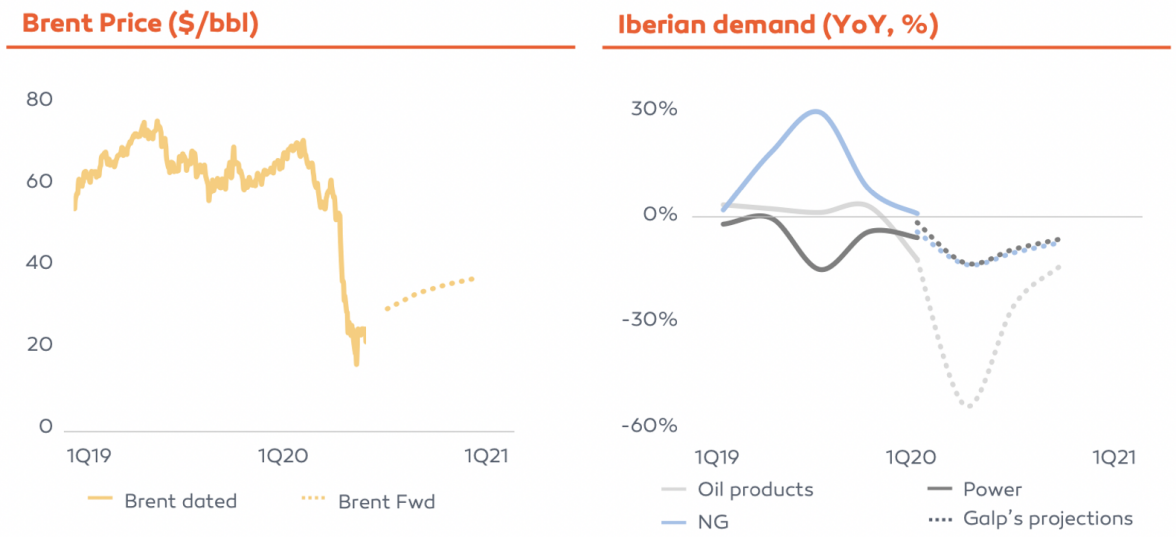


The analysis of the interviews unfolded in three steps. In the first step, the BM of the business unit was analyzed. Specifically, transcript data was allocated to one of three BM elements, namely value proposition, value network and revenue-cost model. This text of the interviews was next examined to assess the location-boundedness of the BM element. The assessment was continuously revised as further transcripts were examined. A similar approach was followed in the second step to determine if the business unit faced barriers when internationalizing and to ascertain the intensity of the barriers, that is, whether the business faced high, medium or low recombination barriers. In the third step, the business units were allocated to the internationalization matrix depending on the outcomes of the first two steps. Follow-up interviews and feedback from the strategy managers on the allocation of elements to the matrix were used adaptively to ensure the accuracy of the study.

4 Case study

On a sunny afternoon in April 2021, four Galp Energia executives met at the company headquarters in Lisbon. The executives were the heads of four separate business units, João Matos (Head of Upstream), Inês Oliveira (Head of Commercial B2C – On the Road), José Santos (Head of Energia Independente) and Ana Silva (Head of Commercial B2B). Galp Energia was now over 20 years old, the second largest company in Portugal and an active participant in the global oil and gas trade. Nevertheless, the company was going through a tough spell. Competition in Iberia was increasing and the recent COVID-19 outbreak had caused oil prices to fall and regional demand for oil products to plummet [Figure 7].

Figure 7: Brent Price & Iberian Demand Drops[1]



To tackle these challenges, the four executives were tasked with initiating a project that would boost Galp's international presence. Limited capacity meant that they could only pick one of the promising avenues that were open to them. In a statement by the Board of Directors, Paula Amorim emphasized that Galp would continue to operate with a strong focus on the projects it selected:

> *"We are convinced that the Company is well prepared … and confident on its capability to continue following a sustainable strategy with an increasing focus on capital discipline, project selection and on the continuous application of industry best practices."*[2]

[1] Galp Energy Results, 1Q20, https://www.galp.com/corp/Portals/0/Recursos/Investidores/SharedResources/Apresentacoes/EN/2020/1Q2O%20Results%20&%20Short%20Term%20Outlook.pdf. Accessed March 17, 2020.

[2] Galp Integrated Management Report 2019, March 20, 2020, p. 6.

Each executive had their vision of the right project, but they would need to reach a consensus. They only had one month to come up with a proposal before the next board meeting. How could the executives meet the challenge of expanding Galp's international presence? After a heated discussion, Mrs Oliveira summarized the steps they had agreed on: "The first thing we need to do is to review our company's history and the industry's developments to set the basis for our decision." As an initiator, she was really pleased with the positive responses of her partners, and they immediately set to work.

4.1 Galp: Company evolution

The executives began reviewing the history of their company and recent developments. Galp's origins date back to 19th-century Portugal, where technical, economic and social evolution caused street lighting to switch from gas to oil. By mid-1848, the Lisbon Company of Gas and Lighting had the country's first streetlights burning, paving the way for the Portuguese gas and electricity industry.

Until the 1930s, the Portuguese market was dominated mainly by foreign companies. However, change arrived when various oil companies, including the Sonap company, began distributing oil products commercially in national and foreign markets. Another Portuguese oil company, SACOR, was the first to engage in the full gamut of oil-related activities, from importing to refining and marketing. The BM, once pioneered, developed quickly, and the incorporation of the Cidla company enabled further forays into the distribution of imported butane and propane gas.

Gas also became increasingly important for households, leading to growing demand and the establishment of the first refinery[3] in Portugal. Petrosul was founded in 1972 with the mission to build another refinery and a petrochemical plant. At that point in time, all four companies – SACOR, Sonap, Cidla, and Petrosul – that would later merge into Galp had been established. In 1976, the government nationalized the four companies and forced them to merge. With over 6,000 employees and total assets of 28.21 billion Portuguese escudos[4] (PTE), the newly founded Petrogal, Portugal's largest company at the time, oriented its business towards exploration and

[3] An oil refinery is a facility that takes crude oil and distils it into various useful petroleum products, such as gasoline, kerosene and jet fuel.

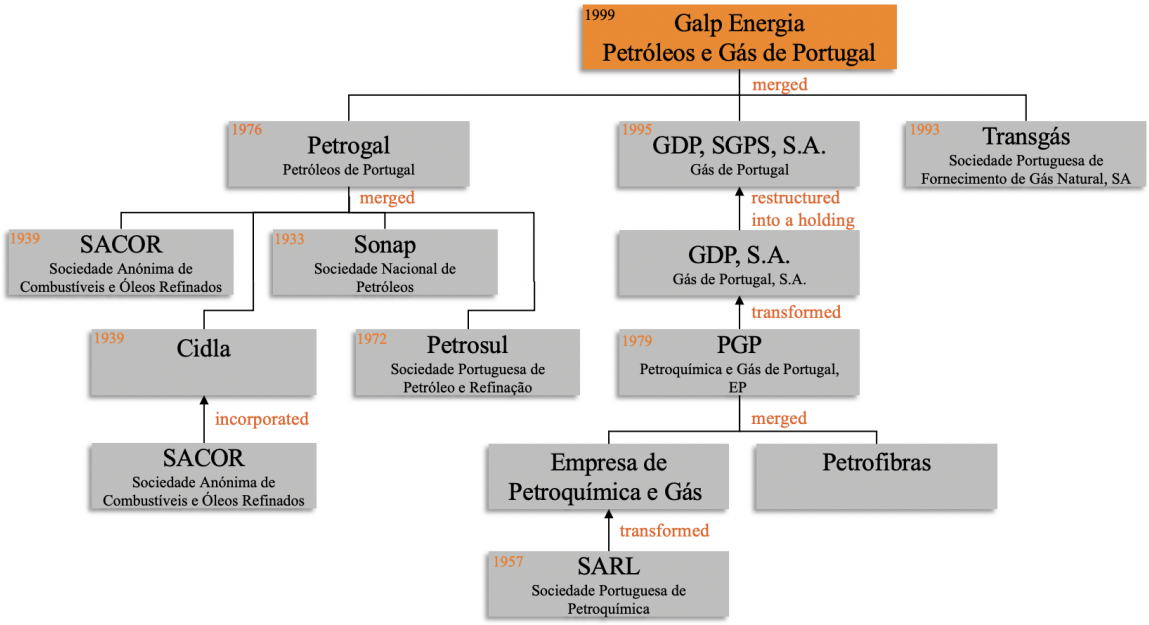
[4] The Portuguese escudo was the currency of Portugal prior to the introduction of the euro.

production in foreign markets. To enhance brand awareness, Petrogal shifted its trading identity to GALP[5] and adopted a new logo in 1978.

In the following years, an oil shock and growing environmental concerns made natural gas increasingly important, leading to several studies of the field. In 1988, these studies precipitated the advent of a new energy policy whose pillars included energy diversification, greater independence and cleaner energy. This new policy prompted the creation of a new company, Gas of Portugal (GDP), through the transformation of two companies that were established in the Portuguese energy market. The intention was to operationalize the new regulatory regime for the benefit of the Portuguese people. Furthermore, the company Transgás was established in 1993.

The introduction of a single European currency in 1999 created new challenges, prompting Petrogal, Gás de Portugal and Transgás to merge. The wholly state-owned company took the name of Petrogal's trading identity, GALP - Petróleos e Gás de Portugal, SGPS, S.A. [Figure 8].

Figure 8: Galp Energia Company Evolution[6]



In the period that followed, the company underwent privatization and a stock market listing, and it completed various projects to construct a gas pipeline. Its first milestone in the international markets was the 2007 acquisition of a trading license for natural gas in Spain. Galp's

[5] Petróleos e Gás de Portugal

[6] Adapted from: Galp Energia Company Website, Our roots, https://www.galp.com/corp/en/about-us/galp/our-roots. Accessed November 3, 2020.

exploration and production activities further expanded into Africa, South East Asia and South America [Figure 9].

Figure 9: Galp's International Presence[7]

The advancing process of internationalization led to the formulation of a new mission and values in 2016, which reflected Galp's new identity as an integrated and global energy group. The new values were based on its growth ambitions, which were centered on technology and innovation. Over the years, Galp developed from several gas and energy companies into a multinational energy operator. It had more than 6,300 employees in 2019. Galp's operations span a large segment of the energy spectrum, from the exploration and production of crude oil and natural gas to the provision of energy products and services to end consumers.[8]

Despite its strong development and its dynamism, Galp's recent financial results have been impacted significantly by the COVID-19 pandemic. Between 2019 and 2020, Galp's total revenues decreased by approximately 31.7% (from €16.938 billion to €11.567 billion). Over the same period, net income edged slipped from €389m to -€551m. For Galp's executives, these financial developments highlighted the need for a lucrative project.

[7] Galp Integrated Management Report 2020, March 20, 2021, p. 14.

[8] Galp Energia Company Website, Our roots, https://www.galp.com/corp/en/about-us/galp/our-roots. Accessed November 3, 2020.

4.2 Developments in the European energy industry

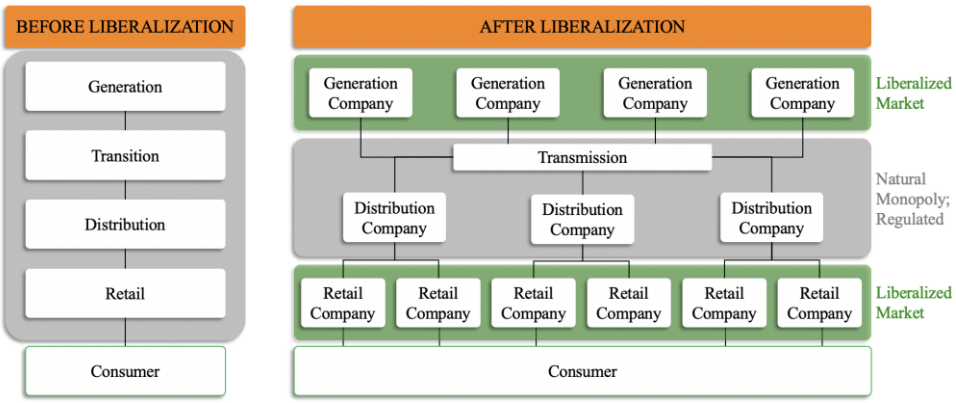
The four executives next agreed to reappraise the most critical developments in the European energy industry and their impact on Galp.

Market Liberalization

The electricity market in Europe has undergone significant changes since the 1990s. Up to that decade, the predominant vertically integrated monopolies generated, transmitted and supplied electricity. Since these companies also held the grid infrastructure, new companies were obstructed from entering the market. Free of competition, the monopolies fixed electricity prices and were under no pressure to innovate.

To counteract these developments, the European Union gradually started to liberalize, that is, to open the electricity and gas market to free competition. The process began in 1996 with the implementation of the first of three European Directives (1996, 2003, 2009).[9] Their aim was to create an integrated European market. However, it was not until the Third Energy Package that the market changed profoundly. Companies were no longer allowed to generate, transport, trade and supply electricity while managing transmission and distribution networks [Figure 10]. This regulatory development invigorated competition.

Figure 10: Liberalization of Energy Markets[10]



Energy Transition

The three European Directives promoted an environment-friendly electricity market from their very inception. The aim was to realize a stable, economically viable and environmentally

[9] European Parliament, Internal Energy Market, Germany, https://www.europarl.europa.eu/ftu/pdf/en/FTU_2.1.9.pdf. Accessed January 15, 2021.

[10] Adapted from: next, https://www.next-kraftwerke.com/knowledge/liberalization-energy-markets. Accessed January 16, 2021.

friendly supply of energy, a pathway called energy transition. To foster this energy transition, new technologies relied mainly on renewable energy sources (e.g., wind energy), energy efficiency solutions (e.g., motion sensitive smart lightning) and the more active involvement of various actors, including customers (e.g., solar panels for self-consumption). New entrants with novel BMs penetrated the electricity market, challenging the long-standing dominance of traditional utility companies, such as Galp.

Internationalization of energy companies

Two major developments intensified interest in internationalization within the energy market. First, market deregulation facilitated the entry of foreign companies and increased domestic competition. Secondly, according to recent IB theory[11], the companies that provided new electricity-related technologies benefitted from easy internationalization. Their BM configurations were characterized by no or little location-boundedness, facilitating cross-border transferability.

However, traditional energy firms tended to limit their growth strategies to their home markets. Their BM made internationalization highly challenging. The provision of the conventional electricity services (e.g., supply, distribution and transmission) involves the (local) government in all components of the BM. This BM was highly location-bound. The costs of adaptation and recombination in foreign markets would have been high. Additional regulatory, infrastructural and competitive barriers made it difficult for traditional energy firms to adapt their BM to host countries.

Having recapitulated the development of their industry, the executives were convinced that the internationalization of a further business unit would be the best project to pursue. As each business unit was already internationalized to a certain degree, they hoped to build upon the experience that had been gained during the decision-making process.

4.3 Workshop series

The four Galp executives were excited about the potential of internationalization. Each of the four was convinced that their business unit was the right one to internationalize. Having participated in an executive seminar recently, they remembered an article from the Journal of International Business Studies called “The role of business models in firm internationalization: an

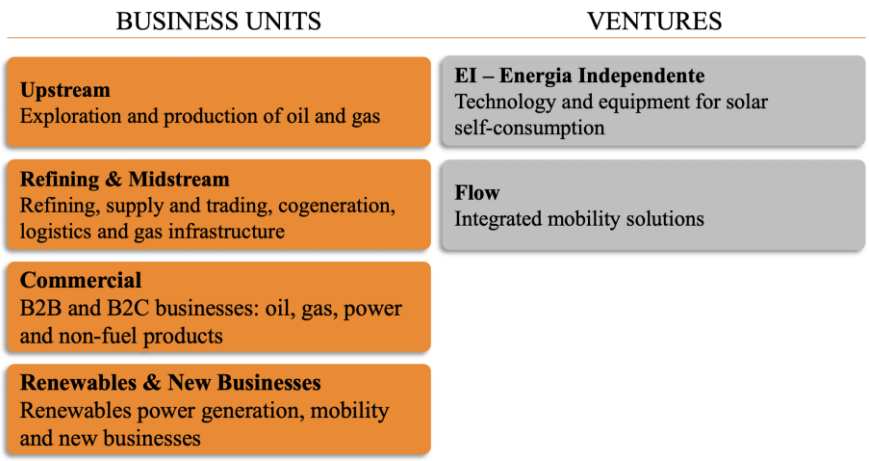
[11] Bohnsack, R., Ciulli, F. and Kolk, A. (2020) ‘The role of business models in firm internationalization: An exploration of European electricity firms in the context of the energy transition’, *Journal of International Business Studies*.

exploration of European electricity firms in the context of the energy transition[12].” They were thus aware that the BMs of their business units and recombination barriers in foreign markets should drive their choice of internationalization project. Therefore, each executive began analyzing their business unit attentively in order to present it to the others in a series of workshops. The series began with a summary of Galp’s structure, which was presented by Mrs Oliveira:

“In our company’s integrated management report in 2020, we emphasized resilience and agility. Our strategy focuses on developing sustainable and value-generating businesses to improve our customers' lives. The strategy rests on our four distinct business units: Upstream, Refining & Midstream, Commercial and Renewables & New Businesses. With our Upstream business, we explore opportunities to source oil and natural gas globally as well as operations to extract and transport oil. Refining & Midstream encompasses the refining process, with two refineries in Iberia, and the logistics business incorporates several maritime terminals, storage facilities, shares in logistic companies and access to various pipelines. The Commercial business unit comprises our complete commercial B2B and B2C offering, including oil products, gas, electricity, non-fuel and various services. Furthermore, to embrace the energy transition with a sustainable and diversified portfolio of renewable power generation products, we have established Renewable & New Businesses.

Additionally, we aspire to change the energy paradigm by anticipating new trends, adapting our portfolio to future needs and promoting the progressive reduction of energy consumption with two ventures [Figure 11]. EI – Energia Independente targets the solar self-consumption market, while the Flow company promotes an integrated mobility solution.

Figure 11: Company Overview



[12] Bohnsack, R., Ciulli, F. and Kolk, A. (2020) ‘The role of business models in firm internationalization: An exploration of European electricity firms in the context of the energy transition’, *Journal of International Business Studies*.

Having presented an overview of Galp's structure, we may now begin with the presentation of each business unit."

Upstream

Mr Matos was the first to present his business unit:

"Our upstream activities comprise 45 projects in different phases. They concern the exploration, development and production of oil and natural gas. Since no natural oil and gas sources are available in Portugal, we started to internationalize operations early. In 2019, we undertook projects in six different countries, focusing on three core locations: Brazil, Angola and Mozambique [Table 3].

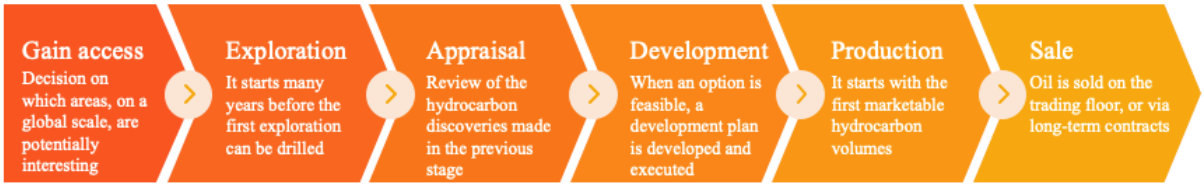
Table 3: Galp's Ongoing Upstream Projects[13]

Country	BASIN	# PROJECTS	STAGE	PARTNERS
Brazil	Potiguar	1	Exploration	Galp 20% I Petrobras 40% I BP 40%
	Barreirinhas	4	Exploration	Galp 10% I Shell 50% I Petrobras 40%
	Lower Congo	8	Development & Production	Galp 9% I Chevron 31% I Sonangol 20% I Eni 20% I Total 20%
Angola	Lower Congo	1	Development & Production	Galp 4.5% I Chevron 31.25% I Total 36.75% I Sonangol 10% I Eni 10% I SNCP 7.5%
	Lower Congo	2	Development & Production	Galp 5% I Total 30% I Sonangol 30% I China Sonangol 20% I ExxonMobil 15%
Mozambique	Rovuma	2	Development	Galp 10% I Eni 25% I ExxonMobil 25% I CNPC 20% I Kogas 10% I ENH 10%
Namibia	Walvis	1	Exploration	Galp 40% I ExxonMobil 40% I NAMCOR 10% I Custos 10%
	Orange	1	Exploration	Galp 80% I NAMCOR 10% I Custos 10%
S. Tomé and Príncipe	Rio Muni	1	Exploration	Galp 45% I Kosmos 45% I ANP 10%
	Rio Muni	1	Exploration	Galp 20% I Kosmos 65% I ANP 15%
	Rio Muni	1	Exploration	Galp 20% I Kosmos 45% I Equator 22.5% I ANP 12.5%
East Timor		1	Exploration	Galp 10% I Eni 80% I Kogas 10%

We pursue a holistic approach to project management, and we cover all life cycle activities. Hence, we begin by exploring areas for oil resources and building up joint ventures with other oil companies like BP, Exxon and Shell. The purpose is to compete in public tenders. Therefore, we are dependent on good value networks with governments and other oil companies, with whom we share risks and investments. The most notable of those risks emerges from the leasing of production units and infrastructure from third parties – mostly from an East Asian infrastructure constructor – and from operating costs in oil extraction. After completing the process, revenue is generated from the sale of the oil on the trading floor or through long-term contracts [Figure 12].

[13] Galp Integrated Management Report 2019, March 20, 2020, p.55.

Figure 12: The Lifecycle of an Exploration & Production Project[14]



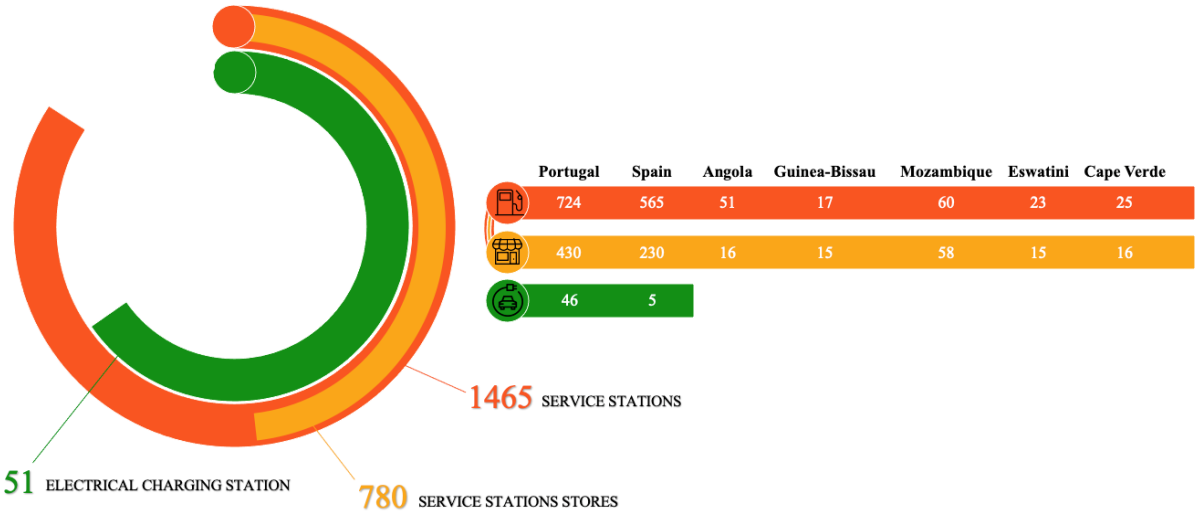
For us, planning is essential, as exploration and production processes need to be adapted from project to project to both basin types and country-specific regulations. Primarily, we are confronted with regulatory barriers like environmental permits, government royalties and taxes, which operate under different schemes in different countries." He concludes: "in 2019, we set ourselves the goal of growing at 10% above the industry average until the end of the decade."[15]

Commercial B2C – On the Road

Mrs Oliveira then presented Commercial B2C – On the Road:

"Our Commercial B2C – On the Road business unit focuses its activity on Iberia and selected countries in Africa that are likely to grow [Figure 13].

Figure 13: Galp's B2C on the Road Presence[16]



Attractive service station locations are crucial to our ability to attract customers, but those locations are highly contested. The former CEO of Galp Spain, Nuno Moreira da Cruz, made the following point in an interview:

[14] Galp Energia Company Website, Upstream Fundamentals, https://www.galp.com/corp/en/about-us/what-we-do/upstream/exploration-production-fundamentals. Accessed November 3, 2020.

[15] Galp Energia Company Website, Upstream, https://www.galp.com/corp/en/about-us/our-businesses/exploration-and-production. Accessed November 6, 2020.

[16] Adapted from: Galp Integrated Management Report 2020, March 20, 2021, p. 33-36.

> *"… it is about how you monetize the space that you have because Galp owns a lot of great locations. Especially if you think strategically of the future, when oil will not be that important anymore."*[17]

We create value for our customers through the sale of oil products like diesel and petrol, which remain the focus of our activities on the road in Iberia and Africa. Nevertheless, to capture emerging market opportunities within new energy, we have added electrical charging stations to the portfolio. Furthermore, we offer non-oil products, like beverages, food, flowers and services, like car washing. We also improve our customers' experience through our value network, which consists of oil partnerships and non-oil partnerships. One example of a non-oil partnership is the loyalty program that we run with the Portuguese supermarket chain Continente. With each purchase of over €30 at a Continente store, the customers receive a 10 cent per liter coupon, which can be redeemed at our service stations. We are locally dependent on these partnerships to guarantee sales and brand awareness and to develop attractive offers for our local customers, among other things.

Additionally, we use our service stations to promote B2C home products with an integrated offer approach and to generate revenue from marketing interior space for advertising. The highest costs for our business unit arise from the rental of the locations, employees' wages and logistics.

It is also important to note that our market-leading position in Portugal gives us the ability to set gasoline prices and to achieve a competitive advantage. Our research showed that price is a significant factor for customers when they decide which service station to use. Consequently, when we decided where to internationalize, we considered the degree of market liberalization and the market's competitive landscape. In Spain, we first grew organically with a few service stations, and then we bought operations to market the products of other companies, like Agip España. In 2019, we held a significant market position in Iberia, with over 8% market share."

Commercial B2B businesses

Mrs Silva then spoke about her business unit:

"In the B2B business segment, our value proposition is to offer natural gas and power to business clients, such as office buildings, industry and the public sector in Iberia. We generate rev-

[17] Nuno Moreira da Cruz, Interview, 30.10.2020.

enue from long-term contracts with clients including fixed-prices. To this end, account management, including marketing supply, logistics and negotiable add-on services, is crucial. Availability and access to logistical infrastructure are essential to serving our customers.

Especially in recent years, market liberalization has created new opportunities for internationalization. When we expanded to Spain, developing a strong brand and distinctive offerings to develop partnerships with local clients became our primary focus, followed by negotiations with potential customers. Here, we had to account for differences in culture and language.

We benefitted from our previous experience in the Spanish market. Strong networks in various market segments, like local transportation networks and pipelines, enabled us to transport gas to customers. When internationalizing, the available logistics infrastructure, such as storage facilities and sea terminals, strongly impacts our business margins and our business development. For example, costs increase if we have to build the entire infrastructure instead of accessing the one that exists. At the same time, a reliable and extensive distribution network is required to deliver products to clients punctually.

Another factor that influences our internationalization strategy is the intrusiveness of regulation. As Spain's liberalization efforts had progressed considerably, market transparency and competition in the gas market were legally guaranteed. Regulatory barriers were largely nonexistent. However, in some localities, the markets for natural gas and the supply of electricity are still not fully liberalized. Entering those markets would have been difficult. For the most part, they are controlled by state-owned companies. Furthermore, in most countries, customer acquisition is highly competitive. However, we can use the marketing and customer acquisition knowledge that we accumulated in our Iberian operations."

EI – Energia Independente

Mr Santos presented the Galp venture EI:

"In 2020, we moved one step closer to our commitment to energy transition by providing decentralized solar energy rooftop systems with a new company. EI – Energia Independente's value proposition is that it strengthens the solar self-consumption market by helping companies and families in the Iberian Peninsula to produce their own renewable electricity. The return on the investment necessary to install a solar panel is between 15% and 25%, which allows it to be recouped in less than five years.

We use the latest technologies, such as satellite image analysis, artificial intelligence algorithms and Big Data. The EI Tech2Perform platform calculates optimal investments and their profitability. The calculations are based on historical consumption, roof orientation and the solar exposure of each panel. We have developed a simulator that allows each user to enter their address on a map, select an area on the roof and communicate their approximate consumption. Once these data are provided, the platform offers a draft budget and an indication of possible savings. Thus, we use our software to provide tailored solutions to individual customers.

When the customer decides on our solution, the project begins with the study and design of the installation, followed by the engineering setup of the solar production systems. Our specialists also process all the necessary permits and licenses, and monitor the customer's installation's throughout the lifetime. We generate revenue by selling this all-encompassing product-service to our customers as a complete package. This unique BM enables us to be at the forefront of the Iberian market.

We have established a local value network of solar panel manufacturers, distributors, IT and more than 20 installation companies to reduce emissions and to improve the efficiency of the electrical system. Major costs arise from these partnerships. For example, we must pay the installation companies for their services. Artificial intelligence and Big Data algorithms enable us to monitor, control, analyze and correct each installation in real time, optimizing its performance throughout its life cycle.

While expanding our business to Spain, we were confronted with differences in the licensing process. However, the product we sold to customers remained the same. It was also important for us to acquire customers with attractive marketing campaigns. When we think about internationalizing further, there are two points which we need to take into consideration. The first is price: the higher the price of electricity, the more attractive it is to produce the energy yourself. The high cost of the photovoltaic panels pays itself off quicker. The second point that we must consider is solar radiation. Iberia has high radiation, so the panels pay for themselves in five to six years. In countries that have half that radiation, the payback period doubles, making the investment less attractive. In these countries, governments create incentives, among others tariffs and tax benefits, to foster renewable energy generation.

The successful transition to a sustainable energy system requires that no rooftop with the potential to generate clean energy be ignored. EI's solution adopts profitability as the best way to drive change,[18]" Mr Santos concluded.

4.4 Strategy meeting

It was time for the executives to decide which business unit should internationalize further. They wondered what the best option would be in the light of the new theory that they had read. They also tried to identify the business model that would be easiest to transfer across borders and the one that would be challenged the most by recombination barriers. They were also curious about the need, if any, to modify their BM to internationalize successfully. There was much work ahead, but they were confident that they would arrive at the best possible solution.

[18] Press Release, Galp Energia, https://www.galp.com/corp/en/media/press-releases/press-release/id/1156/galp-launches-new-ei-energia-independente-unit-to-boost-photovoltaic-self-consumption. Accessed February 19, 2021.

5 Teaching note

5.1 Case synopsis

Galp is not only Portugal's largest integrated multi-energy company but also an international concern with operations in seven countries. Galp's various business units and ventures provide a rich backdrop to new BM theories and internationalization, including BMSAs, location-boundedness, recombination barriers and their influence on international transferability.

5.2 Teaching objectives

After discussing the case, students will be able to:

Part I

- Identify the following BM components: value proposition, value network and revenue-cost model;
- Assess the location-boundedness of the BM components;
- Recognize recombination barriers and classify them into the following categories: regulatory barriers, infrastructural barriers and market barriers;
- Evaluate the intensity of recombination barriers;

Part II

- Employ the internationalization matrix of Bohnsack, Ciulli and Kolk (2020);
- Allocate business units or companies to the cells of the internationalization matrix;
- Develop an internationalization action plan which builds on the analysis of BM location- boundedness and recombination barriers by
    - (1) determining whether internationalization is feasible,
    - (2) identifying the component(s) of a BM, if any, which should be modified due to its location-boundedness, provided that internationalization is feasible, and
    - (3) anticipating barriers to internationalization;
- Design an internationalization recommendation based on the outcomes of the previous steps.

5.3 Target audience

The case study can be used to teach advanced undergraduate and graduate students in management and business administration. It is also appropriate for executive education. The case is

best suited to students who have a background in BMs, strategy and internationalization. Students should read the JIBS article of Bohnsack, Ciulli and Kolk (2020), as it supplies the theoretical basis of this case. Depending on the students' knowledge, the assignment of further background readings, as indicated at the end of the teaching note, can support discussions.

5.4 Suggested preparation

Before the discussion of the case, students should be able to describe:

- the concept of FSAs;
- the concepts of BMSA and location-boundedness;
- BM components;
- internationalization barriers;
- the internationalization matrix and its cells.

Therefore, I recommend using the online materials provided to introduce the necessary background theory.

5.5 Class timeline and teaching approach

This case can be covered within one class. Based on typical teaching styles, I recommend spending three in-class hours on it:

Table 4: Class Timeline

Class	**Task**	**Duration**
Preparation class 1	*Preparation (reading JIBS article before class)*	
Class 1	*Introduction (introduction and initial background on the basis of the online materials, group formation)*	60 minutes
Preparation class 2	*Group work on case questions: Part I (developing a 5-10min presentation)*	1 week
Class 2	*Business unit presentation + discussion*	10 minutes presentation + 5 minutes discussion per group

Class 2	*Strategy meeting (summary of results and discussion of Part II of the teaching objectives)*	60 minutes

The optimal size of student groups is four students (a minimum of three students and a maximum of six students, to ensure effective teamwork dynamics). With more than 24 students, the business units can also be assigned twice.

5.6 Case analysis and teaching plan

Case analysis

The discussion begins with an internal assessment of Galp for three reasons. First, since the case concentrates on Galp, students have to become familiar with the organization in order to understand the context of the exercise. Second, students must understand that Galp, being a vertically integrated company, combines various BMs. Third, accurate analysis of the BMs will enable the students to assess the location-boundedness of each business unit and the Galp venture EI.[19] Having laid the groundwork thus, the analysis proceeds to an external assessment of recombination barriers. Finally, upon combining the results, students will be able to recommend an internationalization strategy for Galp.

Part I – Group assessment

Initially, groups should be formed. Each group should be responsible for analyzing one business unit. The following questions (up to the beginning Part II) are to be analyzed in groups, and then presented and discussed in the next lesson.

1. Internal analysis

1. 1. What is the BM of each of Galp's business units?

It is recommended to begin this task with a discussion of value propositions, value networks and revenue-cost models to set a theoretical foundation for the case. The first task is to collect and allocate information from the teaching case and the exhibits to the BM components of the business units. The goal is to determine the location-boundedness of the business units. As

[19] For simplicity, Galp's venture EI is also called a business unit in the following.

noted earlier, it will become evident to the students that Galp's business units operate with entirely different BMs. Table 5 overviews the information in relation with each BM component. Exclamation marks (!) are used to call attention to the points that indicate location-boundedness.

Table 5: Business Unit BMs

BM Component	**Value proposition**	**Value network**	**Revenue-cost model**

Upstream	• Extracting the oil
	  ○ Steps:
	  1. Gaining access: Investigating interesting areas for oil resources, partnering up with other companies interested in the oil field, preparing a pitch to win the public tender for that part of the sea/land
	  2. Exploration: Exploring the area
	  3. Appraisal: Reviewing discoveries
	  4. Production: Extracting the oil.
	• Selling the oil
		• ! Relationship with governments in foreign countries
		• Joint ventures with other oil companies to compete in public tenders
		• Partnerships with infrastructure providers
			• Revenue: Trading oil on the trading floor or sales via long-term contracts
			• Major costs: Investments to access parts of the sea
			  ○ Running costs of operations
			  ○ Leasing of production units

Commercial B2C – On the Road	• Sale of oil products (diesel, gasoline, etc.), non-oil (beverages as water, Coca-Cola, food or flowers) and services (car wash) at service stations
	• Business operation activities are related to asset management, marketing and fuel supply.
	• Integrated offer approach with B2C home products
		• ! Oil partnerships: Partnerships with oil distributor
		• ! Non-oil/cross-selling partnerships: Partnerships for loyalty programs
		  ○ Example: Collaboration with supermarket Continente in Portugal
			• ! Revenue generated from selling oil, non-oil and services at service stations to B2C customers – oil & non-oil margins
			  ○ Market-leading position enables price setting
			• Fuel & convenience sales
			• Revenue from marketing interior space for advertising (B2B)
			• Major costs
			  ○ Rental of location
			  ○ Wages
			  ○ Logistics costs (bringing oil from a refinery to service stations)
			  ○ Additives (everything that is added to the product to improve quality)

Commercial B2B	• Sale of natural gas and power to business clients, including office buildings, industries and public sector
	• Account management activities, including marketing, supply, logistics and negotiable add-on services
		• ! Distribution network
		• ! Partnerships with local customers
			• Natural gas & electricity sales
			• Long-term contracts at a pre-determined price
			• Major costs
			  ○ Wages
			  ○ Logistics costs
			  ○ Marketing

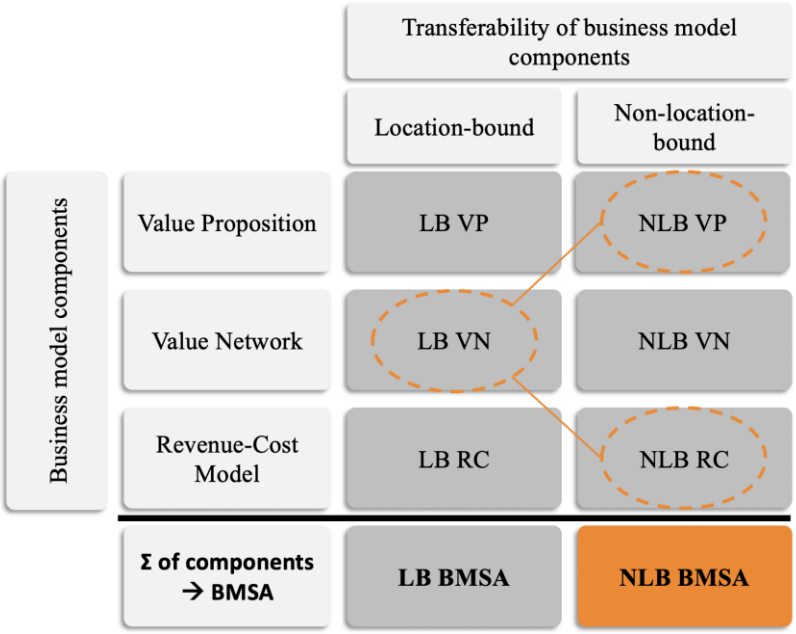
EI	• EI sells PV solar panels for self-consumption to domestic users and industry customers. • Full service: materials sourcing, management of permits and licenses, installation and maintenance of the equipment, and financial support, if necessary.	• Tailoring applications to individual customers with software • Customer directly engages with the company in the value creation process • ! Partnerships with other businesses ○ Solar panel manufacturers ○ Distributors ○ Installation companies ○ IT	• Revenue from selling the solar solutions, installation and software • Major costs ○ Wages ○ Marketing ○ Hiring installation companies

1. 2. Is the BM of the business unit bound to the location?

The BM assessment discussion, particularly the conclusions on the manner in which the individual business units create value, leads to questions about location-boundedness. Is the business unit's BM transferable to foreign countries? The ostensible answer might be “yes” for those business units that are already internationalized (e.g., Commercial B2C – On the Road operates in Iberia and Africa). However, closer scrutiny reveals that even the internationalized business units are partially location-bound (e.g., the value network of the Commercial B2C – On the Road business unit, particularly the non-oil partnerships, is locally embedded). The lecturer may introduce questions about the degree of the business units’ location-boundedness with a conceptual framework.

At this point, the students can evaluate the degree of location-boundedness for each BM component. They can then assess the transferability of the business unit as a whole. For this purpose, students can apply the conceptual framework for BMSA location-boundedness. Instructors who wish to introduce this framework may refer to the sample analysis of the Upstream business unit [Figure 14], which indicates the transferability of its BM components. An empty worksheet for students to fill in can be downloaded.

Figure 14: Sample Conceptual Framework for BMSA Location-Boundedness – Upstream[20]



2. External analysis

2. 1. Which market barriers will the business unit face when internationalizing?

The case highlights the recombination barriers faced by a business unit when internationalizing. These should be summarized to emphasize the differences between them and their impact on internationalization. Table 6 overviews the recombination barriers that are covered in the case. Exclamation marks (!) highlight the recombination barriers that create significant hurdles to transferability.

Table 6: Recombination Barriers

Type of recombination barrier	**Regulatory barriers**	**Infrastructural barriers**	**Market barriers**	**Intensity of barriers**
Upstream	• Local public tender regulations • ! Regulation that countries may impose on oil & gas exploration and production activities, namely environmental permits,	• Leasing of infrastructure, mainly from East Asian companies – supply chain risks	• ! Possibility of extracting oil/oil reserve • Changes in the type of basin to be explored • Time and specificity of tender process	High [R, M] • Internationalization is only possible toward countries with oil reserves

[20] Adapted from: Bohnsack, R., Ciulli, F. and Kolk, A. (2020), p. 6, 'The role of business models in firm internationalization: An exploration of European electricity firms in the context of the energy transition', *Journal of International Business Studies*.

	government royalties and taxes			
Commercial B2C on the Road	• ! Level of regulation and liberalization of potential foreign market	• ! Availability of logistics infrastructure (e.g., storage facilities, sea terminals) that impacts business margins and/or business development (e.g., need to build requisite infrastructure)	• ! Competition in foreign markets ○ Impedes access to suitable locations ○ Not having a market-leading position = no influence on pricing	Medium – High [R, L, M] • Depends on the liberalization of the market, the strength of competition and access to infrastructure
Commercial B2B	• ! Level of regulation and liberalization of potential foreign market • Spain: legal guarantee of market transparency and promotion of competition on the gas market	• Lack of logistics solutions or problems with implemented logistics • ! Availability of logistics infrastructure (e.g., storage facilities, sea terminals) that impacts business margins and/or business development (e.g., need to build requisite infrastructure)	• Language and cultural differences that affect the internationalization process, e.g., market information, permits and negotiation process	Low – High [R, I] • Depends on the liberalization of the market and access to infrastructure
EI	• Differences in the licensing process	• ! Partnerships with local manufacturers, distributors and installation companies	• ! Technical: Low degree of solar radiation, problems in Germany or Norway ○ When production hours are fewer, governments create incentives, such as high feeding tariffs or tax benefits • ! Electricity prices: High prices: self-produced energy becomes more attractive as payback period contracts Low prices: Fewer savings through self-produced energy – payback period grows	Medium – High [I, M] • Depends on solar radiation and/or incentives provided by the government

The assessment of the intensity of recombination barriers will raise some concerns – recombination barriers arise which may hinder internationalization to one foreign country but not to another. For example, internationalizing the Upstream business unit is only possible in locations where oil reserves are available.

For the Commercial B2C on the Road and Commercial B2B business units, the energy transition has created novel internationalization possibilities, however just to liberalized markets. Additionally, access to infrastructure emerges as a significant infrastructural recombination barrier. However, students may refer to the case, which emphasizes that when the availability of logistics infrastructure (e.g., storage facilities and sea terminals) is provided, this recombination barrier no longer influences internationalization. The competitiveness of foreign markets also impacts the internationalization of the Commercial B2C on the Road business unit. “Are we able to reach a sufficient market share in this country to be profitable?” and “How can we reach that market share?” are the two questions to be asked. For example, Galp's internationalization strategy to Spain was to grow organically and to then buy operations to market the oil products of other companies, like Agip España. In this way, Galp expanded its market share.

IE faces market recombination barriers. As IE's solar solutions rely on sun radiation, internationalization to countries with a number of sun hours that is similar to or higher than that of Portugal is less challenging. Furthermore, lower electricity prices abroad decrease the attractiveness of internationalization due to the likely increase in payback periods for customers. Therefore, students should conclude that the intensity of recombination barriers varies between countries.

PART II – In-class discussion

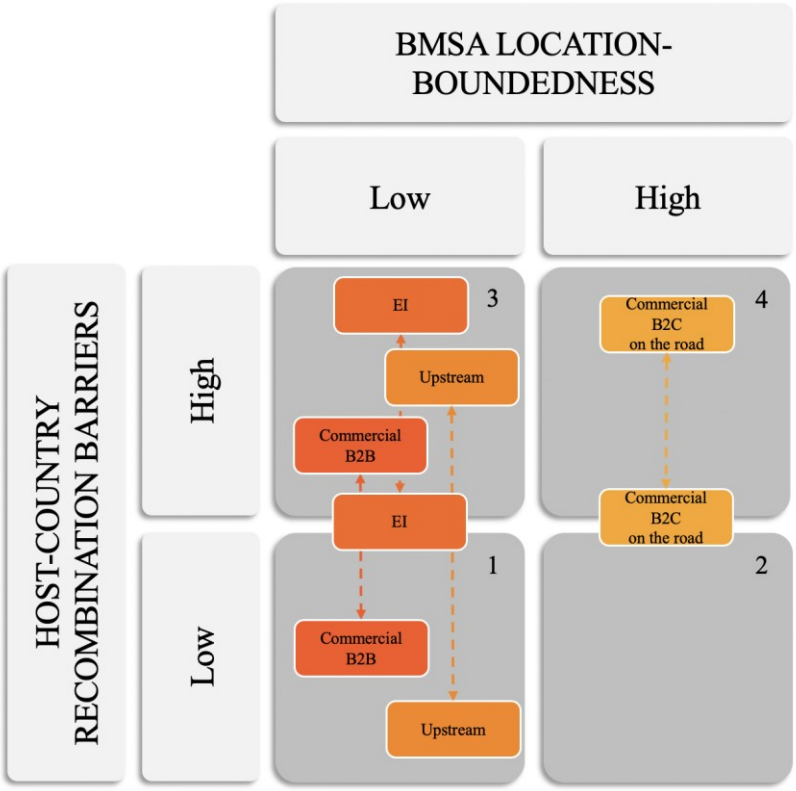
At the beginning of the lesson, each group should present their results. After the presentations, an illustration should be created which should show how the business units are allocated to the internationalization matrix. The allocation can subsequently be reviewed and discussed in groups.

3. Strategy meeting conclusions

3. 1. In which cell(s) in the internationalization matrix are the business units located?

At this point, students should be able to allocate their business unit to the internationalization matrix. As noted, the intensity of recombination barriers varies for each business unit. Accordingly, I use dotted arrows to indicate the dynamic movement of each business unit within the framework, depending on the target country [Figure 15].

Figure 15: Business Unit Allocation to the Internationalization Matrix[21]



The business units should be placed as follows:

- Upstream: Cell 1 – Cell 3
- Commercial B2C – On the Road: Between Cells 2 and 4 – Cell 4
- Commercial B2B: Cell 1 – Cell 3
- EI: Between Cell 1 and 3 – Cell 3

This matrix leads naturally to questions about the viability of internationalization for each business unit. The question should be the subject of a group discussion.

3. 2. Is internationalization possible for each business unit? If yes, how and where?

The students are now asked to assess the international transferability of each business unit. Here, the question "where to internationalize?" is not about a specific market but about the factors (i.e., absence of recombination barriers) that enable internationalization. The answers to this question may look as follows:

[21] Adapted from: Bohnsack, R., Ciulli, F. and Kolk, A. (2020), p. 20, 'The role of business models in firm internationalization: An exploration of European electricity firms in the context of the energy transition', *Journal of International Business Studies*.

Upstream

The Upstream business unit may be internationalized easily by transferring its BM to a foreign country with oil reserves. It will be necessary to build good relationships with the governments of foreign countries.

Commercial B2C – On the Road

As the BM of the business unit is location-bound, it must be combined with local assets. For example, oil and non-oil partnerships need to be built. Furthermore, medium-to-high recombination barriers must be overcome, similarly to the Spanish expansion. Consequently, costs, adaptation risks and recombination barriers will determine if and where to internationalize.

Commercial B2B

The energy transition has created new opportunities to internationalize this business unit to specific markets. It is easy to internationalize when the energy market of a foreign country is liberalized and when logistics infrastructure is accessible.

EI

EI's BM is easily transferable to foreign countries if partnerships (e.g., with solar panel manufacturers and distributors) can be established. However, in countries with lower solar radiation and electricity prices than Portugal, the costs and risks of internationalization increase.

3. 3. On which business unit should further internationalization focus?

The discussion indicates that the Upstream and Commercial B2C business units offer the best internationalization prospects. The BMs of both business units are not location-bound and internationalization to specific markets is possible.

Alternatively, it may be argued that Galp should focus on the internationalization of the Upstream business unit, as it faces only one recombination barrier. Furthermore, the recombination barrier in question can be overcome easily. Another observation that may favor Upstream is that it is already the most internationalized business unit because it operates in six countries.

5.7 Summary

- When internationalizing it is important to consider if a BM enables the generation and capturing of value in other markets, not only if a resource or capability can be exploited.
- The BM of a company should be assessed thoroughly before its location-boundedness can be analyzed in detail.

- Recombination barriers are crucial for internationalization and their intensity may differ across countries.
- A firm or business unit with a high degree of BMSA location-boundedness must analyze if the adaptation and recombination of the location-bound components generates considerable expenditures and risks.

5.8 Recommended readings

In addition to the online material, a selection of the following readings could be provided to students. The list is non-exhaustive, and it can be adapted to particular topics in BM research if needed:

- Bohnsack, R., Ciulli, F. and Kolk, A. (2020) 'The role of business models in firm internationalization: an exploration of European electricity firms in the context of the energy transition', Journal of International Business Studies.
- Cavusgil, T., Knight, G. and Riesenberger, J. (2011) 'International business: the new realities', Prentice Hall, 2nd Edition. 91-101.
- Osterwalder, A., Pigneur, Y. and Clark, T. (2010) 'Business model generation. A handbook for visionaries, game changers, and challengers', John Wiley & Sons.
- Ovans, A. (2015) 'What is a business model?', Harvard Business Review.
- Zott, C. and Amit, R. (2009) 'Business model design: an activity system perspective', Long Range Planning, Vol. 43 (2-3), 216-226.

6 Conclusion

This thesis aimed to design an IB teaching case. While extant IB teaching cases cover internationalization opportunities, trends and entry modes extensively (e.g., Cui et al., 2017; Guillotin, 2018), only a few have centered on the influence of BMs on internationalization (e.g., Hoffman, 2016; Pastoriza and Coulombe, 2018). However, these cases lacked a clear treatment of location-boundedness and recombination barriers. This thesis filled the gaps by exemplifying Bohnsack, Ciulli and Kolk's (2020) newly published theory. The case elaborates the concepts from the article, such as BMSA and recombination barriers.

The qualitative part of this thesis identified the Portuguese company Galp Energia as a suitable example. It has multiple business units with different BMs and different degrees of internationalization, and it operates in a regulated industry. Semi-structured interviews and primary data then highlighted that the BMs of Galp's business units are mostly not location-bound. Therefore, internationalization to foreign countries can be achieved with relative ease by transferring and recombining the BM. Furthermore, the assessment of Galp revealed that recombination barriers should be perceived dynamically and assessed from country to country. Consequently, the teaching case yields new insights on recombination barriers and applies the theory on a more granular level. Previously, Bohnsack, Ciulli and Kolk's (2020) concepts had only been applied to companies. The teaching case applies them at the level of the business unit.

This thesis contributes to IB pedagogy in two ways. Firstly, the acquisition of the two core concepts, BMSA location-boundedness and BMSA recombination barriers, will enable students and executives to assess scalability and host-country attractiveness when they expand businesses internationally. Secondly, the knowledge thus acquired can equip them with insights for venture building and the associated BM configurations. Ideally, a BM should have as few location-bound components as possible, which would enable ventures to gain international traction and to entice investors.

Its contributions and implications for IB teaching notwithstanding, the limitations of the case should be acknowledged. This thesis introduces a novel IB theory on BM and internationalization to students, but it lacks a link to other relevant IB theories. It would be helpful for students to work on a follow-up case that illustrates the overall decision-making process behind an internationalization strategy and the importance of the internationalization matrix that underlies it. Moreover, while the case emphasizes recombination barriers and the choice of location, it does not offer students the possibility of comparing recombination barriers in different markets. Future IB cases could touch upon this point to deepen and consolidate students' knowledge of

the concept. Future cases that focus on Bohnsack, René, Ciulli, and Kolk's (2020) article could also cover the market design canvas and apply the theory to companies outside Europe and beyond the energy sector. Lastly, as a general matter, IB teaching cases should be developed continuously to keep teaching up to date.

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Appendices

Appendix 1 Overview of Themes Covered in Most Relevant Internationalization Cases

Table 7: Overview of Themes Covered in Most Relevant Internationalization Cases

Internationalization variables	The Internationalization of the PGA Tour (2008)	Internationalization of Logset Oy (2017)	Innovis Telecom: Entrepreneurial Internationalization (2016)	Resuming Internationalization at Starbucks (2010)	Symphony: Growing Through Internationalization (2019)	Harley-Davidson: International-ization in the Trump Era (2018)	Xiaomi: Entering International Markets (2013)	Uniqlo: A Supply Chain Going Global (2016)	Uber and the Sharing Economy: Global Market Expansion and Reception (2016)	Grolsch: Growing Globally (2011)
Internal Analysis		X	X		X	X	X	X	X	X
Business Segments			X							
Resources and capabilities			X			X			X	X
Supply Chain								X		
Financial performance						X				
Success drivers		X	X				X	X		
Transaction cost analysis								X		
Leadership		X			X	X	X			
Business Model	X								X	
Location Boundedness	X									
Key components	X								X	
Interconnection of BM components	X									
External Analysis						X	X		X	
Environment		X				X	X		X	
Competition		X				X	X		X	
Internationalization	X	X	X	X	X	X	X	X	X	X
Opportunities and threats	X			X		X	X	X	X	X
Growth drivers			X			X	X			
Adding value (why?)			X							X
Motives			X			X	X			X
CAGE (where?)			X							X
Market Prioritization			X				X			X
Pace, rhythm, scope (how?)				X						
Strategy	X	X	X	X	X	X	X			X

Resource based view			X	X				X		
Market Prioritiza-tion			X				X			X
Entry modes		X	X	X	X		X			X
Internationalization Barriers	X	X		X	X	X	X	X	X	X
Competition	X	X		X		X			X	X
Regulations						X				
Market						X				

Appendix 2 Interview Guidelines

Oriented on Galletta and Cross, 2013, the following preliminary steps are set up to perform insightful interviews:

Opening Segment of the Interview: Create a Foundation

- Establish a level of comfort, thank for participation
- Ensure participant's understanding of the agreed right to confidentiality and recording of the interview
- Outline purpose of the interview
- Begin with open questions that encourage participant to speak openly of his/her experience
- Probe for clarification if necessary
- Recognize important nodes during the conversation and note them for later reference

Middle Segment of the Interview: Specify Questions

- Shift into questions that are increasingly related to the research topic
- Create space to explore the complexity of the research topic
- Return to the previous response, if it corresponds to the questions asked
- Examine-in more detail the answers given in the opening part that are of relevance to the topic

Concluding Segment: Rounding Off

- Provide the interview participant the possibility to set the narrative questions concerning the theoretically-driven questions

- Return to points that remained unclarified
- Once all questions have been clarified, indicate the end of the interview and summarize
- Ask for final thoughts or additional comments
- Thank for participation and contribution to the study

Purpose of Interviews

→ Reassure that allocation of business units in quadrants is correct

1. Conduct one interview to clarify organizational structure and allocation to the framework
2. Conduct interviews with experts in each department to analyze location boundedness and barriers of recombination in the host country for each selected business unit

Appendix 3 Interview Questionnaire

PART I

Conduct one interview to clarify organizational structure and allocation to the framework

Introduction

- Thank for participation
- Ensure participant's understanding of the agreed right to confidentiality and recording of the interview
- Outline purpose of the interview:
    - Collect information about Galp's businesses which allows developing a teaching case on the role of business models for internationalization.
    - Goal: Applying to Galp the business model internationalization matrix developed by René Bohnsack and colleagues.
    - Galp as a meaningful exemplary company due to the different degrees of internationalization of its business units.
- Question:
  Can you please tell me more about the role that you had at Galp?

Middle Segment

- Questions:

  - During my research process, I found out that Galp's activities can be summarized in four core business segments: Upstream, Refining & Midstream, Commercial, Renewables & New Businesses. Each of those business segments is further divided into business units, as the business segment Commercial, divided into B2C and B2B.
  - Is there something else that is important about Galp's organizational structure that I need to consider?

- As I have already mentioned, our study will be focusing on Galp's degree of internationalization at the business unit level.
  - Do you see that there are different degrees of internationalization?
  - Why do you think are the business units internationalized to a different degree?
  - Are there other challenges that arise for the individual business unit when internationalizing? Example: That the product needs to be changed to enter a market successfully or that there are regulations that hinder the entry into a foreign market

- Please look at the following framework: The business units were assigned to this quadrants according to their possibilities of internationalization dependent on two factors:
- 1st: How much change in a business unit's operations are needed to enter a foreign market, for example: If the initial product, the services, or the partnerships needed to be changed to enter a new market; how much investment is required to adapt to the domestic country
- 2nd: The degree to which entry barriers are prominent in possible foreign countries, for example: If there are regulations that hinder an entry, if the needed infrastructure is not present, if customers have problems with understanding the product, or if there are cultural barriers, as that the people are reluctant to new technology
  - Based on my preliminary research, I have placed the business units like this into the framework. Do you agree with my decision? Or do you think that I should include other business units for the purpose of analysis?

Concluding Segment

- Question:

- Is there anything you would like to add to our interview? An important point that was missing during our conversation?

PART II

Conduct interviews with experts in each department to analyze location boundedness and barriers of recombination in the host country for each selected business unit

Introduction

- Thank for participation
- Ensure participant's understanding of the agreed right to confidentiality and recording of the interview
- Outline purpose of the interview:
  - Collect information about Galp's businesses which allows developing a teaching case on the role of business models for internationalization.
  - Goal: Applying to Galp the business model internationalization matrix developed by René Bohnsack and colleagues.
  - Galp as a meaningful exemplary company due to the different degrees of internationalization of its business units.
- Question:
  - Could you explain the role of the business unit X within the company Galp? At which structural level is your business unit located within Galp?

Business model of the business unit

- I would like to know a little more about your business unit …
  - Firstly, could you please tell me more about the business unit's core products/services - what we call value proposition?
  - Secondly, please elaborate on the partnerships on supply and demand that are important to the business unit, as partners for distribution, or any strategic partnerships that you may have. (Direct customer engagement, partnerships with utilities, collaboration with distribution agencies, working with regulatory bodies, collaboration with companies from different sectors) Are these partnerships local or not?
  - Thirdly, I would like to know what the primary source of revenue is? Do you generate your revenue by selling a product or a service? Do you use a

subscription model? What are your major costs? Do you face significant fixed costs or maybe high taxes?

Internationalization of the business unit

Purpose: Presentation of the business unit's internationalization strategy, understand the adjustments necessary to operate successfully in foreign country

- Questions:
    - By talking with X, I have seen that the business unit has already internationalized to X, is there something that needs to be added? Is your business unit planning to enter new markets?
    - When the business unit entered the country X, how did they do? Was it necessary to change the product/service that you are offering? Did you have to establish new partnerships? Did you need to address new target customers?

Recombination barriers in foreign country

Purpose: Get an overview of the international market design of the business unit's operations; analyze recombination barriers in foreign countries

- Questions:
    - Did the business unit face some challenges in these markets that were entered/or tried to enter? For example, were there laws, regulations, infrastructural barriers, prominent competitors, or complications with your target customers that made it difficult to enter the market?
    - Are there other markets that you consider as most attractive for your business unit to enter, and why?
    - Was there any market that you tried to enter but did not work out? If yes, why?

Allocation to internationalization matrix

Purpose: Reassure that business unit’s allocation to framework is correct, leave room for additional thoughts to gain access to indications of the participant which examine the research topic in a novel way

- Please look at the following framework: The business units were assigned to this quadrants according to their possibilities of internationalization dependent on two factors:
- 1st: How much change in a business unit's operations is needed to enter a foreign market, for example.: If the initial product, the services, or the partnerships needed to be changed to enter a new market; how much investment is required to adapt to the domestic country
- 2nd: The degree to which entry barriers are prominent in possible foreign countries, for example: If there are regulations that hinder an entry, if the needed infrastructure is not present, if customers have problems with understanding the product, or if there are cultural barriers, as that the people are reluctant to new technology
    - Based on my preliminary research, I have placed your business unit here **X**. Do you agree with my decision?

Concluding Segment

- Question:
    - Is there anything you would like to add to our interview? An important point that I was missing during our conversation?

Appendix 4 Interview Participant Information

Table 8: Interview Participant Information

NUMBER	EXPERT NAME	COMPANY	POSITION	INTERVIEW TYPE	DATE	LENGTH
1	Nuno Moreira da Cruz	galp energia	Former CEO Galp Spain	Zoom Call	22.10.2020 & 30.10.2020	Total 93 min
2	Inês Santos	galp energia	Director of Strategy & Market Intelligence	Zoom Call	03.11.2020	32 min
3	João Catarino	galp energia	Strategy Advisor	Written Answers	09.11.2020	-
4	Richard Lagrand	galp energia	Head of Innovation at Upcoming Energies	Telephone Call	25.11.2020	43 min
5	Ricardo Leite		Head of Special Projects	Telephone Call	26.03.2021	27 min

Appendix 5 Galp's Internal Structure

Table 9: Galp's Internal Structure

Activity	**Upstream**	**Refining & Mid-stream**	**Commercial**	**Renewables & New Businesses**
Objective	Exploration & Development; Production	Refining & Logistics Business; Oil, Gas and Power Supply; Trading Activities	Oil Products; Gas; Electricity; Non-Fuel (charging points); Services (B2B and B2C)	Renewables; New Businesses; Innovation; Bio Fuels
Internation-alization	**6 Countries:** **>1 Brazil** **> Angola** **> Mozambique** > Namibia > São Tomé and Príncipe > East Timor	**Refining & Logistics** > Portugal **Oil, Gas and Power Supply** > Supplier natural gas: Iberia > Power: Iberian Electricity Market (MIBEL), both in the spot market (OMEL) and in the futures market (OMIP) **Trading activities** > Network trading activity: Spain, France & Netherlands	**B2C** **7 countries:** > Concentrates on **Iberia** - leading player, operating a large distribution network > Africa - Mozambique - Angola - Cape Verde - Guinea-Bissau - Kingdom of Eswatini - reinforcing position in selected countries where market growth is expected to be attractive	**Renewables** > Iberia **Bio Fuels** > Iberia
Characteris-tics	**<u>Upstream</u>** > 45 projects in different phases of exploration, development and production	**<u>Refining & Logistics</u>** > Two refineries in Portugal, processing crude oil > Several maritime terminals in Portugal, namely in Sines and Leixões, and has storage facilities in Iberia **<u>Oil, Gas and Power Supply</u>** > **Oil Products** - Sourcing of crude oil and other raw materials	**<u>B2C</u>** > **On the Road** - Retail network (1,456 service stations) - Oil products (gasoline, diesel, LPG), new energies (electric mobility, NGV or CNV), non-fuel and convenience, services > **At Home** - Natural Gas, Electricity, LPG (including heating and cooking devices) - Services (technical assistance, medical care, etc.) **<u>B2B</u>**	**<u>Renewables</u>** > Developing solar power generation projects **<u>New Businesses</u>** > Galp is working towards identifying and developing opportunities expected to become large stand-alone businesses, in areas related to sustainability, energy transition, transportation, infrastructure and manufacturing **<u>Innovation</u>** > Innovation Centers is working together with the different business units to build new products,

		> **Natural Gas** - Integrated supplier of natural gas in the Iberian market > **Power** - Electricity supplier <u>Trading</u> > NG/LNG trading activity on the international market and continues to strengthen its position in the network trading activity in European natural gas hubs	> **Products** - Oil products (such as gasoline, diesel, LPG or Lubricants); - Natural gas - Electricity - New Energies (such as electric mobility, GNV); - Others > **Services** - Installation of EV charging points - Solar PV installation - Technical assistance for gas and electricity installations - Auditing, training and certification services for energy efficiency, efficient lighting and photovoltaic projects - Others	services or solutions that will generate new revenue/profit streams that will ensure the growth and sustainability of the current businesses > Innovation Factory is expected to address business opportunities in adjacent markets and often involving new business and/or delivery models **<u>Bio Fuels</u>** > Galp's commitment in biofuels production to use residual and sustainable raw materials, aiming to maximize reductions in CO2 emissions
Goal	Galp is committed to developing its value-focused E&P strategy by optimizing and maintaining its portfolio competitiveness, while delivering a strong and sustained cash flow, based on its high-quality assets that can deliver an above-average production growth of around 10%.	Pursue a strategy to continuously adapt to the European effort to promote circular economy, decarbonization and energy transition, remaining a regional reference in this transformation.	Galp is focused on optimizing the integrated offer of products and services, adapted to new consumption patterns, in an open, digital and sharing economy	The new Renewables & New Businesses unit is a clear step for Galp to embrace the energy transition, by developing a sustainable and diversified portfolio of renewable power generation and represents a natural hedge to our Iberian commercial power activities.