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Postgraduate Dissertation

"Developing Competitive Strategies for Renewable Energy EPC Contractors in Southeastern Europe"

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“Developing Competitive Strategies for Renewable Energy EPC Contractors in Southeastern Europe”

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"To Nefeli"

Abstract

The purpose of this study is to investigate how EPC companies operating in the renewable energy sector are able to develop and maintain a competitive advantage. The renewable energy sector has experienced remarkable global growth recently, mainly because of energy transition policies that are currently established nowadays, significant investment in solar, battery and other renewable technologies, as well as the mandatory decarbonization frameworks that are constantly adopted. At the same time, important challenges in the EPC sector include the very dynamic market condition, often characterized by supply chain uncertainty, financial insecurity, extreme competition and significant pressure for low-cost effective project execution.

In line with this context, the market conditions, internal organizational capabilities and relevant strategic approaches that make EPC firms competitive in the renewable energy sector are examined in detail. The research is based on a multiple-case study, focusing on three EPC companies operating, among others, in the renewable energy sector in Southeast Europe. Data collection and analysis were accomplished using a combination of both interviews and secondary sources available for the companies, with the aim of investigating the market behavior and management of internal functions as well as market positioning strategy.

Established strategic methods such as Porter's Five Forces, the VRIO framework and SWOT analysis and were used, in order to examine both the external environment and the internal capabilities of the companies, always with the aim of highlighting strategic advantages.

The findings of this study indicate that the competitiveness of EPC firms in the renewable energy sector lies in central business capabilities development based on current market conditions, rather than solely on cost competition.

Keywords

Renewable Energy Sources, EPC, Competitive Advantage, Organizational Capabilities

"Ανάπτυξη Ανταγωνιστικών Στρατηγικών για Εργολάβους EPC έργων Ανανεώσιμων Πηγών Ενέργειας στη Νοτιοανατολική Ευρώπη"

"Ζούπα Ευφροσύνη-Δανάη"

Περίληψη

Η παρούσα διπλωματική εργασία έχει σκοπό να διερευνήσει τον τρόπο με τον οποίο οι εταιρείες EPC που απασχολούνται στον τομέα των ανανεώσιμων πηγών ενέργειας έχουν τη δυνατότητα να αναπτύσσουν και διατηρούν ανταγωνιστικό πλεονέκτημα. Ο κλάδος των έργων ανανεώσιμων πηγών ενέργειας έχει παρουσιάσει παγκόσμια αξιόλογη ανάπτυξη τα τελευταία χρόνια, κυρίως ως αποτέλεσμα των πολιτικών ενεργειακής μετάβασης, της αυξανόμενης επενδυτικής δραστηριότητας σε έργα ηλιακής ενέργειας, μπαταρίας και άλλων ευρύτερων τεχνολογιών καθώς και της ενίσχυσης των πολιτικών απανθρακοποίησης. Παράλληλα, στο συγκεκριμένο κλάδο σημαντικές προκλήσεις λόγω του δυναμικού περιβάλλοντος της αγοράς αποτελούν η αβεβαιότητα των εφοδιαστικών αλυσίδων, η οικονομική ανασφάλεια, ο οξύς ανταγωνισμός και η πίεση για αποτελεσματική εκτέλεση έργων μειωμένου κόστους.

Σε συμφωνία με αυτό το πλαίσιο συνεπώς, εξετάζονται οι συνθήκες της αγοράς, ενδοεταιρικές ικανότητες οργάνωσης και οι σχετικές στρατηγικές προσεγγίσεις που συμβάλλουν στην ανταγωνιστικότητα των επιχειρήσεων EPC στον τομέα των ανανεώσιμων πηγών ενέργειας. Η έρευνα βασίζεται μελέτη σύγκρισης πολλαπλών περιπτώσεων (multiple-case study), εστιάζοντας σε τρεις εταιρείες EPC που δραστηριοποιούνται στον τομέα των ανανεώσιμων πηγών ενέργειας, μεταξύ άλλων και στη Νοτιοανατολική Ευρώπη. Για τη συλλογή και ανάλυση δεδομένων αξιοποιήθηκε ο συνδυασμός συνεντεύξεων και δευτερογενών πηγών, με σκοπό τη διερεύνηση της αγοράς, της εσωτερικής οργάνωσης της επιχείρησης και της στρατηγικής τοποθέτησης.

Για την ανάλυση χρησιμοποιήθηκαν καθιερωμένες στρατηγικές μέθοδοι όπως η ανάλυση Porter's Five Forces, το πλαίσιο VRIO και η ανάλυση SWOT προκειμένου να εξεταστούν

τόσο το εξωτερικό περιβάλλον όσο και οι εσωτερικές δυνατότητες των επιχειρήσεων, πάντα με στόχο την ανάδειξη των στρατηγικών πλεονεκτημάτων.

Τα ευρήματα της συγκεκριμένης μελέτης υποδεικνύουν ότι η ανταγωνιστικότητα των επιχειρήσεων EPC στο κλάδο των ανανεώσιμων πηγών ενέργειας εξαρτάται από την ανάπτυξη βασικών επιχειρηματικών ικανοτήτων, σύμφωνα με τις συνθήκες της αγοράς παρά αποκλειστικά από τον ανταγωνισμό κόστους.

Λέξεις – Κλειδιά

Ανανεώσιμες Πηγές Ενέργειας, EPC, Ανταγωνιστικό Πλεονέκτημα, Οργανωτικές Ικανότητες

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List of Abbreviations & Acronyms

APAC	Asia-Pacific
BESS	Battery Energy Storage System
CAPEX	Capital Expenditure
EMEA	Europe, Middle East and Africa
EBITDA	Earnings Before Interest, Taxes, Depreciation and Amortisation
EBIT	Earnings Before Interest and Taxes
EPC	Engineering, Procurement and Construction
ESG	Environmental, Social and Governance
EU	European Union
GW	Gigawatt
IEA	International Energy Agency
IRENA	International Renewable Energy Agency
KPI	Key Performance Indicator
MW	Megawatt
O&M	Operation and Maintenance
PV	Photovoltaic
RAAEY	Regulatory Authority for Energy, Waste and Water
RBV	Resource-Based View
RES	Renewable Energy Sources
SWOT	Strengths, Weaknesses, Opportunities and Threats
VRIO	Valuable, Rare, Inimitable and Organised

1. INTRODUCTION

1.1 EPC Market Definition

Currently, the global energy market is evolving at a rapid pace. Over the past decade, renewable energy has emerged as a central pillar of economic transformation, industrial strategy and geopolitical influence (IEA, 2023; IRENA, 2023). Governments have shifted their position from debating the feasibility of the energy transition to urgently address its implementation, the sources of its financial support and the identification of firms capable of delivering efficient renewable energy projects.

More specifically, across European countries, the transition to renewable energy has accelerated dramatically, mostly due to the governmental introduction of obligatory decarbonization policies (European Commission, 2019; European Commission, 2022) that derive from the growing energy demand and the relevant power independence, as a result from the shortage of fossil fuels. This can be better understood by all the initiatives that have been recently introduced such as the European Green Deal and REPowerEU. It appears that those programs have reshaped investment priorities and capital toward renewable energy infrastructure development. Utility-scale photovoltaic and wind installations, battery storage systems and grid reconstruction projects are expanding rapidly everywhere and they have become increasingly common across Southeastern Europe, as the operation conditions (solar and wind gains etc.) are ideal for these types of projects in this specific world area (IEA, 2023; IRENA, 2023; SolarPower Europe, 2024).

However, renewable energy projects do not come to life through obligatory regulations alone. Their development requires execution, coordination and most importantly, requires organizations capable of transforming strategic investments into operational infrastructure FIDIC (2017). This is where the existence of Engineering, Procurement and Construction (EPC) firms has become critically important in delivering large-scale infrastructure projects (PwC, 2023).

Through tender procedures, describing technical and commercial requirements, large-scale stakeholders (end-clients, developers, grid operators etc.) which have in their possession several projects green lighted for construction by planning authorities, award the project execution (after several rounds of negotiations) to an EPC firm through a contract, defining also the total execution cost. After successful project delivery, the EPC firm hands over the

finalized infrastructure to the client, which now uses it as an asset for the rest of its design life.

By signing EPC contracts, a single firm is responsible for the entire project successful design and construction (FIDIC, 2017; Yescombe, 2018). Each project includes detailed engineering, for example, the design of a solar farm or a hybrid solar/battery plant, relevant equipment procurement, logistics operations, civil/electrical subcontractor supervision, construction execution, testing and commissioning of equipment, final project delivery and possibly the maintenance for the first couple of years in operation. Usually, the services provided by an EPC firm are described as "turn-key" (Yescombe, 2018), since all client requirements are handled in a specific amount of time and budget.

Renewable energy EPC contractors have a unique position within the energy market because they function solely as the operational administrators of renewable infrastructure, assuming responsibility for delivering complex renewable energy projects, that can become later operational assets for each client.

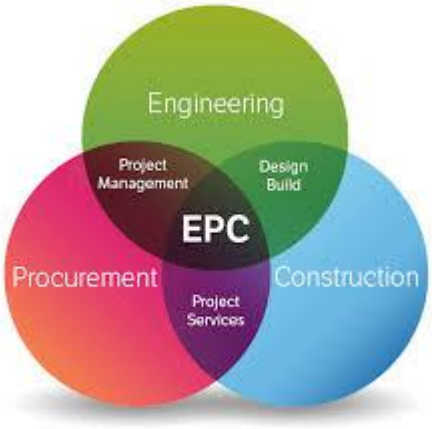

Figure 1: EPC structure explanation

Unlike other traditional manufacturing organizations in relevant sectors, EPC companies operate within very dynamic environments, in which operational challenges can rapidly escalate into major bottlenecks. Technical and contractual challenges, regulatory and supply chain disruptions are some of the factors that greatly affect the viability of an EPC firm. In addition, poor internal coordination between management, technical and construction teams can lead to major reworks and contractual mismatches (Davies & Brady, 2000; PMI, 2021).

For this reason, in order for an EPC firm to stand out in the renewable energy market, many separate factors must be implemented other than pricing alone. Nowadays, renewable energy EPC firms typically compete for their ability to cope with uncertainty and risk, to coordinate ongoing supply chains, maintain execution reliability and deliver high-performance projects under increasingly demanding market conditions (Grant, 2022; Porter, 1985). Technical expertise remains essential of course for maintaining such competitive advantage, along with internal policies and procedures alignment, as well as organizational effectiveness are becoming equally important factors too (Barney, 1991; Grant, 2022).

In parallel, the EPC sector is facing growing pressure from multiple directions, making it difficult for a firm to handle competition. International supply chain disruptions, inflationary trends on raw materials, geopolitical instability, rising financing costs are some of the factors that have significantly increased operational ability inside the renewable energy industry (World Bank, 2024; Deloitte ,2024).

EPC contractors must now co-operate with several markets while simultaneously managing strict project deadlines, contractual obligations and often very demanding client expectations. Under the conditions described above, understanding how renewable energy EPC firms develop and sustain competitive advantage seems to be an academic necessity.

1.2 The EPC Business Model in Southeastern Europe

As previously described in detail, the EPC model is widely used in renewable energy projects due to its integrated approach and risk allocation structure (Yescombe, 2018). Under EPC contracts, the contractor is responsible not only for the engineering and technical design, but also the procurement of equipment, the construction and commissioning, all parts of the final project delivery.

Southeastern Europe has become an increasingly attractive region for renewable energy investments. Countries such as Greece, Italy, Romania, Bulgaria and Croatia have favorable climatic conditions for solar and wind energy project development (IRENA, 2023; European Commission, 2023). At the same time however, this part of the marker has several characteristics such as lower dynamics compared to Western Europe, not yet established but mostly ongoing and evolving regulatory frameworks, significant dependence on foreign investment made mainly by American and Chinese companies and infrastructure limitations.

Regarding the regulatory framework around the renewable energy infrastructure in Europe, the EPC sector is heavily influenced by public policy and organized under specific legal frameworks (European Commission, 2022). In Southeastern Europe, EU directives are usually implemented at national level, meaning that for example, a renewable energy project execution that has to follow specific regulatory guidelines that are formally used by Greek Regulatory Authority for Energy, Waste and Water (RAAEY) might not be applicable to neighboring countries such as Italy or rest Balkan countries (European Commission, 2022; RAAEY, 2023).

Although EU policies tend to encourage renewable energy investments, those are usually accompanied by bureaucratic complexity (e.g. involving many planning conditions that must be satisfied) and regulatory uncertainty, which remain currently significant barriers in countries (IEA, 2023), especially the ones known for general bureaucratic . For EPC firms, this regulatory risk can mess with project timelines, financing conditions, procurement planning and increase overall project execution risk.

Despite the challenges mentioned previously, the region offers significant openings for renewable energy projects due to increasing electricity demand, opportunity of EU financial support mechanisms and wide range advantages that can be accessed by achieving national decarbonization targets. For EPC firms, this creates a competitive environment where local market knowledge and regulatory adaptability become important strategic assets.

As a result, firms capable of copying with above difficulties and take advantage of relevant market opportunities often achieve stronger competitive positioning. Competition in the EPC renewable energy sector is intense and multidimensional. Firms compete not only on legal framework adaptability but also on proposed execution price, technical expertise, execution reliability, project delivery speed, financial stability and of course market reputation.

Large-scale renewable energy projects typically involve high capital investment and require effective internal coordination between engineering activities, procurement operations (suppliers-subcontractors), construction and operations management, regulatory authorities and project developers. Thus, strong EPC firms capable of handling utility scale projects often have easier access to advantages related to scale and financing capability, while regional firms seem to benefit more from local market knowledge and regulatory

obligations. For this reason, in Southeastern Europe, firms tend to form strategic partnerships and joint ventures as a common strategy in general infrastructure activities, allowing firms to combine technical expertise with local operational capabilities (Johnson et al., 2020).

1.3 Background of the Study

As described earlier, the renewable energy EPC sector differs significantly from traditional construction and manufacturing industries, mainly because it operates under a highly project-based business model (Hobday, 2000; Davies & Brady, 2000). EPC contractors typically assume substantial contractual and operational obligation for delivering renewable energy projects within strict timelines, budget constraints and specifically defined technical specifications.

Recent obstacles observed in the EPC market, mostly due to global developments like transportation holdups, geopolitical conflicts and inflationary pressure have a major impact on the firms' operations (World Bank, 2023; Deloitte, 2024). Therefore, EPC contractors are forced to act quickly in order to maintain their competitive market advantage. Some organizations opt to strengthen project expansion strategies, while others focus on long-term or bundle project agreements in order to optimize budget and improve operational flexibility.

Some firms tend to demonstrate strong adaptability and maintain execution consistency despite difficult and demanding market conditions (Teece et al., 1997). Others experience general operational disruption. The differences in the capability of EPC firms to adapt accordingly raise important strategic questions regarding organizational skills that can enable energy organizations to sustain stronger market positioning than competition.

This issue becomes particularly relevant within Southeastern Europe area, where renewable energy investment activity continues to expand rapidly (IRENA, 2023; European Commission, 2023). The significant amount of renewable energy projects currently under development and operation in this specific region represents important EPC firms opportunities, but at the same time pose as considerable risk, since opportunities come along with complexity in regard to permitting procedures, market maturity, potential infrastructure restrictions and regulatory differences across countries.

As a result, the renewable energy EPC sector provides a highly relevant opportunity for examining the relationship between strategy, internal operational capability and eventually, competitive advantage.

1.4 Problem Statement

Despite the rapid expansion of renewable energy projects across Europe, EPC firms must operate under increasingly difficult and unpredictable market conditions. Intense market rivalry, supply chain interruptions, rising equipment costs and regulatory uncertainty have created substantial competition challenges throughout the industry (Deloitte, 2024; IEA, 2023; World Bank, 2023).

Many EPC firms have access to the same technologies, equipment and market opportunities. However, important differences continue to arise regarding project execution performance, internal operational efficiency, procurement effectiveness, all factors that eventually determine long-term market competitiveness (Barney, 1991; Grant, 2022). Some organizations are able to consistently deliver projects efficiently, can exceed procurement risks successfully and maintain strong market positioning despite operating within the same environment as rest competition.

Existing literature extensively examines renewable energy policy across the EU, relevant technological innovation and economical evaluation (Kaldellis & Zafirakis, 2011). However, limited attention has been given to the strategic and operational capabilities that influence competitive advantage within renewable energy EPC firms themselves (Guerras-Martín et al., 2014; Grant, 2022). Moreover, even less studies focus specifically on the factors that can lead to a competitive market advantage.

More specifically, the research gap becomes even more evident within the area of Southeastern Europe, in which renewable energy projects continue to develop rapidly under very complex operational conditions. Therefore, this dissertation seeks to investigate how renewable energy EPC firms can develop and maintain competitive advantage (Porter, 1985; Barney, 1991) under several stressing conditions such as market instability, internal operational complexity and increasing competitive pressure.

1.5 Research Aim

The main focus of this dissertation is to investigate the ways that a firm operating as EPC contractors in Southeastern Europe, can develop and maintain competitive advantage within the renewable energy market. As a result, there is a need to explore the strategic capabilities and operational practices that make an EPC firm stand out from competition.

In further detail, the aim of this research lies in understanding how EPC firms react to external environmental pressures in order to cope with market competition, while highlighting the internal capabilities that enable organizations to maintain competitiveness in the long-term run. Particular attention is given to factors that have emerged in both academic literature and industry practice as important elements of competitiveness within project-based industries (Barney, 1991; Davies & Brady, 2000; Grant, 2022), such as procurement and project capabilities and stakeholder management.

Based on the above, a comparative multi-case approach is examined, exploring three widely established EPC organizations which operate within the renewable energy sector in Southeastern Europe area. Using strategic management frameworks as tools, including Porter's Five Forces, RBV and VRIO framework as well as SWOT analysis (Porter, 1985; Barney, 1991; Helms & Nixon, 2010), a comprehensive understanding of the relationship between organizational capabilities and competitive advantage in project-based industries is intended.

To achieve the above, several research objectives are followed. First of all, the external environmental factors that seem to influence competitiveness within the renewable energy EPC sector in Southeastern Europe are examined. Then, key organizational resources and capabilities that contribute to competitive advantage among renewable energy EPC firms are identified and analyzed. Based on this, a comparison of the strategic approaches adopted by the selected EPC organizations, is presented as a response to maintain strategic positioning. The comparison is investigating several factors such as procurement capability, project execution reliability and organizational adaptability that can support long-term competitiveness.

Based on the research aim and relevant objectives, the following research question is addressed: How do renewable energy EPC firms operating in Southeastern Europe develop and sustain competitive advantage under conditions of increasing market competition?

2. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Introduction

This chapter will review the relevant academic literature that supports the analysis of competitive strategies (Yin, 2018) in the Renewable Energy EPC sector. This is a necessary step in order to establish the theoretical foundations of the analysis but also identify all the key factors necessary for achieving competitive advantage as a firm (Grant, 2022) executing renewable energy projects in Southeastern Europe. This advantage refers to the ability to demonstrate higher market value in regard to competition and achieve steady and above-average performance (Porter, 1985).

The renewable energy market has a particular interest in examining competitive advantage. EPC firms operate in project-based environments characterized by intense market competition (Hobday, 2000). As a result, market success depends on a combination of external positioning and internal organizational capabilities (Barney, 1991; Barney & Hesterly, 2021).

Thus, this chapter will be structured around the relevant strategic management theory and competitive advantages, the characteristics of EPC contractors and the evolving dynamics of the renewable energy sector under the influence of International and European regulatory policy, while incorporating the most strategic management frameworks that can provide deep analysis of both the external and internal business environment.

The selection of the above frameworks was made based on the complement and the relevant integrated approach each one can provide for evaluating the strategic position of renewable energy EPC firms, taking into consideration both external environmental conditions and internal organizational capabilities (Porter, 1985; Barney, 1991; Grant, 2022).

The chosen method utilized for the external environmental analysis is Porter's Five Forces, while for the internal is Resource-Based View through the VRIO tool. Finally, SWOT analysis is used for the integration of both external and internal conditions.

2.2 Competitive Strategies in Project-Based Industries

The EPC sector operates within a strict project-based business model, in which each project undertaken is unique and usually involves significant percentages of risk and uncertainty.

Unlike other traditional infrastructure environments, in which economies of scale are dominating, EPC firms often compete through their ability to manage market risks while sustaining coordination across multiple internal functions and external stakeholders.

According to Porter (1985), organizations can achieve competitive advantage through three generic strategies:

- Cost leadership: the ability to provide services at lower cost than the competition
- Differentiation: the ability to provide something unique in order to be prominent in comparison with competitors
- Focus: the ability to focus on organizational resources on a specific market segment.

Cost leadership refers to a firm's ability to achieve the lowest cost structure within its industry while maintaining relevant result quality. In the renewable energy sector, cost efficiency, as described also in the previous chapter, is a critical determinant of competitiveness, particularly in tender-based project allocation where price is often the decisive factor to award an EPC contractor.

EPC firms pursue cost leadership through factors such as:

- procurement strategies and global material sourcing optimization,
- standardization of engineering and construction processes,
- repetition of similar project types (e.g., utility-scale solar projects),
- and efficient project management practices.

However, sustaining cost leadership can be challenging due to increased competition and relative transparency of cost structures. Moreover, if a cost reduction is pursued, projects' quality or reliability can be compromised, factors that are crucial for large-scale infrastructure projects successful delivery.

Differentiation involves the ability to offer unique services that distinguish a firm from its competitors. In the EPC market, differentiation is less related to the constructive output of projects and more associated with internal resources capabilities and performance.

Key sources of differentiation include the ability to obtain technical expertise in complex projects, the reliability in project execution and relevant timelines, maintaining a strong market reputation with proven historic records, integrated services (e.g., EPC combined

with operation and maintenance offers) and alignment with global sustainability and ESG standards and regulations. Therefore, while eventually cost competitiveness remains important, project execution capability across the entire project lifecycle (prior to it becoming an asset) represents a critical source of strategic differentiation within the sector.

In renewable energy projects, where delays can lead to significant financial penalties (liquidated damage), stakeholders often opt to prioritize reliability and experience over cost alone. As a result, differentiation based on proven execution capability becomes a critical success factor. This is the reason usually investors opt to cooperate with specific EPC firms that have successfully delivered past projects on time and budget. Firms that have proven trustworthy seem to be better positioned to secure future projects and strengthen client relationships, both factors that contribute significantly to competitive advantage maintenance.

The *focus strategy* involves targeting and pursuing competitive advantage accordingly a specific part of the market. In the EPC sector, firms can adopt a focus strategy based perhaps on geographic specialization (e.g., Southeastern Europe), technological specialization (e.g., solar, wind, or storage technology), or customer segmentation (e.g., utility-scale stakeholders against independent power investors).

This approach allows EPC firms to develop deep technical expertise and local knowledge, particularly in markets characterized by regulatory complexity and institutional variability in southern Europe.

Porter's framework remains highly relevant for project-based organizations such as EPC contractors (Grant, 2022). However, unlike traditional manufacturing firms, in this case, the competitive advantage doesn't derive from a standardized service offered but from a wider package that integrates challenging market conditions' management, while requiring organizational coordination and technical knowledge achievement (Davies & Brady, 2000).

2.3 Sources of Competitive Advantage in Renewable Energy EPC Firms

Creating and maintaining a competitive advantage within renewable energy market is determined by both external market conditions and internal organizational skills. Even though EPC firms, from a regional perspective, can operate within the same regulatory and competitive environment, important differences in the market performance can be observed due to the wide variety found in organizational policies and procedures (Barney, 1991).

From an external perspective, competitive advantage is affected by factors such as regulatory and renewable energy policies frameworks, development of technical equipment and relevant supply chain conditions, market growth and industry competition (Porter, 1980; European Commission, 2022). More specifically, governmental policies in order to achieve energy transition targets, challenging financing conditions and supply chain developments significantly determine project opportunities and organizational performance (European Commission, 2022; IRENA, 2023).

Because these factors are often developed over long periods, relevant market adaptability requires organizational skills and accumulated experience, that may be difficult for competitors to replicate. Consequently, they may represent important sources of sustainable competitive advantage. As a result, EPC firms must detect and react accordingly to changes within both the wider macro-environment and the competitive structure of the renewable energy industry.

However, exposure to similar market conditions does not necessarily result in similar organizational operations. Firms competing within the same environment often demonstrate different levels of performance, growth and eventually advantage. This further enhances the fact that internal organizational functions and capabilities also play a critical role in determining competitive advantage (Barney, 1991).

As highlighted also by Davies and Brady (2000), project-based firms develop competitive advantage through effective organizational schemes and the historically proven past-project experience. Hence, internal coordination capability is a critical competitive factor because project-based organizations must administer multiple functions throughout the entire project lifecycle (Hobday, 2000).

Within renewable energy EPC organizations, several core functions are strategically important to maintain competition advantage. Procurement function effects available access to equipment, purchaser-supplier relationships and cost competitiveness. Project execution capability affects schedule and quality management, both factors that eventually determine end-client satisfaction. Regulatory and stakeholder supervision capability further supports successfully handled permitting frameworks. Finally, strategic adaptability enables organizations to act fast against challenging market conditions.

The above-described capabilities are particularly crucial because they are difficult for competitors to duplicate rapidly. As a result, they represent potential pillars of competitive market advantage. These types of within company resources and capabilities can determine how effectively firms are able to respond to environmental challenges and utilize market opportunities. Organizations that have proven stronger internal capabilities may be better positioned in order to efficiently manage external risk factors such as project execution and sustainability under uncertain market conditions.

2.4 External Environment Analysis of Strategic Management and Competitive Strategy

The renewable energy sector has experienced rapid growth over the past decade in Europe, mainly due to technological advancements, declining costs of electricity production and strong regulation support (IRENA, 2023). Solar and wind energy have become increasingly competitive in terms of cost compared to conventional used energy sources.

However, despite the EPC market growth, there are many challenges that characterize the renewable energy sector such as high capital intensity, regulatory complexity, strong dependence on public policies and procedures, as well as increased competition from both established players and new entrants.

For EPC contractors, this creates both opportunity and dispute. On one hand, the expansion of renewable energy projects increases the demand for EPC services. On the other hand, intensified competition and cost pressures require firms to continuously refine their strategies. As a result, renewable energy EPC firms, in order to be competitive, must continuously adapt their market strategies to changing external conditions while maintaining internal operational effectiveness.

The European Union has an important role in accelerating renewable energy projects' implementation through well-established policies such as the European Green Deal and REPowerEU. Those initiatives aim to extensive decarbonization by making obligatory the reduction of greenhouse gas emissions, while simultaneously improving energy stability and increasing the share of renewable energy in the European market (European Commission, 2019; European Commission, 2022).

These policies play a pivotal role in shaping the strategic environment of EPC companies. First, they increase the volume of renewable energy projects, while introducing stricter

environmental and sustainability obligations. Also, they encourage innovation and technological development while creating new financing and investment support. On the other hand, the sector remains highly dependent on global supply chains, critical raw materials' prices and availability such as polysilicon, copper, aluminum, lithium, nickel, cobalt and graphite (IEA, 2023). Photovoltaic modules, battery energy storage systems, inverters, transformers and general electrical equipment require significant quantities of the materials previously mentioned, with the greater proportion of manufacturing factories located in China (IRENA, 2023).

As a response, the European Union has introduced very strict regulatory industrial policies in order to enhance the domestic manufacturing capability. The Critical Raw Materials Act and the Net-Zero Industry Act initiatives, support local production and instruct sourcing of raw materials and necessary operational equipment within Europe (European Commission, 2023). Of course, this has an important implication for EPC firms. Restrictions affecting the sourcing of raw materials reduces access to global supply chains and often lead to significant cost increase from equipment sourcing, possible material unavailability, extended procurement lead times and eventually wider project costs.

At the same time, regulatory uncertainty and differences in national implementation can be witnessed across Europe. This factor adds difficulty to strategic decision-making, since the regional implementation of European directives at country level creates differing regulatory conditions across nations. As a result, EPC firms operating in this specific market must cope with demanding permitting systems and environmental regulations.

These challenges are more profoundly observed in Southeastern Europe, where renewable energy markets are generally less mature. Countries within the region frequently face different technical and procedural requirements, deriving from transmission system and distribution network operators, which lead to project complexity increase for EPC contractors. Thus, firms operating in this market must cope with demanding permitting systems and grid requirements, making regulatory adaptability necessary.

In order to further evaluate the market competition, two broadly established strategic management frameworks have been chosen to be adopted in this study. Porter's Five Forces framework is applied to examine the competitive nature of the industry.

2.4.1 Porter's Five Forces Analysis

Porter's Five Forces analysis provides a structured approach to analyze competition within the EPC industry. The five forces, which include rivalry, threat of new entrants, suppliers – buyers power of bargain and threat of substitutes can aid to determine strategic relationships of the industry. More specifically, in the context of contractors in renewable energy, these factors can be driven by forces like technological development, international and reginal regulatory frameworks as well as supply chain dependencies.

In order to better understand Porter's Five Forces application in the EPC Sector and the reason its framework is one of the most widely used historical analytical tools for market evaluation, it is worth examining the general dimensions of the analysis:

1. **Rivalry Among Existing Competitors**

Competition in the renewable energy EPC sector is quite intense. Worldwide energy demand has led to the rapid growth of renewable energy investments, which acts as an attraction to both large multinational construction groups but also specialized EPC contractors, increasing bidding competition for projects.

Some of the factors that contribute to this rivalry (Johnson et al. 2020) are listed below:

- Competitive processes when approaching tenders, where price is a major selection criterion
- Limited technological differentiation, since most projects utilize standardized equipment,
- Extensive pressure on project margins,
- Expansion of international EPC firms into emerging regional markets,
- Increased client requirements regarding projects' execution speed and compliance.
- Market reputation

More specifically, in Southeastern Europe, rivalry can be further intensified by the limited number of large-scale renewable energy projects compared to more mature North European markets. As a result, companies usually compete very aggressively on both pricing and delivery capability in order to be awarded as EPC contractors. In parallel, firms with high

market reputation, who have established strong regional presence with proven execution capability, are able to favor themselves and reduce direct price competition.

2. Threat of New Entrants

The renewable energy sector continuously attracts new entrants due to the following factors:

- Ongoing strong market growth,
- Favorable EU framework policies,
- Increasing investment directives towards clean energy infrastructure.

However, despite these opportunities, significant entrance barriers in the EPC sector can be observed, such as:

- Demanding technical requirements,
- Strong co-operation with suppliers and subcontractor networks,
- Financial capacity and bonding requirements.

Moreover, as previously indicated, in this specific industry reputation and credibility proof play a crucial role in project allocation. Stakeholders often use a list of preferable EPC contractors with well-known and established track records, in order to minimize important risks associated with project timeline delays or technical failures. Nevertheless, smaller or regional EPC firms may still enter the market, particularly in smaller-scale solar projects or local subcontracting construction activities.

3. Bargaining Power of Suppliers

Supplier power is one of the most critical forces affecting EPC firms' operation in renewable energy projects. EPC contractors rely heavily on procurement of materials from specialized suppliers for major equipment such as photovoltaic modules, inverters, transformers, mounting systems and engineering equipment. Several factors are able to increase supplier power such as (Christopher 2016):

- Concentration of manufacturing in a limited number of countries worldwide,
- Technical specialization,
- Global supply chain operations,
- Fluctuations in raw material prices.

Recent ongoing geopolitical developments and logistics disruptions due to force majeure, have further highlighted the limitation of renewable energy supply chains, as delays in equipment delivery can directly affect project timelines and profitability as well. As a result of the above, relevant procurement strategies become strategic capabilities rather than simply operational tools. EPC firms increasingly seek to increase supplier bases, establish long-term or bundle relationships and improve procurement planning to reduce supply risks.

4. Bargaining Power of Buyers

The bargaining power of buyers in the EPC renewable energy sector is significant. Buyers typically include amongst others the following stakeholders:

- Utility companies,
- Independent power producers (IPPs),
- Funds and Energy developers.

Large project developers have strong power of negotiation due to the high value of EPC contracts, the availability of multiple EPC bidders and the increasing market competition. Additionally, buyers have often very demanding contractual obligations regarding project completion timelines, performance guarantees, potential penalties for delays and lately ESG compliance requirements due to strict policies.

5. Threat of Substitutes

The threat of substitutes in the EPC sector is currently moderate but can be considered steadily evolving. Substitution may occur through:

- Alternative project delivery models,
- Vertically integrated developers,
- Technological changes.

For example, some energy stakeholders have started to internalize engineering (inhouse engineering) and project management responsibilities, usually utilizing third party technical advisors, instead of outsourcing them to external EPC contractors. As a result, construction techniques, digital project management and procurement tools may reduce reliance on traditional EPC organizations.

However, even in this case, large-scale renewable energy projects continue to require significant technical expertise, coordination and execution capability, often minimizing the possibility of substitution.

2.5 Internal Environment Analysis of Strategic Management and Competitive Strategy

As previously analyzed, while external environmental conditions have a significant impact on a firm's performance, they provide restricted feedback on the reason why firms operating within the same market achieve different levels of competitive advantage. EPC contractors in Southeastern Europe are usually exposed to similar technological developments, supply chain conditions and market pressures. However, in terms of project execution, economic profitability, growth and long-term market positioning, substantial differences can be observed.

As a result, particular attention should be given to the internal characteristics of organizations in terms of resources and capabilities (Barney, 1991; Grant, 2022). According to this, organizations can achieve competitive advantage not only due to favorable market conditions, but also because of their ability to utilize organizational resources in order to exploit further those conditions.

Within the renewable energy sector, these resources lay on procurement and technical staff expertise, project coordination capability, stakeholder relationships and financial strength. It is safe to assume that such capabilities require accumulated experience from internal firm's functions – Technical & Procurement, Legal, Finance and Management teams – and deep organizational learning, both factors that may be difficult for competition to replicate.

To examine those internal sources, the Resource-Based View (RBV) framework is chosen as a primary theoretical foundation. The RBV indicates that competitive advantage derives from resources and capabilities that are valuable, rare, difficult to imitate and effectively supported by an organization (Barney, 1991). Under the RBV theory, the VRIO framework is used as an analytical tool for evaluating the strategic significance of organizational resources and capabilities.

2.5.1 Resource-Based View (RBV)

Unlike rest industry-based approaches, which focus primarily on external market conditions and competitive pressures, according to RBV, organizations operating within the same

industry often experience differences in performance because they possess different resources. This assumption is based on two core factors: heterogeneity and immobility. The first suggests that firms possess generally different resources and capabilities such as financial capital, infrastructure, equipment and technological assets, while the second indicates that resources cannot be easily obtained or imitated by competitors, like organizational knowledge, reputation, managerial expertise, supplier relationships and accumulated experience (Barney, 1991).

Within renewable energy EPC market, several organizational resources and capabilities can contribute to competitive advantage. Based on industry feedback, these lie within:

1. **Procurement capability**

The ability to secure the essential equipment at competitive prices, manage supplier relationships and mitigate supply chain disruptions may significantly influence project costs, delivery schedules and overall organizational performance.

2. **Technical Expertise**

Technical capability supports a firm's effectiveness by enabling the evaluation of alternative equipment, possibility of handling technical risks and optimization of project design decisions.

3. **Project Execution Capability**

Similarly, project execution capability affects an organization's ability to deliver successfully utility-scale renewable energy projects. This requires the coordination of engineering and procurement processes, construction operations and stakeholder interactions under strict timelines and budget constraints. Also, project execution competence may be viewed as an organizational capability developed through accumulated experience, an asset that is difficult to replicate by competition.

4. **Stakeholder Management**

Renewable energy projects involve a wide range of stakeholders, such as owners, investors, grid operators and local authorities. As a result, an EPC firm's ability to coordinate interests, maintain effective communication and productive relationships, as well as resolve possible conflicts throughout the project lifecycle has become very important due to growing project complexity and regulatory requirements.

5. Financial Strength

Large-scale renewable energy projects typically require significant working capital, performance guarantees and warranty bonds, significant procurement commitments and easy access to financing any upcoming project needs. Organizations that have easy access to financial resources have better operational resilience.

Based on the RBV framework and EPC organizational market standards, the above-described factors directly influence an organization's ability to deliver projects successfully, respond to environmental challenges and sustain competitive advantage. However, it is not possible to assess to what extent each of these resources are capable of generating sustainable competitive advantage. To surpass this limitation, VRIO framework is used in order to enable the evaluation of each organizational resource according to its value, rarity, rareness and organizational support. Through this approach, the strategic significance of the identified resources can be assessed more effectively.

2.5.2 VRIO Analysis

To evaluate the criteria of strategic significance organizational resources and capabilities identified by the RBV framework, VRIO model is used since it provides a structured approach for assessing whether specific resources have the potential to determine competitive market advantage (Barney & Hesterly, 2021).

This framework is based on the below four systemic dimensions:

- Value,
- Rarity,
- Imitability,
- Organization.

According to this perspective, firms achieve top performance when they possess and obtain resources that are valuable, rare, innovative and difficult to imitate but also effectively organized. The VRIO analysis can provide a structured method for evaluating whether organizational resources can generate sustained competitive advantage.

Procurement capability allows EPC firms to negotiate in more favorable terms major equipment costs and delivery terms, reduce potential project delays, improve general budget efficiency and manage supply chain bottlenecks more effectively. A well-structured central

procurement function of an EPC firm leads also to long-standing supplier relationships, a factor that can be considered relatively rare and difficult to imitate, particularly when established through years of collaboration, accumulated trust and successful project execution.

Technical expertise, when supported by effective organizational structures and knowledge management systems, represents another important organizational resource. High-level engineering capabilities support equipment diligence, design optimization and technical complexity overpass throughout the project lifecycle. Although technical knowledge is common and can be found within the industry in Southeastern Europe, advanced renewable energy personnel with accumulated project experience is often hard to find and requires significant time and investment to be developed from a junior level.

Project execution capability is widely recognized as one of the most strategically significant organizational resources within renewable energy EPC sector. The ability to consistently deliver projects according to contractual and technical specifications, budget constraints and schedule commitments creates a high value for project stakeholders. Since project management is typically included in organizational structures, managerial experience is often difficult for market competitors to imitate, making it a potential source of competitive advantage.

Stakeholder management also has a significant role in market success. Renewable energy projects require continuous interaction with regulatory authorities, grid operators, clients, suppliers, subcontractors and local communities. This coordination lies on technical, procurement and management capabilities through organizational experience and local market knowledge perspective. Organizations possessing strong stakeholder capabilities can mitigate many project risks.

Financial strength represents an important resource within renewable energy EPC organizations. Strong financial resources support capital project requirements and improve organizational flexibility. However, financial resources are generally more transferable than rest organizational capabilities and therefore have lower levels of rarity and inimitability. As a result, financial strength alone seems unlikely to sustain competitive advantage.

The following table summarizes the application of the VRIO framework to the principal resources and capabilities identified within renewable energy EPC organizations:

Resource	Value	Rarity	Inimitability	Organization
Procurement Capability	High	Medium–High	Medium–High	High
Technical Expertise	High	Medium	Medium	High
Project Execution Capability	High	High	High	High
Stakeholder Management	High	Medium–High	High	Medium–High
Financial Strength	High	Low–Medium	Low	High

Table 1: VRIO Assessment

2.6 Integrated Strategic Analysis

While Porter's Five Forces framework provides insights into the external environment and the Resource-Based View together with the VRIO framework allows the examination of internal organizational resources and capabilities, strategic decision-making requires the integration of both perspectives.

To facilitate this integration, SWOT analysis is used. Having been considered as one of the widest strategic management tools, it provides a structured evaluation of organizational Strengths, Weaknesses, Opportunities and Threats (Helms & Nixon, 2010). Strengths and weaknesses derive from internal organizational characteristics highlighted by RBV and VRIO models, while opportunities and threats originate from the external environment analysis through Porter's Five Forces ramework.

Consequently, SWOT analysis provides a comprehensive overview of the strategic position of renewable energy EPC firms and can support the comparative evaluation of the selected cross case-study organizations.

2.6.1 SWOT Analysis

SWOT analyzes the following factors in order to assess a firm's strategic position and support managerial decision-making:

1. **Strengths**

Typical strengths of renewable energy EPC firms include, as described in previous sections, engineering efficiency, procurement expertise and strong supplier relationship networks,

project execution capability in terms of operation and finance, as well as organizational reputation.

2. Weaknesses

Internal limitations that can reduce competitiveness can be considered as the most significant weakness factors. Usually, within the renewable energy EPC sector, the dependence on external suppliers for project execution and raw material price volatility leads to limited financial flexibility and organizational complexity.

Many EPC firms currently face many challenges in order to overpass supply chain bottlenecks, handle the shortages of specialized technical personnel and successfully deliver demanding project execution. Low-scale EPC contractors may additionally experience limitations when competing against economies of scale, which have easy access to financing and higher ability to compete for large international projects.

3. Opportunities

The renewable energy market has substantial long-term growth opportunities, usually available through established decarbonization policies, increasing investments in clean energy, technological innovation and growing energy infrastructure requirements for market operation. The continuous development of hybrid photovoltaic projects, battery storage systems, and grid modernization obligations continuously increase demand for EPC services. Digitalization trends may also create opportunities for operational optimization and improved EPC services. In addition, Southeastern Europe remains a relatively underdeveloped renewable energy market compared to Western Europe, creating significant growth potential for EPC contractors.

4. Threats

Major threats affecting EPC firms typically include intense market competition, major equipment's supply chain disruptions, regulatory uncertainty, inflationary pressures and geopolitical instability. Rapid technological change may also threaten firms that fail to adapt their capabilities and business models.

In this study, SWOT functions as a framework of integration in which the internal organizational capabilities identified by the VRIO analysis are combined with the external competitive conditions interpreted through Porter's Five Forces. As a result,, SWOT

provides the strategic combination required for evaluating the competitive position of each case company.

2.7 Research Gap and Conceptual Framework

The renewable energy sector has gathered considerable academic attention recently due to its strategic global importance in supporting sustainable energy transition. Existing literature has already explored renewable energy legislation and policies, relevant project economics, technological innovation and market development (European Commission, 2022; IEA, 2023; IRENA, 2023). However, limited research is available regarding EPC firms as strategic organizations that need to sustain competitive advantage within a highly competitive and uncertain market conditions.

Additionally, previous studies often analyze either external environmental factors or internal organizational characteristics. Relatively few studies combine both perspectives in order to explain differences in competitive advantage and market performance among renewable energy EPC firms. In parallel, while individual company marker performance is available, there is limited evidence regarding how different EPC firms operating under similar market conditions develop alternative strategic approaches and competitive advantages.

Finally, a geographical gap is also identified. Although renewable energy investments have expanded significantly across Southeastern Europe, limited academic research has focused on EPC firms operating within this regional context. Consequently, there remains insufficient understanding regarding the organizational capabilities and strategic practices that contribute to competitive advantage among renewable energy EPC firms operating in this market environment.

To address these gaps a comparative multiple-case study approach involving three actual EPC firms is adopted. Through the combined application of external and internal environment analysis, the strategic resources, organizational capabilities and operational practices that contribute to sustained competitive advantage within renewable energy EPC firms are further identified and analyzed.

The findings generated through both external and internal analysis are then integrated, allowing a comprehensive assessment of the strategic position of each case-study organization. Through this process, the study seeks to identify the organizational capabilities

that contribute most significantly to competitive advantage within renewable energy EPC firms.

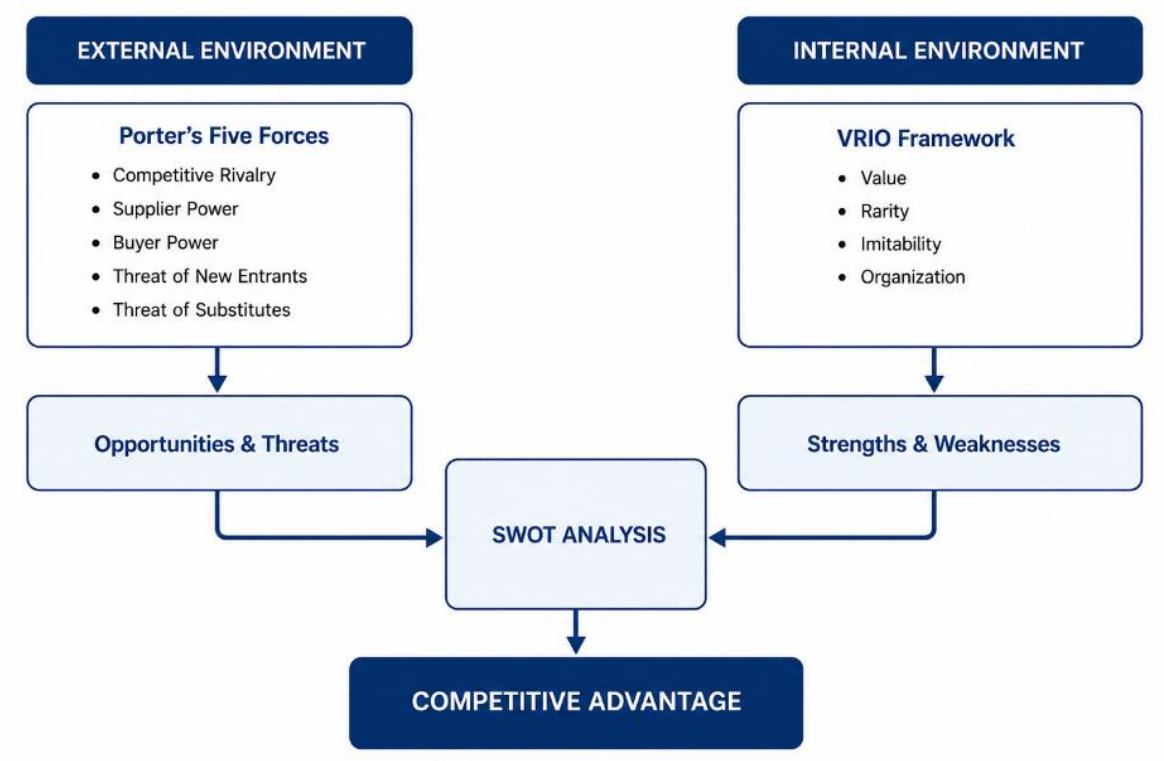

Figure 2: Conceptual Framework

3. RESEARCH METHODOLOGY

3.1 Introduction

In this chapter, the research methodology adopted for the study is examined, in order to investigate how EPC contractors in the renewable energy sector develop competitive strategies in Southeastern Europe. The data collection methods, case selection criteria and analytical tools used to address the research question are further specified.

Considering the objective of the research, a qualitative multiple-case study methodology was considered the most appropriate strategy to be followed. This approach enables a confident comparison of market strategies across competitive firms facilitating similar market conditions but exhibiting different organizational characteristics.

Understanding these strategies requires a research philosophy and approach capable of capturing internal capabilities and context-specific business realities. The methodology aims to ensure both academic consistency and practical relevance through ¸the use of multiple data¸ sources and ¸structured analytical frameworks that were discussed in the previous chapters.

The research philosophy, therefore, supports a wider understanding of how EPC firms react to market and operational risks. A comparative multi-case structure was selected, since it can provide a comparison between organizations operating within the same external conditions by indicating differences and similarities based on internal organizational characteristics.

The overall approach is conducted through three consecutive stages. The first stage describes the case study design and selection process. Eventually, three EPC companies were chosen for the analysis, based on predefined criteria related to organizational relevance, strategic variation and market positioning.

Secondly, primary and secondary data collection methods are introduced. The combination of data sources provided the evidence required to verify one source against another (Yin, 2018). Primary data were collected through semi-structured interviews with professionals directly involved in the renewable energy EPC sector.

Secondary data were collected from publicly available corporate and industry sources, including annual reports, sustainability reports, investor presentations, company websites,

project documentation and industry publications and were used to verify interview findings and provide objective evidence regarding organizational characteristics, financial capability and market position.

3.2 Case Selection Criteria

The selection of the EPC firms in which the analysis is based, followed what qualitative literature usually refers to as theoretical repetition logic. Instead of selecting random companies, the intend was to select organizations that exhibit both similarities and differences regarding strategic behavior and operational capability. Similarities between cases improve analytical comparability because all firms operate within the same industry and face comparable external environmental conditions. Differences, however, improve explanatory depth because they enable comparison regarding how organizations respond differently to similar market pressures and risks.

Three renewable energy EPC organizations were selected and are referred to throughout the study as Company A, Company B and Company C for confidentiality reasons. The selection of the participating organizations was based on the following criteria:

- EPC market involvement

All selected organizations are actively engaged in EPC activities within the renewable energy sector revolving with similar project requirements and are considered important market players. Additionally, all three firms are usually bidding for the same tenders in Southeastern Europe.

- Market Operation

All organizations maintain significant operational activities within Southeastern Europe. At the same time, the selected organizations operate across both regional and broader European industry dynamics. Each company's portfolio includes significant installation capacity in the area of interest.

- Data Availability

For each EPC firm, interview participants were easily identified through professional networks and there is sufficient publicly available documentation available to be analyzed, such as annual reports, sustainability reports and corporate publications about renewable energy project information.

- Internal structure differences

All three companies have different organizational sizes, geographical presence and strategic positioning. Based on the data available, business divisions, core functions and geographical regions could be integrated to further support internal function identification. This approach ensured that the selected cases were both information-rich and representative of the broader industry context.

The first case firm (**Company A**) is an established Greek contractor with significant regional experience in turn-key general infrastructure projects. It is part of a large subsidy operating mainly Greece and rest Southeastern Europe, undertaking also PV/BESS/hydro energy-related projects, with an installed capacity of 2.5GW under operation. The employees occupied in this company are approximately 6.150 worldwide and latest group-level annual revenue is €3.855bn.

The second organization (**Company B**) is a comparatively smaller German EPC company, acting as solely a renewable energy EPC specialist. Areas of operation include EMEA, APAC and Americas, with notable Southeaster European presence. The firm has installed over 7GW of renewable energy projects globally, with a standalone renewable revenue of €0.9bn and staff resources of 1.300 employees.

The third organization (**Company C**) was selected because it represents a larger and internationally present renewable energy group-firm operating across global energy and construction markets, originating from Greece. The firm owns an 11GW renewable global portfolio, operating in Greece, UK, Italy, Ireland, Australia, Chile, South Korea with multiple projects in Italy, Bulgaria, Croatia, Romania, owning 7.627 people in workforce. Its economic scale reaches a €5.683bn revenue.

These contextual characteristics allow the selected case organizations to satisfy the principle of information value, which is considered fundamental in qualitative case study research. The selected firms are suitable to provide organizational insight, essential to understanding competitive advantage.

3.3 Data Collection Methods

Data collection is one of the most important stages of this research because of the reliability and depth they can provide. Since competitive advantage within renewable energy EPC

firms is examined, it was necessary to adopt a data collection method that would enable the identification of the strategic dimensions of the industry.

Given the fact that market competition within renewable energy EPC firms derives from both internal organizational capabilities and external environmental conditions, neither available documentation nor interviews alone were considered sufficient. Thus, primary and secondary data were collected and analyzed in parallel, allowing empirical observations to be compared with publicly available corporate information.

Primary data was obtained through semi-structured interviews with professionals employed in the renewable energy EPC firms under examination. Interview data enabled investigation of internal resources and market conditions. In parallel, public data was used in order to verify interview findings while also providing additional information regarding each firm's market positioning. The integration of both sources enabled the examination of the way organizations describe their strategies publicly, but also how these strategies are interpreted by professionals involved.

3.3.1 Primary Data: Semi-Structured Interviews

Unlike highly structured interviews, semi-structured interviews allow participants to elaborate on their own operational experiences and strategic challenges in further detail (Saunders et al., 2023; Kallio et al., 2016). The interview participants were identified based on their professional experience within the renewable energy EPC sector. Initial contact was established via LinkedIn and corporate email addresses, providing participants with an overview of the research objectives and the expected duration of the interview.

The selection criteria for the interviewees were proven professional experience of minimum five years in the industry, with direct involvement in renewable energy projects and significant responsibilities, in order to ensure familiarity with EPC project execution.

To obtain a comprehensive understanding of organizational capabilities, interview participants were intentionally selected from different functional areas, including engineering, procurement, project management, business development, finance and senior management. All participants were asked the same questions, in order to ensure consistency across cases while simultaneously giving a glimpse into specific organization insights.

Below is the relevant table indicating the interviewee characteristics and the coding attributed due to confidentiality reasons:

Company	Position	Functional Area	Coding
Company A	Procurement Manager	Procurement	A1
Company A	Project Manager	Operations	A2
Company A	Technical Director	Engineering	A3
Company B	Engineering Manager	Engineering	B1
Company B	Project Delivery Lead	Operations	B2
Company B	Procurement Engineer	Procurement	B3
Company C	Business Development Manager	Operations	C1
Company C	Senior Procurement Representative	Procurement	C2
Company C	Head of Engineering	Engineering	C3

Table 2: Interview Participants profiles

The interview protocol was based on the conceptual frameworks presented in previous chapters. The themes were therefore developed by incorporating the selected strategic management frameworks into practical discussion topics, subsequently forming questions regarding internal capabilities and market competition.

The interview structure that was followed for this case study is presented below:

- **Professional Background**

1. What is your current role within the organization you are employed?
2. How many years of experience do you have in general in the renewable energy sector?
3. What types of EPC projects does your organization usually execute?
4. What are the main responsibilities within your position during a project's execution?

- **External Environment**

1. What are the main external factors currently affecting an EPC contractor?
2. How have recent global and market developments influenced EPC project execution?
3. What operational challenges are currently most significant within your firm?
4. In what operational and economical scale would you appoint the company you are occupied?
5. At which level do you think your company is considered an important EPC contractor in the renewable energy market?
6. How do relationships with suppliers influence project execution and your company's competitiveness?

- **Internal Organizational Coordination**

1. What organizational factors influence mostly successful project execution?
2. How important is the coordination between internal functions during project execution?
3. What communication or coordination challenges are commonly encountered between internal functions?
4. What are the most common causes of delays?
5. How does your organization manage delivery risks during project execution?
6. Which organizational capabilities are most difficult for competitors to imitate?

- **Competitive Advantage**

1. Which factors seperate highly competitive EPC companies from their competitors?
2. Which capabilities stakeholders value the most when selecting an EPC contractor?
3. How important are experience, reputation and execution reliability during tendering phase?
4. In your opinion, what differentiates highly competitive EPC organizations from rest competition?

Interviews were conducted either through virtual meetings or email communication depending on participant availability. Immediately following each interview, notes were reviewed and expanded to improve accuracy and minimize information loss.

3.3.2 Secondary Data: Document Analysis

In addition to primary research, secondary data sources were used to further support the analysis. Secondary data refers to information that has been published, or documented organizations, institutions or industry participants. The use of secondary data is particularly important because the renewable energy EPC sector is heavily influenced by market developments. Those developments are implemented in industry-level information and when extracted and analyzed can provide an insight into a firm's strategic analysis.

Secondary evidence used in this dissertation included:

- Annual reports
- Corporate websites
- Press releases
- Publicly available information from professional networking platforms.

4. Data Analysis Methods

The purpose of the data analysis process is to transform the collected primary and secondary data into findings capable of addressing the research objective. Since the study examines market competition and relevant advantages, this process focuses on identifying frequent strategic patterns, as well as organizational differences across the selected case studies.

4.4.1 Stage One: Within-Case Analysis

Consistent with Yin (2018), the primary data analysis was conducted in two consecutive stages. The first stage consisted of within-case analysis and examined each company-case independently in order to identify its organizational capabilities. Interview feedback belonging to each EPC firm was transcripted separately in order to understand the company's internal organizational characteristics. This process allowed the research to distinguish between organizational capabilities that are company-specific and competitive conditions that influence all renewable energy EPC firms operating within the same market.

Based on the answers received, specific statements relevant to the research objectives were identified and assigned specific codes (Braun & Clarke, 2006). The coding process conducted initially remained inductive until several repetition rounds pointed out constant patterns. After all interviews belonging to the same company had been coded, similar codes were grouped into broader analytical categories representing recurring organizational practices.

The categories were eventually combined into wider organizational themes describing the principal internal capabilities of each EPC company that contribute to competitive advantage. At this stage, particular emphasis was given to ensure that analytical themes remained connected with organizational evidence rather than coming out solely from theoretical assumptions. As a result, recurring patterns were considered significant only when supported by multiple evidence sources, including both interviews and strategic frameworks. First stage analysis example is given through the below table:

Interview Question	Participant	Answer	Code	Category	Organization Capability
What are the most common causes of delays?	A1	*"The biggest challenge today is obtaining medium voltage switchgears on time"*	Equipment availability	Supply chain vulnerability	Procurement Capability
What communication or coordination challenges are commonly encountered between internal functions?	A2	*"Procurement is involved during engineering phase, reducing the risk of equipment mismatches"*	Early procurement involvement	Procurement integration	
How does your organization manage delivery risks during project execution?	A3	*"Long-term supplier agreements improve lead times"*	Supplier relationships	Supplier management	

Table 3: Procurement Capability explanation

The within-case analysis resulted in the classification of six organizational capability themes, based on the VRIO framework examined prior:

- Procurement Capability
- Technical Expertise
- Project Execution Capability
- Stakeholder Coordination
- Financial Strength

The themes identified describe the factors that affect project performance and competitive advantage within each case company. At this stage, the objective was to understand each organization independently.

In order to verify the interview findings, secondary data is examined per company in order verify organizational characteristics and of course market positioning. Apart from general public information, annual reports available for each company (FY2024) were used. For convenience reasons, the following table with quantitative data was extracted:

Indicator	Copany A	Company B	Company C
Revenue (€bn)	3,252	0,446	5,683
EBITDA (€m)	631.4	N/A*	1.080
Net Profit (€m)	818	25,6	615
Employees	7.200	1.200	7.600
Countries of operation	>10	16	>40
Renewable energy portfolio (GW)	>2.5	34 *(development pipeline)*	>12

Table 4: Comparative Corporate Profile

Note: *Financial indicators refer to consolidated Group results for the financial year 2024. Renewable portfolio refers to either operational capacity or development pipeline, as reported by each company. Employee figures represent the total number of Group employees at year-end.*

4.4.2 Stage Two: Cross-Case Analysis

Following the completion of the within-case analysis, a cross-case analysis was conducted in order to identify external competitive conditions that were highlighted by interview participants across the three EPC firms. Unlike the within-case analysis, which focused on company-specific organizational capabilities, this type of analysis was utilized in order to identify market conditions commonly experienced across the market.

Initially, interview responses from participants employed by the firms under examination were complemented, in order to identify recurring patterns regarding market competition, and industry developments. Then, the patterns observed were categorized under significant external competitive environment dimensions, as those derived from Porter's Five Forces analysis.

Since all case companies operate within the same market, the patterns were identified as per the example below:

Interview Question	Interview Findings	Interview Pattern	External Competitive Dimension
What are the main external factors currently affecting an EPC contractor?	Supply chain disruptions, inflation, financing conditions, increasing competition, client expectations	Market uncertainty and increasing competitive pressure	General competitive environment
How have recent global and market developments influenced EPC project execution?	Equipment shortages, longer lead times, higher material costs, project delays	Increasing supplier dependence	Supplier market conditions
How have recent global and market developments influenced EPC project execution?	Many new requirements for project execution	Increased Client expectations	Client dependency

Table 5: External Environment analysis

To further strengthen the credibility of these findings, the recurring interview patterns were compared with documentary evidence obtained from the companies' annual reports. If verified, then those pattens were attributed to the external environment competition of Porter's dimensions: competitive rivalry, buyer and supplier power, threat of new entrants and substitutes.

4.4.3 Stage Three: Strategic Integration

Following the completion of the within-case, cross-case analyses, as well as the triangulation of interview findings with documentary evidence for each case, the strategic integration of the empirical findings is followed for all companies under examination in order to identify factors of competitive market advantage.

The internal dimensions derived from the organizational capabilities identified during the within-case analysis and verified through documentary evidence, are further evaluated with the use of a VRIO framework in order to determine their contribution to sustained competitive advantage per each company under investigation.

On the other hand, the external dimension analysis coming from competitive market conditions identified during the cross-case analysis and verified from secondary data are interpreted using the Porter's Five Forces framework, so as to evaluate the competitive environment surrounding renewable energy EPC contractors.

Eventually, using the SWOT framework, the resulting strengths, weaknesses, opportunities and threats will empirically verify organizational characteristics and industry-level conditions consistently identified across the three case companies, further supported by documentary evidence.

Finally, the identification of the strategic advantages and challenges will provide the basis for discussing how different combinations of internal resources and external market conditions can contribute to the development and maintenance of competitive market advantage.

5. DATA ANALYSIS

5.1 Introduction

Firms operating within the renewable energy EPC sector are required to manage intensified competitive pressure, while maintaining execution reliability and project profitability. As a result, understanding competitiveness requires the combined examination of external market conditions along with the internal organizational functions that enable firms to respond strategically to such stressing conditions.

The combined factors highlighted from the empirical analysis are further verified by the integration between empirical findings and documentary sources for each company. These factors are then analyzed through established strategic frameworks including Porter's Five Forces, VRIO and SWOT, in order to improve consistency and theoretical alignment.

Thus, the findings presented in this chapter derived through triangulation between interview evidence and secondary documentary data available. Interview material contributed primarily to understanding organizational capabilities and strategic priorities, while secondary evidence was used to validate recurring themes and public company-level findings within the market.

Overall, the purpose of this procedure is not only to describe organizational characteristics but also to explain how specific capabilities contribute to competitive advantage within renewable energy EPC market.

5.2 Within-Case Analysis

5.2.1 Case-companies internal capabilities analysis

5.2.1.1 Company A

Interview findings suggest that Company A demonstrates relatively strong capability in coordinating technically complex renewable energy projects which involve multiple suppliers, subcontractors and project developers.

Company A operates through an organizational model characterized by strong coordination between engineering, procurement and construction functions. Interview evidence suggested this coordination helps to reduce project delays, improve risk predictability and strengthen the company's reliability.

In particular, procurement activities appear to be initiated early within project planning processes. Interview A1 suggested that procurement personnel frequently become involved during the engineering phase in order to identify long lead-time equipment requirements, supplier bottlenecks and relevant risks before construction begins. This early procurement involvement seems to reduce uncertainty and improve schedule reliability, particularly during periods characterized by supply chain disruptions and equipment shortages.

Regarding procurement capability, available data from the annual report indicated that company A can be considered a large EPC contractor with a significant number of infrastructure and renewable projects, international operations, well-established supplier network and strong financial resources. Although the report does not directly measure procurement performance, the scale of the firm's projects suggests a mature procurement function capable of coordinating procurement services and managing strategic supplier relationships. Thus, interview findings indicating early supplier involvement, presence of framework agreements and efficient procurement planning can be fully supported.

Technically speaking, effective project execution appears very dependent on technical knowledge Interview analysis suggested that maintaining smooth project execution requires close communication with the technical department to minimize any disruption caused by technical complications and improve reaction to relative unexpected issues.

In terms of technical Expertise, the annual report mentions a wide renewable portfolio including international complex infrastructure projects. As a result, the report demonstrates extensive engineering capabilities and accumulated technical knowledge developed through the project execution. These findings support interview evidence describing technical expertise as a core competitive capability.

On project execution capability, interview participants pointed out execution capability as one of the company's strengths. According to the interviewees, successful project delivery depends on effective planning, early involvement of key departments, proactive risk management and continuous technical monitoring throughout the entire project infrastructure. Execution reliability was repeatedly mentioned as an important factor of client satisfaction and company's ability to secure future portfolio.

The secondary data supports these findings by the company's extensive project execution experience and operational scale. According to the annual report, the firm's group maintains

one of the largest infrastructure and renewable energy portfolios in Southeastern Europe, with a significant construction backlog and numerous large-scale projects under execution across multiple business sectors. As a result, the firm's experience, combined with its ability to manage multiple large-scale projects, suggests that execution reliability contributes significantly to sustaining competitive advantage.

With regards to stakeholders' coordination, interview participants highlighted that effective stakeholder management is essential throughout the whole execution of renewable energy EPC projects. The importance of maintaining internal collaboration while ensuring effective communication with clients, subcontractors and suppliers reduces project execution risks, improves decision-making and contributes to less delays on project delivery.

Unlike financial or operational indicators, stakeholder management cannot be directly verified through documentary evidence. Nevertheless, the organizational complexity that is notable in the annual report supports interviews suggesting that effective stakeholder coordination poses as an important organizational capability. Also, mutual agreements published through professional networking platforms (LinkedIn), strongly indicate a stable client-list for renewable energy infrastructure.

Finally, interviewees consistently described financial strength as a significant competitive advantage within the renewable energy EPC sector. As explained, strong financial funding, also possible as part of the parent company scheme, supports procurement flexibility and capability to participate in large-scale projects bidding. It was also noted that financial stability increases stakeholders' confidence and strengthens the organization's market reputation.

Based on the annual report and the relevant financial indicators, the company reported revenue that exceeds €3,2bn, EBITDA of approximately €631m and net profit, attributable to shareholders, of approximately €818m. These indicators demonstrate the company's ability to finance significant renewable energy investments while supporting long-term operational growth.

5.2.1.2 Company B

Company B seems to adopt different organizational structures, relying more on flexibility and adaptability as operational mechanisms. Interview evidence suggested that Company B demonstrates strong capability in managing project-specific operational challenges through

closer communication between departments and more direct managerial involvement. Unlike larger organizations characterized by greater structural complexity, the firm appears capable of reacting more rapidly to decision making around engineering modifications, procurement disruptions or project execution changes.

From procurement capability perspective, interview participants mentioned that procurement activities focus primarily on equipment's technical compatibility and is not considered as a proactive planning necessity. Due to the company's renewable energy specialization, procurement planning is based on flexibility and continuous collaboration with equipment manufacturers but limited to project actual needs.

This is further supported by available secondary data, since this EPC firm operates exclusively within renewable energy EPC activities across the Southeastern European market. The annual report highlights an important infrastructure pipeline through construction backlog numbers, as a result, the findings suggest that procurement capability is mainly supported more by sector specialization, rather than volume.

On technical grounds, interviewees described engineering expertise as the company's principal competitive advantage. They emphasized technical specialization and accumulated experience in renewable energy technologies as significant qualifications for the company's personnel. The company invests constantly on training the engineering department in new technologies and design optimization. Staff occupied in the company have significant experience in the EPC market and both this and procurement division consists of certified engineers.

From the available company reports, a portfolio exceeding 30 GW, operations in more than 16 countries and occupancy of more than 1.200 specialized employees further indicate that technical expertise represents the company's primary organizational capability.

Company B executes projects through a lean organizational structure characterized by close interaction between internal functions. Interview findings consistently indicated that execution flexibility constitutes one of the company's most important operational characteristics. Internal functions maintain direct communication without following formal kind of communication protocols, enabling faster escalation and resolution of project-related challenges. Such communication efficiency appears particularly valuable in renewable energy EPC projects where project conditions may change rapidly.

Execution capability is indirectly supported through evidence of renewable energy experience accumulated rather than general operational scale. More specifically, from the annual report, specialty in thousands of renewable projects with international delivery reported further prove significant renewable market experience.

Regarding stakeholder management, interview analysis highlighted close collaboration with all parties involved throughout the whole project development. A dedicated department handling relevant communication is part of the company's core functions, in order to maintain smooth communication and resolve potential disputes effectively and on time.

Again, since this type of management is not easily identified by the annual report, publicly observed stakeholder dialogue and socially available project engagement further supports interview findings on effective stakeholder management as a factor of successful project development.

On financial terms, interview participants mentioned that financial performance is important but considered technical expertise more important, when compared with organizational size in order to achieve market competitiveness.

Company's B revenue exceeded €440m, limited compared to the other firms under examination. Thus, while financial capability seems to support project development, competitive advantage depends heavily on technical specialization than financial resources.

5.2.1.3 Company C

Initially, interview evidence suggested that procurement activities are highly integrated into internal processes. Interview findings specifically suggested that supplier engagement is typically based on large framework agreements with suppliers, particularly for long lead-time equipment. Additionally, Company C appears to maintain strong supplier relationships supported by significant order volumes, mainly guaranteed by company bonds. Compared to smaller organizations schemes under examination, there is a strong present of pricing negotiation capability, equipment allocation priority as per pipeline needs and contractual predictability.

The relevant annual report demonstrates substantial financial resources, expanded internal operations and an extensive international renewable energy portfolio. The company continues investing heavily in energy infrastructure while maintaining strong supplier

relationships. The diversified business model and purchasing scale observed provides significant procurement leverage, further supporting interview findings that procurement capability contributes to execution reliability.

Regarding technical expertise, interviewees explained that engineering teams work closely with rest departments throughout the whole project lifecycle, ensuring technical consistency while reducing infrastructure risks. Continuous learning from past projects experience, as part of the lessons-learned tactic, is considered an important mechanism for improving engineering quality.

The available integrated annual report demonstrates engineering capability through its diversified renewable energy portfolio and integrated energy business model. The report also highlights the scale of renewable activities, which can be considered a significant technical capability that contributes directly to market competitiveness.

Project execution within Company C appears highly protocoled and dependent upon standardized operational procedures. Interview participants highlighted the importance of typicality regarding operational systems, structured communication processes and clearly defined responsibilities. This type of systemization appears to improve execution consistency, particularly when multiple projects are executed simultaneously across the area under investigation. However, interview findings also revealed that a larger organizational structure occasionally creates coordination complexity. Due to multiple departments and approval requirements, urgent operational decisions may require greater internal alignment. As a result, although Company C demonstrates stronger institutional capability, responsiveness may occasionally be slower compared to smaller and more agile organizations.

The secondary data evidence further supports the above statements. According to the annual report, the company maintains one of the largest renewable energy portfolios among the selected case companies and demonstrates expansion into the renewable market of Southeastern Europe, indicating adequate operational capacity for managing large-scale EPC projects.

Stakeholder coordination was indicated from the interviews' analysis as an important organizational capability for the execution of renewable energy projects. Effective collaboration with clients, equipment suppliers, subcontractors, consultants and grid

operators aids to project uncertainty minimization, rapid decision-making facilitation and overall project performance improvement.

As indicated also with the other EPC firms under examination**,** although stakeholder coordination cannot be directly measured through quantitative indicators, the annual report provides considerable supporting evidence. The report highlights the company's diversified structure, which requires effective coordination between multiple external stakeholders. The report also points out collaboration with governments and financial institutions, both essential components of the company's competitive strategy.

Financial group strength of the firm is considered by the interviewees the most significant competitive advantage. Strong financial performance provides procurement flexibility and enables the organization to be awarded and execute multiple large-scale EPC projects simultaneously. Financial stability was also considered essential for maintaining stakeholder confidence, increasing competitiveness during tendering stages.

Secondary data evidence provides strong support for these findings. According to the annual report, the company's reported revenue of approximately €5,68bn, an EBITDA exceeding €1,08bn, and net profit of shareholders of approximately €615m during the reporting period further demonstrates the strongest liquidity of the companies under examination, reflecting considerable financial strength and investment capacity.

5.2.2 VRIO Interpretation

The VRIO framework was structured around interview findings due to the analysis focus on internal capabilities and operational practices of a firm that are not totally evident and easy extract through secondary sources. Secondary data was used mainly as an organizational background and market positioning support.

5.2.2.1 Company A

The company's procurement capability is considered strongly valuable because it supports effective project execution. Its well-established supplier network makes it also relatively rare among EPC contractors. While procurement processes can be imitated, the company's long-term supplier relationships increase the difficulty of repetition. The procurement function is fully integrated within organizational schemes, indicating that the capability is effectively organized, but temporary to sustain competitive advantage.

Engineering expertise is a valuable internal capability, enabling the successful execution of complex EPC projects. The accumulated organizational knowledge, based on past project experience, makes complete imitation difficultly achieved. The company's organizational structure contributes sustainably to this function through integrated engineering processes.

Based on the proven successful past project delivery, project execution capability is one of the firm's strongest organizational resources. Experience in managing large infrastructure projects, together with a significant construction backlog, demonstrates a valuable and relatively rare capability, difficult for competitors to replicate, while established project management systems ensure effective organizational support.

Stakeholder coordination is valuable because it facilitates communication with external project parties and improves projects' execution efficiency. Although coordination mechanisms exist across the industry, the firm's communication practices further reinforce their effectiveness. Thus, this capability can be considered organized and contributes to operational performance, although less rare than the other strategic resources.

Financial strength represents a highly valuable organizational resource, since the infrastructure group provides the necessary investment capacity, procurement flexibility and resilience during wider market uncertainty. The group's financial position and, as a result operational scale, are relatively rare within the renewable EPC sector and difficult for smaller EPC companies to imitate. The company's financial management is effectively organized to support long-term competitive market performance.

5.2.2.2 Company B

Company B competes with large-scale EPC firms through operational flexibility and adaptive project coordination. Due to smaller operational scale, the company experiences stronger pressure to stand out through agile project adaptability. Interview findings indicate that flexibility constitutes one of the firm's primary competitive advantages.

In parallel, procurement activities within Company B appear to be comparatively less formalized than those observed in other companies under examination. Due to smaller volumes and minimized purchasing capability, the organization appears more dependent on other internal resources.

Relevant findings suggested that Company B makes up for comparatively weaker procurement advantage through engineering adaptability. The company's extensive

specialization in the sector and relevant accumulated engineering knowledge make this capability both valuable and rare. Continuous sector experience increases the difficulty of imitation, while the firm's engineering-oriented business model effectively supports the development of this capability.

Execution capability is valuable because it enables the successful delivery of renewable energy projects, even though the company operates at a smaller organizational scale than the rest companies under evaluation, standardized project processes and accumulated past project experience strengthen relevant performance. This capability is organized and contributes significantly to competitive positioning.

The company's established stakeholder engagement practices support project development and compliance. Although not particularly rare, these coordination mechanisms are effectively included within organizational processes.

Financial strength provides a valuable resource for project development support and organizational growth. However, when compared with large-scale market players, this capability is less rare and offers fewer resistance to imitation. As a result, competitive advantage of this firm depends more on technical expertise than financial resources.

5.2.2.3 Company C

Procurement capability is one of the EPC firm's strongest strategic resources. Its substantial purchasing power, supplier network and early procurement integration create a valuable capability that improves execution supply chain resilience. The specific procurement operation dynamics and the resulting long-established supplier relationships are rare within the renewable sector and difficult for competition to imitate. The capability is fully integrated into organizational processes, indicating effective exploitation.

Technical Expertise of course is valuable, and the integration of extensive past and future project experience makes this capability relatively rare and difficult to imitate. Also, the technical expertise is effectively utilized throughout the whole project execution.

Execution capability is a major source of competitive advantage for company C. The company's ability to simultaneously deliver large EPC projects demonstrates a highly valuable capability supported by extensive organizational experience and standardized policies and procedures, a situation that is relatively rare and increases barriers to imitation.

Although stakeholder management is common among EPC contractors, this firm's organizational complexity and global operations require dedicated coordination procedures, which are effectively supported through project management systems.

Financial strength is the company's most significant strategic resource. Strong revenue generation and investment capacity supports rest internal functions. The company's financial scale is relatively rare within the renewable EPC industry and difficult for many competitors to imitate.

Comparative findings after the VRIO analysis can be found below, with "High" indicating a strongly demonstrated characteristic, "Moderate" indicating an evident but not dominant factor and "Low" the dimension with the most limited evidence:

Internal Capability	Company	Valuable	Rare	Inimitable	Organized
Procurement Capability	**A**	High	Moderate	Moderate	High
	B	High	Low	Low	High
	C	High	High	High	High
Technical Expertise	**A**	High	High	Moderate	High
	B	High	High	High	High
	C	High	High	Moderate	High
Project Execution Capability	**A**	High	High	High	High
	B	High	Moderate	Moderate	High
	C	High	High	High	High
Stakeholder Relationships	**A**	High	Low	Low	High
	B	High	Low	Low	High
	C	High	Moderate	Moderate	High
Financial Capability	**A**	High	High	Moderate	High
	B	High	Low	Low	High

	C	High	High	High	High

Table 6: Comparative VRIO Assessment of Internal Organizational Capabilities

5.3 Cross-Case Analysis

The cross-case analysis aimed to identify recurring external competitive conditions affecting renewable energy EPC contractors operating in Southeastern Europe. Unlike the within-case analysis, which examined the internal organizational capabilities of each individual company, the cross-case analysis focused on identifying common market conditions emerging across all interview participants regardless of the organization they represented.

Initially, interview responses from all participants were complemented in order to identify recurring patterns regarding market competition, supplier relationships, customer expectations and industry developments. These recurring patterns were subsequently triangulated using publicly available documentary evidence. Only the conditions consistently identified by both interviews and documentary evidence were considered representative of the external competitive environment. Finally, the verified findings were interpreted using Porter's Five Forces framework.

5.3.1 Competitive Rivalry

The analysis demonstrated intense industry rivalry within the renewable energy EPC sector. All companies operating in Southeastern Europe compete against international contractors, which is quite tough considering the aggressive project bidding, the declining economic margins and, of course, the increasing market participation.

Interview participants from all three organizations consistently described the renewable energy EPC market as increasingly competitive. The majority explained that competition is getting intensified, resulting in greater pricing pressure and increased focus on execution reliability. It was further highlighted that stakeholders tend to evaluate EPC contractors based not only on offered price but also on technical and delivery performance, as well as past project experience.

The secondary data evidence further supports these findings. Company A's annual report highlights continued growth of its construction backlog and renewable investments despite the current competitive market conditions. Company B's 34GW renewable development portfolio indicates the increasing number of market participants. Similarly, Company C

identifies expansion and renewable investment as strategic priorities while acknowledging growing competition within global renewable energy markets. Competitive pressure remains high; however, market reputation provides very strategic protection for the firm. Collectively, the three reports demonstrate that increasing market competition is a common characteristic of the renewable EPC industry. Rather than sustaining existing market positions, all three organizations are expanding their renewable activities, indicating intense competition for future renewable EPC projects.

5.3.2 Bargaining Power of Suppliers

Across all interviews, procurement uncertainty and equipment availability were reported as significant operational challenges. Long lead times for standardized electrical equipment, increasing material prices and dependence on specialized manufacturers were expressed as significant risks affecting project execution. Several participants also pointed out the growing importance of establishing long-term supplier relationships, as a proactive strategy to improve delivery reliability. Interview findings suggested that project complexity occasionally creates resource constraints, particularly when multiple projects must be executed simultaneously or when procurement delays require additional coordination effort.

Procurement capability, as a result, increasingly functions as a strategic necessity rather than a supporting operational activity. Due to supplier concentration and lead-time uncertainty, firms capable of maintaining strong supplier relationships appear better positioned to maintain execution reliability and cost predictability.

Corporate announcements on supplier agreements and relevant industry reports of all three companies identify supply chain risks, inflation of basic raw materials and procurement disruptions as important market challenges. Company A discusses equipment availability affecting procurement planning and eventually successful project execution. Company B reports increasing procurement complexity associated with renewable technologies. Company C identifies supplier management and supply chain resilience as important operational priorities across its EPC portfolio. So, the same procurement challenges are common in all three organizations.

5.3.3 Bargaining Power of Buyers

Interview participants consistently reported that stakeholders demand higher quality execution based on demanding infrastructure standards, stronger technical capabilities,

shorter project execution periods and lower prices. Many interview answers explained that execution reliability and previous project experience have become decisive selection criteria during competitive tendering awarding procedures.

The available customer success stories emphasize integrated EPC solutions promising customer satisfaction, project execution excellence, quality assurance and long-term client relationships as strategic policies. All three organizations highlight continuous improvement initiatives aimed at increasing customer value while maintaining competitiveness. The strategic emphasis on stakeholders' satisfaction demonstrates increasing buyer expectations.

5.3.4 Threat of New Entrants

Participants generally agreed that successful market entry requires substantial capital, experienced engineering resources, reputation and proven project execution capability. Interviewees explained that obtaining client confidence in successfully delivering complex EPC projects requires significant organizational knowledge accumulated over many years of renewable energy market experience.

The available documentary evidence, based on revenues, corporate websites and years of market experience supports these perceptions. The three companies may demonstrate differences in organizational scale, extensive renewable pipelines and capital; however, it is verified by the annual reports that all firms demonstrate constant organizational growth, sustaining extensive renewable portfolios, indicating that considerable organizational capabilities are necessary for successful market participation, creating substantial barriers for new competitors. As a result, although renewable energy markets continue to expand, organizational experience is limiting successful entry into the renewable EPC industry.

5.3.5 Threat of Substitutes

On this dimension, interviewees described continuous technological development as both an opportunity and an operational challenge. Respondents highlighted technologies updates and innovative engineering solutions as increasingly important factors influencing market competitiveness.

Investor presentations regarding BESS/hybrid/hydrogen projects consistently identify technological innovation as a strategic priority. Continuous investment in renewable energy solutions demonstrates that technological evolution remains an important proof of organizational development throughout the renewable EPC sector. Technological

innovation is reshaping how EPC contractors compete, but it is transforming the industry rather than replacing EPC services altogether.

Below is the summarized industry assessment:

Porter's Force	Overall Assessment	Implications for Renewable EPC Contractors
Competitive Rivalry	**High**	EPC firms must sustain low budget along with successful project delivery in order to maintain competitiveness
Bargaining Power of Suppliers	**High**	Procurement capability is an important strategic company resource supporting project execution and reducing operational risk
Bargaining Power of Buyers	**High**	Competitive advantage depends upon market reputation and history of successful project execution rather than just price
Threat of New Entrants	**Low**	Capital support, accumulated expertise and organizational experience create significant barriers to entry the renewable market
Threat of Substitutes	**Moderate**	Continuous technological innovation requires EPC firms to adapt their service capabilities

Table 7: Comparative Porter's Five Forces Assessment of the Renewable Energy EPC Market

5.4 Strategic Integration

SWOT analysis was developed through the results of the integration of the VRIO (internal) and Porter's (external) analyses, appearing as a matrix, summarizing each company's overall strategic position through strengths, weaknesses, opportunities and threats.

5.4.1 Company A

Strengths	**Weaknesses**
Strong project execution capability supported by extensive accumulated experience in general infrastructure	Lower specialization in renewable energy compared with pure renewable developers
Well-established procurement processes and long-term supplier relationships	Organizational complexity due to diversified business activities
Parent company established financial position enables investment in many projects	Decision-making processes may be slower due to organizational complexity
Opportunities	**Threats**
Growing Southeastern European renewable energy investments	Intense competition from international EPC contractors
Sustained relationship with stakeholders for new project acquisition	Supply chain disruptions along with increased procurement costs due to inflation and equipment shortages
Expansion into international renewable markets	Increasing client expectations regarding cost and technical innovation

Table 8: Company A SWOT Matrix

The SWOT analysis indicates that Company A's competitive position is primarily supported by its proven general project execution capability and financial stability. Secondary data evidence exhibits investment growth, while interview participants consistently highlighted execution reliability as the company's principal strengths.

Although the firm operates within the same highly competitive external environment as the rest case-companies, its competitive market advantage seems to mainly derive from the ability to deliver technically complex projects while maintaining operational reliability. However, the increasing pressures of EPC market competition, procurement of equipment

uncertainty require continuous improvement of procurement planning and general execution efficiency.

5.4.2 Company B

Strengths	**Weaknesses**
High level of market and technical specialization	Smaller financial capacity than rest EPC firms
Extensive renewable project pipeline	Limited procurement capability
Flexible organizational structure supporting quick responses	Greater dependence on successful project development and sales
Opportunities	**Threats**
Growing Southeastern European renewable energy investments	Increasing competition from large integrated EPC companies.
Increasing market demand for specialized renewable developers.	Supply chain disruptions along with increased procurement costs due to inflation and equipment shortages
Growth of international renewable markets.	Increasing client expectations regarding cost and technical innovation.

Table 9: Company B SWOT Matrix

Company B's SWOT analysis indicates that its competitive advantage is considerably different from the other case-companies. Interview participants consistently identified engineering capability and focus on market specialization as the organization's most important strengths against competition. This is further supported by publicly available information indicating the largest project portfolio, compared with the rest EPC firms under examination and a business model relaying entirely on renewable energy infrastructure.

Despite operating with less capital than competition, the company earns it market position through technical specialization and flexible organizational structure. As a result, its competitive market advantage is primarily based on the know-how rather than group scale operation.

5.4.3 Company C

Strengths	Weaknesses
Strong project execution capability supported by market reputation and extensive accumulated experience in general infrastructure	Lower specialization in renewable energy compared with pure renewable developers
Strong procurement capability supported by purchasing power and framework agreements	High organizational complexity due to diversified business activities.
Parent company significant financial position enables investment in numerous projects	Decision-making processes are slower due to organizational complexity
Opportunities	**Threats**
Growing Southeastern European renewable energy investments	Intense competition from international EPC contractors
Significant sustained relationship with stakeholders for new project acquisition	Mild supply chain disruptions along with increased procurement costs due to inflation and equipment shortages
Expansion into international renewable markets	Increasing client expectations regarding cost and technical innovation

Table 10: Company C SWOT Matrix

The SWOT analysis indicates that Company C has the strongest combination of internal resources such as financial, procurement capability and engineering capabilities among the three case companies. Interview participants consistently highlighted procurement capability, financial flexibility and integrated project execution as the company's principal competitive strengths, all supported by financial indicators.

The combination of substantial financial capacity and integrated EPC capabilities enables the company to respond effectively to external pressures identified. Still, the company

remains exposed to the same market challenges affecting also the rest renewable EPC contractors.

5.4.4 Comparative Strategic Conclusion

Based on the above, the SWOT analyses demonstrate that even though EPC firms operate within the same external competitive environment and face the same external market conditions indicated in the cross-case analysis, their strategic positions differ according to the internal capabilities identified through the within-case analysis.

Company A's competitive advantage is mainly associated with project execution reliability and wider infrastructure experience, Company B competes by investing in market specialization and renewable energy expertise, while Company C relies on financial strength, procurement capability and integrated EPC operations.

As a result of the above , the research findings suggest that competitive advantage within the renewable energy EPC sector is not determined by differences in market conditions but by the capability of individual firms to understand and exploit the relevant internal strategic resources that would be better utilized as a response to commonly faced market pressures.

6. DISCUSSION OF FINDINGS

The objective of this study is to evaluate the results of the case study analysis and understand how EPC companies, operating in the renewable energy market of Southeastern Europe, develop and sustain competitive advantage.

The discussion focuses on the interaction between external market conditions (identified through the cross-case analysis and further discussed using Porter's Five Forces framework), internal organizational capabilities (identified through the within-case analysis and interpreted through the VRIO framework) and resulted strategic positioning choices (as integrated by SWOT method). The analysis demonstrated that obtained competitive advantage in the renewable energy EPC sector is deriving from a complex combination between external competitive conditions, internal organizational capabilities and the required strategic adaptability to sustain competitive advantage. The findings indicate that successful EPC firms develop competitive advantage by developing strategic methods around their strongest organizational capabilities while sustaining these capabilities under external market conditions.

Across all cases of the EPC firms examined, the findings suggested that competition in the EPC sector extends beyond better pricing. Although cost competitiveness remains essential, stakeholders increasingly evaluate and eventually award EPC contractors based on execution reliability, technical and procurement qualifications as well as past project experience. This was consistently reported across the majority of all interview participants and was further supported by documentary evidence. Thus, the EPC renewable energy industry cannot be characterized as a solely price-driven market. Instead, competitive advantage depends on a combination of operational efficiency and differentiated organizational capabilities.

In Southeastern Europe, the external environment is characterized mainly by regulatory complexity and unpredictable market experience levels. As a result, companies capable of adjusting fast to changing market conditions can sustain more effective competitiveness, even if they are classified on a different operational scale compared to competition.

In parallel, the research also revealed the concerns of price-based competition. EPC firms focusing exclusively on low pricing may face increased exposure to project execution risks and eventually margin loss. As a result, cost leadership on its own does not appear sufficient

to sustain long-term competitive advantage, since stakeholders will often prioritize execution reliability over minimized project cost.

Another important finding of the study is the fact that EPC firms rarely follow a single strategy for competitive advantage. Instead, most companies adopt strategic approaches combining differentiation and market specialization. This observation partially extends Porter's framework regarding the risks of being "stuck in the middle." In the EPC renewable energy sector, hybrid strategies appear not only viable but often necessary.

This further supports the theory argument that sustainable competitive advantage often arises from valuable organizational resources rather than purely physical assets. Furthermore, the research demonstrated that firms capable of effectively integrating these resources achieve stronger strategic positioning.

Procurement capability, project execution capability and technical expertise are assets considered valuable if effectively organized within am EPC firm. However, the rarity and inimitability of these capabilities varied according to each company's strategic position, further suggesting that competitive market advantage is determined not only by the operation of internal functions but also by the firm's ability to utilize them effectively. Consequently, organizations competing in the same market are able to achieve advantage based on how effectively they align their internal capabilities with external market conditions.

The general finding of this study has a major implication for firms operating in the renewable energy EPC sector in Southeastern Europe. EPC firms should avoid relying exclusively on cost-based competition but rather invest in the internal capabilities, while adapting these capabilities to changing market conditions. This strategy appears to be the main approach through which sustainable competitive advantage can be achieved within the renewable energy EPC sector.

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