

Internationalization Processes of Local Enterprises: The Case of Kalyon PV¹

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Abstract

This study investigates how locally established businesses expand into international markets and transform into international enterprises. The internationalization process of Kalyon PV has been analyzed in depth. In this process, a qualitative interview was conducted with the company's sales supervisor, and the data were analyzed. The findings indicate that Kalyon PV initially focused solely on domestic sales in its early years, expanded into the United States through exports in its third year, and plans to progress using an innovative internationalization model. Among the limitations of the study is the analysis based on a single company example. Future

¹ This study is derived from the master's thesis titled 'The internationalization of National Enterprises: The Case of Kalyon PV

research is recommended to compare the internationalization processes of businesses in different sectors. This study offers valuable insights into the transformation processes of local enterprises at the international level.

Keywords: Internationalization, Internationalization Theories, Export, Renewable Energy, Solar Energy Panels, Kalyon PV.

Yerel İşletmelerin Uluslararasılaşma Süreçleri: Kalyon PV

Örneği

Özet

Bu çalışma, yerel düzeyde kurulmuş işletmelerin uluslararası pazarlara nasıl açıldığını ve uluslararası işletmelere dönüştüğünü araştırmaktadır. Kalyon PV'nin uluslararasılaşma süreci derinlemesine analiz edilmiştir. Bu süreçte, şirketin satış yöneticisi ile nitel bir mülakat yapılmış ve veriler analiz edilmiştir. Elde edilen bulgular, Kalyon PV'nin ilk yıllarda yalnızca yurtiçi satışlar gerçekleştirdiğini, üçüncü yılında ihracat yaparak Amerika Birleşik Devletleri'ne açıldığını ve yenilikçi uluslararasılaşma modeli kullanarak ilerlemeyi planladığını göstermiştir. Çalışmanın kısıtları arasında yalnızca bir şirket örneği üzerinden yapılan analiz yer almaktadır. Gelecek araştırmalarda, farklı sektörlerdeki işletmelerin uluslararasılaşma süreçlerinin karşılaştırılması önerilmektedir. Bu çalışma, yerel işletmelerin uluslararası düzeydeki dönüşüm süreçlerine dair önemli iç görüşler sunmaktadır.

Anahtar Kelimeler: Uluslararasılaşma, Uluslararasılaşma Teorileri, İhracat, Yenilenebilir Enerji, Güneş Enerji Panelleri, Kalyon PV

Introduction

Businesses not only make our lives easier through the products and services they offer but also contribute significantly to innovation, economic growth, and the development of global trade. With the acceleration of globalization, the process of local businesses expanding into international markets has become crucial for sustainable growth and gaining competitive advantage (Johanson & Wiedersheim-Paul, 1975). Internationalization is defined as the process by which local businesses extend beyond their domestic boundaries to operate in global markets, becoming a strategic necessity as competition in the global economy intensifies. Various theories and models have been developed to understand this process. One of the earliest models is the Uppsala Model, which posits that firms enter international markets gradually, increasing their presence as they gain knowledge and experience (Johanson & Wiedersheim-Paul, 1975). The Uppsala Model suggests that businesses first build experience in their domestic markets, then expand to nearby, lower-risk markets. Kalyon PV's strategy of growing domestically before exporting to the U.S. can be viewed as aligning with the principles of this model.

Following the Uppsala Model, the Innovative Approaches Model has gained significant recognition in the literature. Developed by Bilkey and Tesar (1977), this model suggests that businesses follow a step-by-step learning and development process during internationalization. According to this model, firms are initially uninterested in exports but gradually become more involved in

export activities as they gain market experience. Kalyon PV, after meeting domestic demand, embarked on its first export journey to the U.S. in 2022, making this model a fitting framework for understanding its internationalization path.

The Network Model emphasizes the importance of global relationships in the internationalization process. Developed by Johanson and Mattson (1988), this model argues that a business's success in international markets is closely tied to its partnerships and networks. Kalyon PV's technology transfer with China can be considered an example of this model. However, since innovative internationalization models have played a more dominant role in Kalyon PV's global expansion, the Network Model offers limited explanatory power in this case.

Additionally, the Born Global Firms Model focuses on innovative and technology-driven small-scale firms that enter international markets shortly after their inception (Knight & Cavusgil, 1996). This model highlights businesses that rapidly expand into global markets, with a significant portion of their sales coming from these markets. While Kalyon PV has quickly ventured into international markets, the company's internationalization strategy is more closely aligned with innovation-driven models.

The methods by which businesses enter international markets vary depending on their strategic goals and the characteristics of the target market. Exporting is one of the most common methods used for entering international markets, offering lower costs and lower risks. Exporting can be classified into two types: direct and indirect exports. Direct exporting refers to a firm selling its products directly

to international markets without intermediaries, while indirect exporting involves using intermediaries to export goods (Kotabe & Helsen, 2011). Kalyon PV's direct export to the U.S. demonstrates the prominence of this method in the company's internationalization strategy.

In addition, businesses may use other strategies such as contractual entry methods and foreign direct investment. Contractual entry methods include licensing agreements, franchising, and contract manufacturing, offering firms flexibility in entering foreign markets with lower costs (Karafakioğlu, 2000). Foreign direct investment (FDI) involves a company establishing a production facility or acquiring a business in a foreign market, providing deeper international influence but also carrying higher risks (Cullen & Parboteeah, 2009, as cited in Onur, 2019). Kalyon PV's future plans to establish production facilities abroad demonstrate its potential engagement in foreign direct investment.

In conclusion, the case of Kalyon PV highlights the importance of innovative internationalization models in the internationalization process. Through strategies such as technology transfer, supply chain management, and exporting, the company has gained a competitive advantage in global markets and successfully navigated its international expansion. This study will analyze Kalyon PV's internationalization journey, providing key insights into the global expansion strategies of local businesses.

1. Conceptual Framework

In this section of the study, the concept of internationalization

and the key theories related to the internationalization processes of businesses are examined. Additionally, the methods businesses use to enter international markets are detailed, and information specific to Kalyon PV is presented as an example. This information forms the theoretical framework of the study, helping us understand how internationalization processes are carried out at the business level.

1.1 The Concept of Internationalization

The concept of internationalization gained importance, especially after the rapid developments in industrial and economic fields following World War II. As businesses began to expand their operations beyond the borders of their home countries, the term internationalization became widely used. A review of both local and international literature reveals several definitions of internationalization, many of which share similar characteristics but emphasize different aspects. This study aims to understand this diversity and examine the impacts of internationalization on businesses.

Internationalization refers to the process by which businesses expand their operations beyond their domestic borders and establish a presence in international markets. According to Bolel (2017), this process begins when a firm, after establishing itself in its home country, decides to expand into foreign markets. Hollensen (2011) defines internationalization as the extension of commercial activities such as research and development, production, and sales into international markets. This process presents local businesses with both new opportunities and risks (Öztürk, 2014).

The internationalization literature has been enriched by various definitions. Welch and Luostarinen (1988) describe the process as increasing participation in international operations. Bell and Young (1998, as cited in Bilgütay, 2018), on the other hand, define internationalization as the effort to establish a presence in international markets through various means such as foreign trade, licensing agreements, and franchising.

Both local and foreign literature make it clear that internationalization is a fundamental necessity for businesses. The literature emphasizes that internationalization involves not only adapting a firm's resources to international contexts but also conducting business relationships and economic activities in international markets. In this context, businesses can demonstrate their presence internationally by engaging in activities such as producing in foreign countries, establishing commercial relationships, or forming international partnerships. These activities not only increase access to global markets but also strengthen businesses' growth and sustainability strategies.

In conclusion, internationalization has become increasingly important for businesses, providing a competitive advantage in the global economy and enhancing their growth potential. It can be seen as a critical strategic step that allows businesses to operate beyond national borders and achieve success on a global scale.

Having established that internationalization is a fundamental requirement for businesses, it is important to focus on the theoretical foundations of this process. In addition to the analyses in the literature, several theories have been developed to explain the

internationalization process. These theories help us understand the strategies businesses use to enter international markets and how these strategies evolve. Notably, approaches such as the Uppsala model, innovative approaches, network theory, and the concept of born globals offer insights into different aspects of the internationalization process, allowing us to examine it from a broader perspective.

1.2. Internationalization Models

Internationalization models play a critical role in understanding the processes through which businesses expand into global markets. These models aim to explain how firms enter international markets and what strategies they employ, as well as the stages they go through. Different approaches, such as the Uppsala Model, the Innovative Approach, Network Theory, and Born Global Firms, address various dimensions of the internationalization process and guide businesses in their strategic decisions. A detailed analysis of these models is provided below.

1.2.1. The Uppsala Model

The Uppsala model was developed by Scandinavian scholars Johanson and Wiedersheim-Paul in 1975, based on their studies of Swedish companies operating in multiple foreign countries. It explains how small and medium-sized enterprises (SMEs) gradually increase their level of internationalization as they gain experience and knowledge in international markets. The model emphasizes that businesses first develop in domestic markets and then expand

internationally.

According to the Uppsala model, internationalization occurs in four stages. Developed by Scandinavian academics Johanson and Wiedersheim-Paul in 1975, the model was based on studies of Swedish firms that had at least one production facility in a foreign country and conducted a significant portion of their sales in foreign markets. The model suggests that small and medium-sized enterprises (SMEs) begin their activities in international markets gradually and that their level of internationalization increases as they gain knowledge and experience throughout the process. It emphasizes that firms typically start by operating in domestic markets and, after gaining experience, they expand into international markets. The Uppsala model defines internationalization as a four-stage process (Johanson & Wiedersheim-Paul, 1975).

Irregular export activities: Initial steps into international markets without consistent activities.

Export through independent agents: As demand increases, businesses begin exporting via independent agents.

Establishing foreign sales subsidiaries: Companies set up their own sales subsidiaries to expand their market share.

Setting up foreign production facilities: Firms establish production plants abroad to reduce costs and increase profits.

The model assumes that businesses face obstacles due to lack of information and resources, which are gradually overcome through decision-making and learning about foreign markets. Typically, firms begin exporting to nearby countries or those with similar business practices. In conclusion, the Uppsala internationalization model

highlights the gradual, experience-based process of entering foreign markets.

1.2.2. The Innovative Approache Model

Since 1962, many studies have focused on innovation-based internationalization models. Early work in this field was done by American sociologists Rogers (1962) and Simmons and Smith (1968). The most significant contribution to these theories came in 1977 from Bilkey and Tesar. While these models perceive internationalization as a multi-stage learning process, similar to the Uppsala model, the innovative approaches feature more stages, setting them apart from other models (Ecer & Cantez, 2003, as cited in Cengiz, 2010).

These models share many characteristics but differ in the number of stages and how each stage is defined. Below is a table outlining the stages described by Bilkey and Tesar (1977), Cavusgil (1980), Czinkota (1982), and Reid (1981).

Table 1: Innovative Internationalization Models

Stages	Bilkey ve Tesar (1977)	Cavusgil (1980)	Czinkota (1982)	Reid (1981)
Stage 1	Firms are not concerned with export activities	Completely indifferent to exporting	Completely indifferent to exporting	No knowledge about exporting
Stage 2	Firms are willing to receive export orders but not actively engaged in exporting	Show partial interest in exporting	Seek specific export orders	Show partial interest in exporting
Stage 3	Firms begin feasibility studies for export activities	Irregular export entries	Seek export opportunities, but engage in irregular exporting	Engage in regular exporting
Stage 4	Firms export to psychologically close countries with limited exports	Engage in regular exporting	Increase export activities	Psychologically export to close countries
Stage 5	Firms become experienced exporters through sales in foreign markets	Become active exporters	Become experienced exporters	Become experienced exporters
Stage 6	Firms conduct feasibility studies for exporting to psychologically distant countries	Psychologically prepare for exports to distant countries	Psychologically prepare for exports to distant countries	Psychologically prepare for exports to distant countries

Source: (Andersen, 1992)

Table 1 demonstrates that firms initially uninterested in export activities gradually show more interest and become more active in these endeavors over time. In the early stages, companies are not involved in exporting, but they eventually develop partial interest and engage in irregular export activities. As firms progress, they become more active, conduct feasibility studies, and seek export opportunities in neighboring countries. Over time, they gain experience, expand their markets, and target more distant regions. In

conclusion, innovative internationalization models provide valuable insights into the stages and processes firms encounter on their journey to internationalization, emphasizing a systematic learning and adaptation approach from initial disinterest to active market participation and expansion.

1.2.3. The Network Model

The network model provides an important conceptual framework for understanding the internationalization processes of businesses. This model was first introduced by Johanson and Mattson in 1988, and it argues that the success of companies in international markets depends on their global networks and relationships. These connections include the company's customers, competitors, supplier firms, export trade associations, distributor companies, private and public institutions, and the relationships with these entities (Ulaş, 2009).

The network model explains businesses' entry into and growth in international markets through the networks they have and the relationships within those networks. It suggests that the internationalization of a company is closely linked to its interactions within local and global business networks and the relationships developed within those networks. These relationships are critical in acquiring information, accessing resources, and determining market entry strategies in international markets.

While the network model emphasizes the importance of network relationships in explaining how companies succeed in international markets, it also has certain limitations. Chetty and Holm

(2000) noted that the model does not sufficiently discuss the importance of decision-makers and firm-specific characteristics that affect internationalization, nor does it address the challenges encountered in internationalization through network relationships. Additionally, the model has been criticized for not considering external factors such as intense competition in domestic markets, unexpected orders, and government economic policies, and for failing to explain how firms shift their positions within the matrix. Moreover, the model focuses solely on organically developed relationships, overlooking networks formed through formal institutions (Chetty and Holm, 2000).

1.2.4. The Born Global Firms Model

Born global firms are innovative, technology-focused, and typically small-scale businesses that begin operating in international markets immediately after their founding or within a short period. Knight and Cavusgil (1996) define these firms as small, innovative, and technology-oriented organizations that quickly establish a presence in foreign markets. Similarly, Chetty and Campbell-Hunt (2004) describe born global firms as companies that internationalize within the first two years of their founding and derive a significant portion of their sales from international markets.

These definitions highlight the rapid internationalization processes of born global firms and their active roles in global markets. Their focus on innovation and technology enables them to offer cutting-edge products and high value-added services. Although small in scale, these firms operate with a global vision, providing

high-value products that allow them to compete on a global stage.

However, their small size can make them more vulnerable to cultural, economic, or political risks. Limited financial resources and operational capabilities can also pose challenges when competing against larger-scale rivals. Born global firms may also face a lack of local knowledge and experience necessary to establish a foothold in international markets, making the adaptation process difficult in the early stages.

In conclusion, born global firms stand out due to their rapid internationalization and innovative structure, but their small size and exposure to various risks must also be considered.

1.3. Methods of Business Entry into International Markets

Methods of business entry into international markets may vary depending on the size of the business, characteristics of the target market and strategic goals. These methods can be generally classified as export, contractual entry methods and investment-based entry methods. In this section of this study, the methods used by businesses to enter international markets are discussed.

1.3.1. Export-Based Market Entry Methods

It is known that the most common method preferred by businesses in the process of opening up to international markets is export. The main reasons for choosing this method are that it involves less risk and is easier than other entry methods. According to a simple definition made by Bradley (2002), export is the sale of a

business's goods within the framework of valid export and customs rules. This method, which is frequently preferred by businesses because it requires lower costs compared to other methods in both administrative and economic terms, involves businesses selling the goods they produce to foreign markets.

Most businesses first use the export method to enter international markets. This method is frequently preferred by small businesses operating in the local market. There are two basic export methods for businesses that want to sell their products in international markets. These are; indirect export and direct export methods. In indirect export, the business uses an intermediary in its own country, while in direct export, the business needs to establish its own export organization or coordinate its export activities with an intermediary established in a foreign country (Kotabe and Helsen, 2011).

In the indirect export method, businesses allow small national businesses established at the local level to sell in international markets. In this method, the business sells the goods it produces to a local buyer just as it sells to a customer in the country. This buyer then transfers the same goods out of the country and carries out the sale (Ulaş, 2009).

In the direct export method, the exporting business carries out export transactions directly without using any intermediaries. Businesses that enter the foreign market by choosing this method can eliminate intermediaries and make direct sales in international markets themselves. In this way, they can increase their business profit, control all export stages and carry out sales activities by

dealing directly with relevant individuals and institutions without any intermediaries. For these reasons, direct export is considered to be better than indirect export (Akat, 2009). For example, Hewlett Packard, a computer manufacturer in the USA, purchases the microchips required for computer production from another American company, Intel, and then exports these computers it produces to foreign markets. In this case, Intel's chips are exported abroad by an intermediary company through the indirect export method (Ulaş, 2009).

1.3.2. Contractual Entry Methods

Contractual entry methods are one of the strategies that provide flexibility and efficiency in entering international markets. These methods can be applied in various ways such as license agreements, franchising, contractual production, turnkey projects, management contract and assembly (Karafakioğlu, 2000).

License agreements are methods that allow businesses to use their rights for a certain period by transferring them to another business. This method, which can be applied in areas such as production, sales authority or use of technology, provides businesses with the opportunity to enter new markets at low cost (Engin, 2005).

Franchising is carried out by transferring their brands and business models to other businesses. With this method, the franchisee benefits from the prestige and recognition of the brand by offering products or services within certain standards (Yalçın, 2016).

Contractual production allows businesses to enter international markets by having a business abroad produce. This

method is suitable for businesses that want to gain cost advantage and increase production capacity (Koçak, 2019).

Turnkey projects are based on the principle of providing all project services to a country abroad within the scope of a specific project and transferring the project to the business after completion. This method is usually used in large construction and engineering projects (Keskin, 2011).

Management contracts allow businesses to enter international markets by providing management services to businesses abroad. With this method, businesses share their management experience and expertise, provide mutual benefits and increase the capacity of local businesses (Yalçın, 2016).

The assembly method is a method of entering international markets by having certain parts assembled in a country abroad. While the main components are produced in the home country, the assembly process is carried out in countries where labor is cheaper, thus optimizing logistics and production costs (Engin, 2005).

The advantages of this method are that it provides the opportunity to enter the market at low cost, helps to overcome cultural and legal barriers by cooperating with local partners, and ensures efficient use of resources by sharing risks. Disadvantages include the transfer of some of the control to local partners, reducing the flexibility of the company in its strategic decisions, the negative impact of possible disagreements on the duration and terms of the contract on cooperation, and the risk of decreasing quality standards in the absence of adequate control mechanisms.

1.3.3. Foreign direct investment

Foreign direct investment is a business's direct investment in an asset or business in foreign markets through methods such as capital and technology. The most advanced level of internationalization is when businesses invest partially or completely in a business in another country and own it (Cullen & Parboteeah, 2009, as cited in Onur, 2019).

International businesses generally prefer to operate in foreign markets by making direct investments or by establishing their own production facilities in foreign countries or by purchasing another business. Foreign direct investment means creating the deepest impact on the host country. In other words, such investments involve business ownership in a completely foreign country (Keskin, 2011). These investments offer many advantages to businesses such as making foreign investments in foreign markets, entering new markets in the international arena, benefiting from local resources and labor in that country at lower costs, providing knowledge and technology transfer, tax exemption or low tax payment and government incentives (Cateora, Gilly & Graham, 2013).

Foreign direct investments are categorized as vertical and horizontal investments. The purpose of vertical investments is supply and provides the business with raw materials and production inputs to be used in secondary businesses in the country where it is located or abroad. The purpose of horizontal investments is to produce the same product that the business produces in its own country abroad (Bradley, 2002). In this way, businesses try to strengthen their positions in the market with international vertical and horizontal

investments.

The benefits of foreign direct investments to businesses can be listed as follows (Mucuk, 2001, as cited in Çubukcu, 2015):

Cheap labor and raw material savings: Investment incentives and transportation advantages that come with the use of cheap labor and raw materials in foreign countries provide savings in expenses. This allows businesses to reduce their costs and gain a competitive advantage.

Brand image: Establishing a business in a new country is expected to create a positive impression by contributing to the local community. This can help businesses create a positive image in terms of social impact and employment.

Local adaptation and relationships: A strategy that will help businesses adapt their products more easily in the local market includes establishing stronger relationships with the government, local manufacturers, customers and distributors. These relationships play an important role in entering the local market and in the acceptance of products.

Full control and flexibility: Investors can develop their production and marketing strategies more freely by shaping them in line with their long-term goals. This allows the company to act more flexibly in line with its own goals.

On the other hand, there are some disadvantages of making direct foreign investments in foreign markets. The most important of these disadvantages is that businesses face a number of risks in foreign markets. These risks include limited or devalued local currencies and political changes in foreign countries. These large

investments usually take place in countries with political and economic stability. Many countries try to reduce bureaucratic barriers to attract foreign investments and reduce local risks (Çubukcu, 2015). In addition to all these risks, problems arising from cultural differences in the countries where direct foreign investment will be made may also occur. In order to avoid such problems, businesses that will make direct investments in foreign markets should conduct studies such as feasibility studies and market research before investing in the market.

2. Methodology

In this study, the case study method, one of the qualitative research methods, was preferred. Qualitative research refers to a process where qualitative data is collected from a specific person or group using techniques such as observation, interview, and document analysis, examining perceptions and events in a realistic and holistic manner in a natural environment (Yıldırım & Şimşek, 2008). In this context, the internationalization process, opportunities, challenges, and changes in the organizational structure of Kalyon PV, a company in the renewable energy sector, were analyzed in-depth.

The main focus of the research is on the international strategies of Kalyon PV, the opportunities and challenges faced in the internationalization process, and the organizational changes after entering the international market. The research is limited to Kalyon PV, which is the first company in Turkey to have a vertically integrated production system in the solar panel manufacturing sector. Kalyon PV operates with four factories and one R&D center, making

it the first integrated facility of its kind outside of China. Due to these unique characteristics and its internationalization experience, Kalyon PV was chosen as the subject of this study.

As a data collection method, semi-structured interviews were conducted. These interviews were based on key questions developed through a literature review and an examination of Kalyon PV's operations. Open-ended questions were also included to explore various dimensions of the topic in depth, thereby enabling the collection of more detailed information. Company officials at Kalyon PV were contacted for interviews, and as a result, the Sales Supervisor at Kalyon PV's Sales and Marketing Department provided key insights. His contributions and opinions served as one of the main data sources for the study. The interview process enhanced the integrity and depth of the research, contributing significantly to its reliability and quality.

In the data analysis process, the collected data were analyzed using the content analysis method. Content analysis involves systematically reducing the explicit or implicit meanings within texts to categories and concepts, enabling objective analysis (Güçlü, 2019). This method allowed for a better understanding of Kalyon PV's internationalization experience and the transformations it underwent during this process.

The case study method, according to Lune and Berg (2017), is a systematic process of collecting sufficient information about a specific person, group, event, or social environment to understand how a particular phenomenon functions or operates. This method was chosen as it allowed for an in-depth examination of Kalyon PV's

international market entry strategies and the changes experienced during the internationalization process.

3. Findings

The internationalization process of businesses typically emerges as a result of efforts to achieve growth and gain a competitive advantage. In this context, examining the internationalization journey of one of Turkey's leading companies, Kalyon PV, is crucial for understanding how this process affects the company's structure and performance. This section presents the findings related to the phases that Kalyon PV Solar Technologies Factory has undergone since its establishment, its strategies for entering international markets, and the challenges encountered during this process.

To gain deeper insights into Kalyon PV's internationalization process, a face-to-face interview was conducted with the Sales Supervisor. Based on the information obtained, the following key findings have been identified.

3.1. Kalyon PV solar technologies factory

Kalyon PV Solar Technologies Factory was established on August 19, 2020 in the Başkent Organized Industrial Zone in Ankara province, with a closed area of 100,000 square meters, in a total area of 250,000 square meters, and started producing solar energy panels. Kalyon PV has an integrated facility structure consisting of four separate factories and an R&D center, and produces continuously with a capacity of 2 GW. The production process consists of four

stages: ingot, wafer, cell and module, and the facility brings these stages together under one roof.

3.2. Kalyon PV Partnership Structure and Financial Independence

Kalyon PV's corporate structure and financial strategy play an important role in the company's success in the international market. In the interview, it was learned that the company was established entirely with its own capital and has no partners. This situation emphasizes Kalyon PV's financial and operational independence. Being established with equity capital allows the company to be autonomous in decision-making processes and to be less affected by external factors. In addition, not having to borrow from external sources or share with partners has positively affected the company's risk management and financial stability. These features have contributed to Kalyon PV gaining a competitive advantage and being more resilient in the global market.

3.3. Kalyon PV's Internationalization Decision and Influencing Factors

Kalyon PV's internationalization process has been shaped by the influence of various strategic and operational factors. These factors, which are effective in the company's decision to open up to the global market, include both the principles in the establishment phase and elements such as strategic partnerships. The main factors determining Kalyon PV's internationalization decision are discussed in detail below.

Principles Determined During the Establishment Phase: The main reason for Kalyon PV's internationalization decision was built on the principles determined during the establishment phase of the factory. The company adopted the mission of protecting nature and providing sustainable energy, and this mission stood out as one of the main factors behind the internationalization decision.

Cooperation with China and Knowledge Transfer: Cooperation with China and knowledge transfer have played a critical role in Kalyon PV's internationalization strategy. China's know-how and technology in panel production have been transferred to Kalyon PV's local and national staff, and a supply chain has been established in this process. This cooperation has made a significant contribution to the company's competitive advantage in the international market and technology transfer.

Supply Chain Management: Another important factor affecting the internationalization decision is supply chain management. Kalyon PV has focused on the process of creating its own supply chain in order to be successful in the international market. This process has formed the basis of the company's internationalization strategy and has contributed to achieving a competitive position in the global market. Strategic thinking and planning have been decisive in the success of this process.

Ramp-Up Process and Local Demands: The company's ramp-up process has been an important element in the internationalization process. Kalyon PV, which first completed its own production process, then focused on the demands of its local customers. Meeting local customer demands helped the company gain a solid place in the

international market and use it as the basis of its internationalization strategy.

Product Quality and Brand Value: Product quality and brand value play an important role in Kalyon PV's internationalization strategy. The company has provided customer satisfaction by offering high-quality and reliable products and has turned the country's brand value into an advantage in the global market in this process. The company made its name known in the international market with its first export on March 7, 2022 and continued its efforts to develop products and create a brand.

3.4. Kalyon PV's International Market Entry Strategies and Achieved Advantages

Kalyon PV's successful positioning in international markets is supported by effective strategies and various advantages. The company's international market entry strategies are shaped by its achievements in energy production, geographic location advantages, and competitive production capacities.

Energy Production and Success: Kalyon PV's international success is underpinned by its impressive local energy production capacity. The company produces approximately 2 GWh of energy in Turkey, meeting 2% of the country's energy needs. This success highlights Kalyon PV's significant role in energy production and its presence in the international arena.

International Demand: The company's appeal in international markets is largely based on product quality. The Sales Supervisor notes, "The foundation of the company's success is its product

quality" This statement demonstrates that Kalyon PV offers high-quality products recognized globally and generates demand in international markets.

Geographic Location and Advantages: The company's geographic location also plays a crucial role in its international market success. The Sales Supervisor explains the geographic advantages as follows: "We are right in the middle of Asia and Europe; this position offers us various advantages" This location provides logistical and strategic advantages, helping the company establish a strong presence in international markets.

Competitive Advantage: Kalyon PV's international competitive advantage is particularly evident in its production capacity. The Sales Supervisor describes this advantage: "Globally, we are among about 3 or 4 companies in Europe that produce cells. Similarly, we are second in ingot and wafer production. This situation provides us the opportunity to sell products directly to the American market" The company's strong position offers the opportunity to sell products directly in the American market.

In conclusion, Kalyon PV's success in the international market is attributed to its product quality, strategic location, and competitive advantages. The company's successful projects in Turkey, coupled with an effective entry into the American market through export methods, represent some of the greatest advantages achieved by the company.

3.5. Challenges Faced by Kalyon PV in the Internationalization Process

Kalyon PV has encountered various challenges and required adaptation during its international market expansion. The difficulties faced by the company in its internationalization process have involved overcoming strategic and operational barriers. Below is a detailed examination of the main challenges encountered by Kalyon PV and the strategies developed to address them.

Technology Transfer and Integration Challenges: One of the significant challenges for Kalyon PV in its internationalization process was the transfer and integration of technology from Asia to Europe. This process required adapting the technology to local conditions and ensuring its effective integration. Difficulties encountered during the technology transfer have directly impacted the company's ability to compete effectively in international markets.

Geographic Distance and Cultural Differences: Geographic distance and cultural differences have led to significant communication and coordination challenges for Kalyon PV during its international expansion. These factors complicated collaboration and project management processes and made it difficult for the company to achieve alignment in its global business operations.

Supply Chain and Logistical Complexities: Integrating raw materials from Asia and Europe and complying with different standards has complicated supply chain management. Logistics complexities and challenges in supply chain management have affected the company's operational efficiency and increased costs.

3.6. Kalyon PV's Activities and Practices During Internationalization

Kalyon PV has chosen the United States when determining its first target market in the international arena. It has been found that there are several reasons for choosing the American market. The reasons for this preference include gaining an advantage in competition with China and the demand for solar energy panels produced with a high local content rate in this market. The company aims to meet the expectations of American consumers with its high-quality products and provides a competitive advantage by documenting its compliance with international standards with the UL certificate. The interview results show that Kalyon PV constantly reviews its strategies to achieve its sustainability goals and focuses on innovative solutions. However, it has been determined that the company currently only exports to America and has not yet fully achieved its global expansion goals.

3.7. Kalyon PV's Considerations in International Market Selection and Market Structure

In the Kalyon PV interview, questions were asked about the criteria for international market selection, the factors considered and the sources of information. In this context, it was determined that the company gives equal priority to domestic and foreign customers when determining its international market entry strategies, adopts a people-oriented service approach and prioritizes customer satisfaction and service quality. In addition, it was found that before entering international markets, foreign trade and sales marketing

department employees analyze the economic and cultural structure of the market in detail, evaluate customer profiles, demand dynamics and the competitive environment in foreign markets. It was learned that they also examine factors such as local regulations, tax policies and trade barriers by considering the legal and political risks of the market. These studies help Kalyon PV understand its target audience, market dynamics and the competitive environment in international markets and contribute to the company's determination of its suitability in the international market by correctly adjusting its product portfolio and marketing strategies.

3.8. Kalyon PV's Internationalization Process and Changes in the Business Structure

According to the interview with the Sales Supervisor, it is understood that Kalyon PV's entry into international markets has caused significant changes in the business structure. In particular, entering the American and Chinese markets has led to radical changes in product processing and strategy development processes. The necessity to process and export certain products locally in the American market and the necessity to comply with local acceptance criteria in the Chinese market have made it necessary for the business's strategies to be versatile and flexible.

These changes have caused Kalyon PV to switch to a more flexible production process, increase its production capacity for orders from abroad, and increase the number of employees. The internationalization process has also required the selection of qualified personnel for a healthy progress of communication and

coordination, and the foreign trade department to take an active role in international sales activities. Currently, the company is focused on domestic and American markets, and the foreign trade department plays an important role in planning, budgeting and providing physical support. In the future, Kalyon PV aims to gain more experience and gain competitive advantage by expanding into different markets such as Europe, Asia and the Middle East. With the experiences gained in this process, the company is developing strategies to expand its presence in international markets and become a more effective player on a global level.

3.9. Kalyon PV's Future Plans and Mission

Kalyon PV's internationalization strategies and future plans have been clearly outlined in the interview. According to the Sales Supervisor's response, the company's global vision and environmental sustainability mission are prominently emphasized. The company has adopted a zero-carbon footprint goal by 2032 and has made significant progress in the domestic market toward this target. To extend this sustainability demand to a broader audience through international trade, Kalyon PV plans to establish similar facilities in different countries. The company is adopting a strategic positioning and wait-and-see policy in this process.

Accordingly, the core of Kalyon PV's future goals on the international stage is environmental sustainability. The company aims to play an active role in the global market and strengthen its reputation internationally with its zero-carbon footprint target by 2032. These strategies are seen as a significant step toward fulfilling

environmental responsibilities and gaining a competitive advantage on a global scale.

3.10. Kalyon PV's Customer Relations and Preference Shaping Strategies

After the interview, it is seen that elements such as quality, transparency, customer satisfaction and warm relations play a key role in Kalyon PV's customer relations in international markets. The company allows customers to directly experience product performance by prioritizing quality production approach and transparent production processes. This strategy increases customer satisfaction and supports long-term business relationships. In addition, customer visits and direct communication are an important part of this process, showing that both a technology and human-oriented approach is successfully implemented.

3.11. Growth and Challenges: Key Moments in Kalyon PV's Journey

In the interview with KALYON PV's sales supervisor, important milestones in the company's growth process and the challenges faced were discussed. It was emphasized that the company's first export experience was a critical stage, playing a significant role in reaching its leadership position in the European and Turkish energy sectors. This initial export supported Kalyon PV's goal of becoming not only a gateway for Turkey but also for Europe to the world. However, the challenges brought by the COVID-19 pandemic required a reassessment of strategic planning. The

pandemic provided KALYON PV with an opportunity to develop a more resilient business model.

The findings indicate that the initial export increased the company's growth potential and removed barriers in international markets. The challenges created by COVID-19 reshaped strategic planning and established a solid foundation for future growth objectives. KALYON PV plans to strengthen its competitiveness in international markets and achieve its growth targets with these experiences.

Discussion

Today, rapid advancements in science, industry, and technology enable businesses to deliver their products globally quickly and reliably. These developments have led to increased demand for products and the emergence of new opportunities for businesses. Particularly in the energy sector, rising competition and the need for renewable energy sources have led leading companies to place greater emphasis on their internationalization processes. Being present in the global market not only provides economic growth but also contributes to the adoption of innovative technologies and achieving sustainability goals. Therefore, understanding internationalization strategies and examining successful examples are crucial for future business plans.

In this context, the internationalization strategies and growth journey of a pioneering company like Kalyon PV provide significant lessons and examples for other players in the sector. A detailed examination of Kalyon PV's internationalization process contributes

to understanding sector trends and future directions. Thus, the thorough exploration of Kalyon PV's internationalization strategies and growth process in this study serves as an important guide for businesses seeking to gain a competitive advantage in international markets and achieve sustainable growth.

Kalyon PV has chosen the Innovative Approaches Model, which emphasizes a step-by-step learning process during internationalization. According to this model, businesses are often reluctant to export in their early years. Kalyon PV focused on the domestic market in its initial years, aiming to produce high-quality products and meet local customer demands. However, in its third year of establishment, on March 7, 2022, it conducted its first export to BP's solar energy plant in Texas. This strategic move not only contributed to the company's competitive advantage in the international market but also demonstrated alignment with innovative internationalization models.

Challenges faced during Kalyon PV's internationalization process include technology transfer, supply chain management, and the COVID-19 pandemic. The company has taken strategic steps to overcome these challenges, improved supply chain management, and continued production activities during the pandemic by actively using digital platforms. By leveraging technology and enhancing operational efficiency, Kalyon PV has shown resilience in navigating crises and better preparing for similar challenges in the future.

Kalyon PV's internationalization strategies and future plans clearly reflect the company's sustainability-focused global vision and environmental responsibilities. The company plans to achieve a zero-

carbon footprint by 2032, demonstrating its commitment to environmental sustainability. This commitment is an important step in increasing the company's impact on the international stage and contributing to a sustainable future globally.

The limitations of this study should also be acknowledged. The research was conducted with a single company operating in the renewable energy sector based in Ankara. This situation makes it difficult to generalize the findings. Future studies involving interviews with more companies operating in different geographical regions and sectors may help obtain more objective and comprehensive results.

In examining Kalyon PV's internationalization process in depth, it is evident that the company's strategic steps and solutions to challenges serve as a valuable guide for other businesses. By adopting innovative internationalization models, Kalyon PV has made significant progress in the international market and is moving towards its goal of contributing to a sustainable future. This study is considered an important resource for businesses seeking to understand ways to overcome challenges in the internationalization process and strategies for gaining a competitive advantage in the market.

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