THE INFORMATION SYSTEM OF LEBANESE EXPORTING SMES

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ABSTRACT

Objective: This article focuses on the information system practices used by managers of Lebanese SMEs involved in export. This topic is particularly relevant in Lebanon as these companies significantly impact the country's economy, representing 28% of the national product and 40% of GDP. This research article explores I.S.'s contribution to the emergence of a dynamic export market for Lebanese SMEs. The article begins by defining key concepts, such as SMEs, export, and I.S., and reviewing relevant studies. The central question is why and how managers of SMEs involved in export use I.S.

Method: The method adopted is qualitative analysis. A sample of small and medium-sized exporting firms is carefully selected, allowing for analyzing the causes and means of exporting without presenting all small and medium-sized exporting firms statistically. Data collection is done in real-life situations through semi-structured interviews. The adopted interview guide is based on open-ended and closed questions.

Result: Contrary to what is found in the literature, Lebanese exporting companies manage to maintain their share in the external market with a simple and hybrid I.S. However, the effectiveness of this system relies on the proficiency and technical know-how of the export team, necessitating supplementary measures such as workshops tailored to the educational background of executives and staff.

Conclusion: The study highlights that the internal and external IS evolves with the size of the SMEs, decision-making power, and adopted strategy. The larger the size, the more decentralized the decision-making power; the adopted strategy is external growth, and the external I.S. is indirect and developed. However, at every level, we found that internal I.S. always relies on direct relationships, the extent of which also grows with the size, decision-making power, and strategy of the company.

Keywords: I.S., SMEs, export, and management practices.

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SISTEMA DE INFORMAÇÃO DAS PME EXPORTADORAS LIBANESAS

RESUMO

Objetivo: O presente artigo centra-se nas práticas de sistemas de informação utilizadas pelos gestores das PME libanesas envolvidas na exportação. Este tema é particularmente relevante no Líbano, uma vez que estas empresas têm um impacto significativo na economia do país, representando 28% do produto nacional e 40% do PIB. Este artigo de pesquisa explora a contribuição dos EUA para o surgimento de um mercado de exportação dinâmico para as PME libanesas. O artigo começa definindo conceitos-chave, como SMEs, exportação e I.S., e revisando estudos relevantes. A questão central é saber por que razão e de que forma os gestores de PME envolvidas na exportação utilizam I.S.

Método: O método adotado é a análise qualitativa. É cuidadosamente selecionada uma amostra de pequenas e médias empresas exportadoras, permitindo analisar as causas e os meios de exportação sem apresentar estatisticamente todas as pequenas e médias empresas exportadoras. A coleta de dados é feita em situações reais por meio de entrevistas semiestruturadas. O guia de entrevista adotado é baseado em perguntas abertas e fechadas.

Resultado: Ao contrário do que se encontra na literatura, as empresas exportadoras libanesas conseguem manter sua participação no mercado externo com um SIR simples e híbrido. No entanto, a eficácia deste sistema depende da proficiência e do know-how técnico da equipe de exportação, exigindo medidas suplementares, como workshops adaptados ao contexto educacional dos executivos e do pessoal.

Conclusão: O estudo destaca que a IS interna e externa evolui com a dimensão das PME, o poder de decisão e a estratégia adotada. Quanto maior o tamanho, mais descentralizado o poder de decisão; a estratégia adotada é o crescimento externo e os I.S. externos são indiretos e desenvolvidos. No entanto, em todos os níveis, descobrimos que os I.S. internos sempre dependem de relações diretas, cuja extensão também cresce com o tamanho, o poder de tomada de decisão e a estratégia da empresa.

Palavras-chave: I.S., PMEs, exportação e práticas de gestão.

1 INTRODUCTION

To survive in a globalized and increasingly competitive world, SMEs (Small and Medium Enterprises) must improve their competitiveness and be more efficient in their relationships with suppliers and customers (Moore & Manring, 2009; Naradda Gamage et al., 2020). In this context, two observations justify implementing a study on the information systems of Lebanese exporting SMEs.

Firstly, the authors agree that SMEs are specific and that their information systems are simple and direct (Ghobakhloo et al., 2011; Lutfi, 2022; Marchesnay, 2011) but also that exporting requires a developed information system to obtain information about the foreign market, determine approach costs, identify export risks, etc. (Racela & Thoumrungroje, 2020; St-Pierre et al., 2006).
Secondly, the relationship between information systems and export is described in literature related to developed countries as a catalyst for the development of SMEs internationally (Lecerf & Omrani, 2020; St-Pierre & Perrault, 2009). The work done on this topic in developing countries is rare and contradictory: in East Africa, the impact of information systems on business growth is negative (Chowdhury, 2006; Roztocki et al., 2019), while in Latin America, the adoption of ICT (Information and Communications Technology) has positive effects on exporting businesses (Machikita & Tsuji, 2010; Pick et al., 2021) but in North Africa and the Middle East, bibliographical gaps in the field are apparent and particularly in Lebanon, even though the region is known for its historical contribution to international trade (Cusolito et al., 2022; TORRÈS, 2007).

The paradox highlighted between a simple and direct information system in SMEs and the fact that exporting requires a developed information system, and the bibliographical gaps and contradictory results identified in the literature lead us to address the following problem: Why and how do the leaders of Lebanese exporting SMEs use information systems?

To address this problem, we will first conduct a literature review on definitions of SMEs, the causes that lead companies to export, the definition and types of exporting SMEs, the information systems characteristic of SMEs, and those necessary for exporting activities. Next, we will discuss, on the one hand, the characteristics of exporting SMEs affecting information system practices (size, manager profile, strategic alignment, degree of export, etc.) and, on the other hand, the assets and obstacles influencing information system practices (financial resources, connection network, technical assistance, accompaniment measures, forces of adherence or resistance to change, etc.). Based on these variables, an interview grid will be constructed and used for the field study.

Our research method is qualitative, based on semi-structured interviews with leaders of exporting SMEs from all sectors. The collected data will be analyzed, and a comparative table will be designed.

2 THEORETICAL FRAMEWORK

2.1 SMEs AND EXPORT

There is no single definition of SMEs. Some researchers consider SMEs to be primarily independent enterprises, legally if not financially, operating in primary, manufacturing, or service sectors, and whose responsibilities typically fall on one person,
usually the sole owner of the capital (Berisha & Pula, 2015; Julien & Marchesnay, 1988). According to the French National Institute of Statistics and Economic Studies (Insee), the SME category consists of companies that employ fewer than 250 people and have an annual turnover of fewer than 50 million euros or a total balance sheet not exceeding 43 million euros (Vetter et al., 2014). French regulations distinguish SMEs from other types of businesses and present them as companies with between 20 and 249 employees (Ministry of Small and Medium Enterprises and Commerce, 2006). In our research, the notion of SMEs retained is that of Insee concerning the size criterion and that of Julien (1988) concerning the “legal if not financial independence” of the enterprise.

Exporting is selling products and services intended for sale in foreign markets. Mugisho (2019) distinguishes exporting companies according to two criteria: the share of production sold abroad on the one hand and the duration of the export period on the other hand. It thus distinguishes, first, totally exporting companies that sell their entire production abroad and partially exporting companies that only sell part of their production abroad. It then distinguishes “regular exporting companies” that have exported in year n and during the previous five years, “occasional exporting companies” that have exported in year n and at least once during the previous five years, and “first-time exporters” that have exported in year n but not during the previous five years.

2.2 THE INFORMATION SYSTEM OF SMES

The information system is defined as an organized set of resources (personnel, material, software, procedures...) allowing to collect, store, structure and communicate information in the form of texts or images (Reix (2002). It contains a social subsystem composed of people related to the I.S. and a technical subsystem composed of information and communication technologies (ICT): hardware, software, telecommunications equipment, etc.

A developed I.S. is a part of the digital transformation (DR) which pertains to the alterations in methods of operation and commercial propositions brought about by the implementation of digital innovations within a company. SMEs are encountering difficulties in embracing this revolution due to their constrained resources and expertise (Zucco & Bonatti, 2016).
2.3 CHARACTERISTICS OF SMES AFFECTING EXPORTS AND INFORMATION SYSTEM PRACTICES

The characteristics of exporting SMEs are generally consistent with the characteristics of SMEs.

The size factor of SMEs is apprehended by literature as a characteristic influencing export. Indeed, SMEs face an organizational, financial, and human resources deficit that constrains their strategic orientations (Hessels & Parker, 2013; Miller et al., 2021; Xie & Suh, 2014). The OECD study related to SMEs and globalization (L'OCDE, 2013) concludes that size greatly influences companies’ propensity to engage in international activities. Knowledge of the foreign market and adopting a product determined by a foreign country’s cultural and economic requirements require research and development work maintained by specialized personnel and a determined budget. Exporting SMEs have limited employees, difficulties recruiting specialized labor, limited financial means, and low specialization at the management level, employees, or organizational structure. This leads to difficulty in developing essential global development strategies for export activities.

The I.S. is also affected by size. The internal I.S. of exporting SMEs is simple and characterized by oral communication and direct contact with employees. This type of management is directly linked to the specificities of small organizations: the relational dimension is more important than the organizational dimension (Adla et al., 2020). This under-dimensioning can favor implementing informal, flexible, and direct information systems (Flatau, 1988; Rehman et al., 2018; Torres, 2004). Similarly, the nature of organizational relationships in SMEs favors simple coordination modes based on the mutual adjustment and direct supervision of processes, results, and qualifications (Torrès & Delmar, 2006). The external I.S. is also simple; it is focused on the personal contacts of the manager with customers and suppliers. Communication with business partners is simple, direct, and informal. However, exporting activity requires a developed I.S. allowing the company to study the characteristics of the foreign market, discern the risks related to export, determine the costs of approaching foreign markets, and provide essential data for implementing the export project (St-Pierre et al., 2006).

The next factor that characterizes small and medium-sized enterprises (SMEs) and affects exports is the decision-making power of the leader. In general, the leaders of SMEs are at the center of the management process. To make decisions, they rely exclusively on
their judgments, intuitions, and experiences (Mintzberg et al., 1976; Papulová & Mokroš, 2007; Simon, 1987). Various studies have highlighted the owner-managers personal influence, decision-making autonomy, financial power, and competence in managing SMEs (Araújo & Pedron, 2016; Fadil & St-Pierre, 2021; Fernet et al., 2016; Wang & Poutziouris, 2010). The decision-making process in SMEs typically follows the intuition-decision-action pattern. This means that the strategy of the owner-manager is primarily implicit, very flexible, and short-term (Chebbi et al., 2023; Julien & Marchesnay, 1988; Torrès & Delmar, 2006). Nevertheless, exporting activity requires management techniques such as forecasting, planning, financial analysis, and project management and therefore requires global long-term development strategies (De Massis et al., 2018; Ekwere, 2016; Nemkova et al., 2012; Zhang et al., 2008).

This process requires collecting, processing, disseminating, and effectively using information through a reliable and not-too-complex IT system to achieve the best results, particularly speed, intelligence, and accuracy. If the IT system is challenging to use in exporting SMEs or even if the information is poorly collected by the leader or poorly processed, this leads to poor decision-making on the part of the leader.

From the above, the conceptual scheme that translates the characteristics of SMEs that affect the export activity and, subsequently, IT practices can be presented as follows:
2.4 ADVANTAGES AND OBSTACLES INFLUENCING THE ICT PRACTICES OF EXPORTING SMES

2.4.1 Perception of the usefulness of ict by the leader

As mentioned, the IT system has two dimensions: social (human capital) and technical (information and communication techniques). At the level of the leader, the obstacles of the social dimension lie in the fact that they are unaware of the importance that the technical dimension can provide to the overall development of the IT system. In other words, leaders of SMEs play an essential role in decision-making in SMEs. The lack of awareness of the importance of information and communication technologies and the perceived benefits such as positive sales growth, reduced production costs, improved operations, and delivery times are a significant obstacle to the adoption of ICT and subsequently to the improvement of the company's IT system (Tarafdar et al., 2012; Ulas, 2019). The Lack of time, computer knowledge, and technology use are other obstacles affecting the adoption of ICT by SME leaders (Kapurubandara & Lawson, 2008; Okundaye et al., 2019). In addition, SME leaders, concerned with profitability and return on investment, hesitate to make significant investments in ICT, as their financial resources are limited, and the benefits provided by the IT system are not immediately apparent (Kotelnikov, 2007).

2.4.2 Employee resistance forces

At the social dimension level, the obstacle lies in the demotivation of employees to use the technical dimension. The adoption of ICT can lead to changes in the way of working and, subsequently, a behavior of resistance on the part of employees (Hollenstein, 2004; Nugroho et al., 2017; Santos, 2011). This resistance is defined as a negative attitude of users toward adopting ICT (Napitupulu et al., 2018). It is mainly caused by employees' low level of technological knowledge and the lack of awareness of the genuine interest in ICT (Poorangi et al., 2013).

2.4.3 Supporting measures and technical assistance

The psychological discomfort expressed by fear and incompetence of SME employees when introducing ICT can be treated by supporting measures implemented by leaders (Anand & Dalmasso, 2020). Among these measures, we can mention the internal communication campaign to explain ICT's perceived usefulness and ease of use as well
as training programs and technical assistance to help employees with better use of ICT, which can significantly promote their appropriation (Hyson, 2016). Several studies show that the profile of employees (age, level of education, experience, etc.) can influence the interest drawn from these programs (Allaoui & Benmoussa, 2020; Gorman et al., 1997; Soriano & Castrogiovanni, 2012). They then show that employee involvement would reduce the risk of rejection of ICT and that progressive adoption can accelerate the effective use of ICT within SMEs. The key word at this stage is employee motivation (Vlacsekova & Mura, 2017).

Figure 2: Obstacles and strengths of the adoption of the technical dimension of information systems (ICT) through the social dimension.

2.5 ADVANTAGES AND DISADVANTAGES OF I.S. FOR EXPORT IN SMALL AND MEDIUM-SIZED EXPORTING FIRMS

Exporting activity requires a developed I.S. that allows the company to study the characteristics of the foreign market, taking into account cultural differences, to discern export-related risks, which may be an unsuccessful prospecting or a currency risk, or even a risk of insolvency, and then to think about concluding an insurance contract covering any potential losses, to determine the costs of approaching foreign markets, and finally to have essential data for the implementation of the export project (St-Pierre et al., 2006).

The link between I.S. and export has been addressed in the literature related to developed countries, where I.S. is described as a catalyst for the development of SMEs
internationally, allowing for improved organizational performance through quick information circulation, searching for new sources of income, better market knowledge, improved communication, implementing a cost reduction strategy, diversification... (Machikita & Tsuji, 2010; Pick et al., 2021). Works on the theme in developing countries are rare and contradictory. For example, the work of Chowdhury (2006) explains that in East Africa, the impact of I.S. on business growth is negative due to the high cost of I.S. and the long time needed for appropriation and use of these techniques, and those of (Machikita & Tsuji, 2010; Pick et al., 2021) who show that the adoption of ICT has positive effects on exporting companies in Latin America: increasing sales volume, reducing costs, improving delivery times... In North Africa and the Middle East, bibliographic gaps in the field are glaring, particularly in Lebanon, even though the region is renowned for its historical contribution to international trade (Cusolito et al., 2022; TORRÈS, 2007).

3 METHODOLOGY

The method adopted is qualitative analysis. The objective of our research is the identification of situations that push Lebanese companies to export and how to do it, as well as the role of the information system in this regard.

The sample of small and medium-sized exporting firms is small but varied, allowing for analyzing the causes and means of exporting without presenting all small and medium-sized exporting firms statistically.

Data collection is done in real-life situations through semi-structured interviews. The adopted interview guide is based on open-ended questions (the main activity of the company, its history, means of information circulation, membership in a network, means of entering the foreign market, means of concluding contracts, means of communication with foreign partners, the strategy adopted by the entrepreneur, percentage of export turnover, etc.) and closed questions (personal characteristics of the manager, level of education of employees, training sessions, use of ICT, etc.).

First, the collected data is processed and analyzed in a table. Then the results will be communicated to the small and medium-sized exporting firms so that they can benefit from the research (research-action method).

The unit of analysis is made up of Lebanese small and medium-sized exporting firms, and the sample consists of firms working in the field of jewelry, agri-food, and
high fashion. These sectors are chosen due to their significant contribution to exports (about 60% of small and medium-sized exporting firms, statistics from the Chamber of Commerce and Industry 2013).

3.1 SITUATION OVERVIEW: SMES IN LEBANON

Lebanon is primarily a small and medium-sized enterprise (SME) economy. According to Lebanon's Ministry of Economy and Commerce, around 97% of businesses are considered SMEs (Karaki, 2021). These companies represent 80% of national production (Karaki, 2021). The classification of companies by size differs from country to country. Each country has its definition of SMEs based on social, tax, or legal regulations, but within the same country, each sector has its size references. Lebanon has no commonly accepted definition of SMEs (Abi Azar, 2005).

The present study focuses on the practices of the information system of the leaders of Lebanese SME exporting firms. This subject is fascinating in Lebanon, as SME exporters represent a significant portion of the economy: they account for 28% of national production and 40% of GDP (data from the World Bank's national accounts, 2015). The primary customer countries are the United Arab Emirates (nearly 50% of exports), Switzerland, and Turkey, countries whose currency is stronger than the national currency. The main products exported: Jewelry and jewelry articles, iron debris or waste, processed diamonds (high added value), high fashion articles, agricultural products, and cotton clothing (econostrum.info 2014). Lebanese SME exporters are mostly family-owned businesses run by the owner or a "family council." Depending on the sector, there are cooperatives (such as agricultural cooperatives) or organizations (such as the Gathering of Lebanese Business Leaders) helping SMEs to know the export conditions in such and such countries and even to advise on the qualification of products to export but very rarely to facilitate contacts with the outside. The Lebanese Ministry of Economy and Commerce (www.economy.gov.lb, 2023) presented "a charter of SMEs," bringing together strategic orientations adopted to promote the growth of these companies. Export assistance is presented in the third pillar. In summary, it promotes subsidized credits to SME exporters and establishes a list of partnerships and agreements signed with foreign countries to eliminate entry obstacles.

Our field study will show which I.S. SMEs use to access all kinds of information that facilitate their export activity and how information circulates within the organization.
3.2 CHOICE OF STUDIED COMPANIES

The sample is chosen to consider the characteristics of SME exporters (size, decision-making power, and strategy) and their nature and analyzed based on the adopted I.S. The sector of activity is not considered because it is neutral about the studied subject. Our sample is presented in the following table.

<table>
<thead>
<tr>
<th>Selection criteria</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of employees</td>
<td>4 &lt; employees &lt; 10</td>
<td>11 &lt; employees &lt; 50</td>
<td>51 &lt; employees &lt; 100</td>
<td>101 &lt; employees &lt; 250</td>
</tr>
<tr>
<td>Decision-making power</td>
<td>Owner-manager</td>
<td>Unanimous decision by owner-managers</td>
<td>Vote in &quot;family council&quot;</td>
<td>Vote in &quot;family council&quot;</td>
</tr>
<tr>
<td>Strategy</td>
<td>- Strong presence in the domestic market</td>
<td>- Strong presence in the domestic market</td>
<td>- Longevity in the domestic market</td>
<td>- Longevity in the domestic market</td>
</tr>
<tr>
<td></td>
<td>- Maintaining market share abroad</td>
<td>- Longevity of product in foreign market</td>
<td>- Expanding product in foreign market</td>
<td>- Expanding product in foreign market</td>
</tr>
<tr>
<td>Nature</td>
<td>Partial and regular exporters</td>
<td>Partial and regular exporters</td>
<td>Partial and regular exporters</td>
<td>Partial and regular exporters</td>
</tr>
</tbody>
</table>

Source: Prepared by Authors (2023)

It is essential to highlight that all the studied companies export a portion of their production and are regular exporters, with the largest having the possibility of having foreign subsidiaries. This allows us to conclude that "occasional exporters" and "first-time exporters" are rare.

4 RESULTS AND ANALYSIS OF THE RESEARCH. SME EXPORT AND I.S.

The collected data is classified according to six research axes.

4.1 AXIS 1: DECISION-MAKING POWER FOR STRATEGIC EXPORT DECISIONS AND INFORMATION SYSTEMS

This table highlights the analyzed companies' organizational structure, the decision-making power concerning exports, and the applicable I.S.

<table>
<thead>
<tr>
<th>Choice modalities</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of employees</td>
<td>4&lt;employees&lt;10</td>
<td>11&lt;employees&lt;50</td>
<td>51&lt;employees&lt;100</td>
<td>101&lt;employees&lt;250</td>
</tr>
<tr>
<td>Organizational structure</td>
<td>-The director is also the owner.</td>
<td>-Family council: chaired by a CEO</td>
<td>-Family council: chaired by a CEO</td>
<td>-Family council: chaired by a CEO</td>
</tr>
</tbody>
</table>
Lebanese exporting SMEs fit the concept of universal SMEs in which decision-making power depends on owner-managers (Chebbi et al., 2023; Kroon et al., 2013). Thus, the ways of circulating information, the status of the company, and the means of contact between managers and employees are set by family authority in each type of business. However, we do notice that the larger the size, the more the decision-making power related to exports is based on studies conducted by salaried experts.

4.2 AXIS 2: STRATEGIC DECISIONS RELATED TO EXPORT

The table below presents the observed results on several criteria influencing strategic decisions in export activities.

<table>
<thead>
<tr>
<th>Choice modalities</th>
<th>A</th>
<th>B</th>
<th>C</th>
<th>D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of employees</td>
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<td>51&lt;employees&lt;100</td>
<td>101&lt;employees&lt;250</td>
</tr>
<tr>
<td>Decision-making power</td>
<td>Owner-manager</td>
<td>Unanimous decision by owner-managers</td>
<td>Vote in the &quot;family council&quot;</td>
<td>Vote in the &quot;family council&quot;</td>
</tr>
<tr>
<td>Export strategy</td>
<td>Market share retention abroad</td>
<td>Market share retention abroad</td>
<td>Product expansion in foreign markets</td>
<td>Product expansion in foreign markets</td>
</tr>
<tr>
<td>Percentage of production exported, based on revenue</td>
<td>About 20%</td>
<td>About 30%</td>
<td>About 40%</td>
<td>About 70%</td>
</tr>
</tbody>
</table>

Source: Prepared by Authors (2023)
According to the results obtained, the evolution of export sales and strategic decisions depends on the company’s size, as mentioned in empirical studies (Hessels & Parker, 2013; Miller et al., 2021; Xie & Suh, 2014). The larger the company, the more it has specialized personnel for research and development work, and the more these sales tend to increase. Therefore, smaller companies export geographically and culturally nearby countries, but larger one’s export to countries with an opportunity based on market research. Nonetheless, it is essential to mention that export assistance is provided through contracts and negotiations made by the government with several Arab countries and the European Union to eliminate entry barriers. These facilities are available to all types of exporting companies. In addition, financing through the opening of bank guarantee letters, transfers, etc., is apprehended by banks to encourage exports.

4.3 AXIS 3: INTERNAL I.S., SMES, AND EXPORTS

The following highlights the nature of the internal information system used by Lebanese exporting SMEs.

<table>
<thead>
<tr>
<th>Export destinations</th>
<th>Gulf countries and other Arab countries</th>
<th>Gulf countries and other Arab countries, Europe, Turkey</th>
<th>Gulf countries and other Arab countries, North Africa, Europe, Turkey, Australia</th>
</tr>
</thead>
<tbody>
<tr>
<td>Types of customers</td>
<td>Lebanese SMEs abroad</td>
<td>Lebanese SMEs abroad Dealerships</td>
<td>Lebanese SMEs abroad Foreign SMEs Branches</td>
</tr>
<tr>
<td>Strategic decisions made for exports</td>
<td>Periodic visits by the manager to foreign countries to finalize contracts</td>
<td>Preparation of a file on potential foreign clients by the commercial director</td>
<td>-Studies carried out by the commercial director with the collaboration of the financial director. -Great potential for opening branches in countries with a significant Lebanese diaspora -Participation in fairs or exhibitions abroad. -The search for foreign clients is the responsibility of the marketing department (market research, etc.) -Establishment of subsidiaries abroad</td>
</tr>
</tbody>
</table>

Source: Prepared by Authors (2023)

<table>
<thead>
<tr>
<th>Choice modalities</th>
<th>A</th>
<th>B</th>
<th>C</th>
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<td>51&lt;employees&lt;100</td>
<td>101&lt;employees&lt;250</td>
</tr>
<tr>
<td>Internal IS for Export</td>
<td>-Based on direct contact (oral and informal) between</td>
<td>-Direct contact between directors to find operational</td>
<td>-Monthly meeting between the commercial and</td>
<td>-Quarterly meeting to establish export forecasts between the</td>
</tr>
</tbody>
</table>

Table 4: Exporting SMEs and internal I.S.
We can observe that direct and informal communication is privileged in SMEs with fewer than 50 employees, which confirms the observations made in the literature (Nor et al. 2018). Beyond this observation, the methods or practices of this informal communication have some specificities, especially for companies with more than 50 employees. Indeed, internal operational management is still based on direct contact between employees and their managers. Nevertheless, sometimes email is used, and an “intranet” appears at the management level.

4.4 AXE 4: EXTERNAL I.S., SMES, AND EXPORT

The external information system is presented in the table below:

<table>
<thead>
<tr>
<th>Choice modalities A</th>
<th>Number of employees</th>
<th>Export Strategy Adopted</th>
<th>B</th>
<th>Number of employees</th>
<th>Export Strategy Adopted</th>
<th>C</th>
<th>Number of employees</th>
<th>Export Strategy Adopted</th>
<th>D</th>
<th>Number of employees</th>
<th>Export Strategy Adopted</th>
</tr>
</thead>
<tbody>
<tr>
<td>Market share retention abroad</td>
<td>Market share retention abroad</td>
<td>Product expansion in foreign markets</td>
<td>Product expansion in foreign markets</td>
<td>4&lt;employees&lt;10</td>
<td>11&lt;employees&lt;50</td>
<td>51&lt;employees&lt;100</td>
<td>101&lt;employees&lt;250</td>
<td></td>
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</tbody>
</table>

Source: Prepared by Authors (2023)
As conclusion, it will be stated that the external I.S. for all SMEs is both direct and indirect, formal and informal. Generally, the knowledge network is an important anchor point for export and provides direct and informal communication. Contract negotiation is always direct and formal. Though, the planning activities, analysis of foreign markets, and the implementation of global development strategies addressed by SMEs whose strategy is to expand into foreign markets are carried out through a developed I.S., which is well-verified by the literature review (Machikita & Tsuji, 2010; Pick et al., 2021; St-Pierre et al., 2006).

4.5 AXE 5: OBSTACLES AND STRENGTHS FOR THE DEVELOPMENT OF I.S. FOR SMES AND EXPORT

Based on interviews, we have observed that the I.S. presents obstacles and strengths according to its two sub-dimensions, technical and social. The technical dimension's obstacles are presumed to be the limitation and cost of connectivity. In contrast, the strengths of this dimension are presented by the ease of financing obtained by banks for the acquisition of ICT following subsidized credits. We have noticed that essential technical tools (computers, faxes, software...) are present at the management level and within the export authorities in all categories of exporting SMEs. The obstacle

| External IS for Export | -Network of contacts  
| Direct contact of the manager with foreign partners for contract conclusion (manager's travel required)  
| Exchange information with foreign clients via email with the manager (orders, delivery time, etc.) | -Opportunities search through the network of contacts  
| Direct contact of the sales manager for contract conclusion (travel required)  
| Exchange of information with foreign clients via email, free calls on Skype, etc. | -Opportunities search through the network of contacts and the internet by the sales manager  
| Direct contact of the sales and financial manager for contract conclusion abroad (travel required)  
| Exchange of information with foreign clients via email, free calls on Skype, etc. | -Opportunities search through the network of contacts by the general manager  
| -Opportunity research by the marketing department through market studies  
| -Use of the internet for payments  
| -Direct contact of the sales director for contract conclusion abroad (travel required)  
| -Establishment of a website for showcasing the company's products with contact information of sales representatives abroad |

Source: Prepared by Authors (2023)
of the social dimension mainly concerns the owner-managers of exporting SMEs with less than ten employees. These managers refuse to delegate export responsibility to professionals. As mentioned in the literature, the strengths of this dimension are presented by the perception of the usefulness of the importance and role of external I.S. by managers, by the good educational level of professional export staff (sales manager, finance manager, marketing department employees), which facilitates training sessions and accompanying projects in case the company chooses to modernize its communication techniques, a point also verified in the literature (Allaoui & Benmoussa, 2020; Gorman et al., 1997; Soriano & Castrogiovanni, 2012).

4.6 AXIS 6: CONTRIBUTION OF I.S. TO EXPORT IN EXPORTING SMES

The results show that formal and developed I.S. is present in companies whose strategy is to expand into foreign markets. This type of IS recognizes success since the share of turnover abroad represents a percentage of 40 to 70% of the overall turnover. The increase in sales abroad is due to cultural and geographical proximity, better knowledge of foreign markets, and fast and effective communication, this result is confirmed by previous studies (Leonidou et al., 2007; Magnani et al., 2018; Yan et al., 2023). However, the study concludes that companies whose strategy is to maintain their share in foreign markets apply simple IS based on the internet for rapid exchange of information.

The following model of Lebanese exporting SMEs can be designed based on the obtained results:
5 CONCLUSION

The leaders of Lebanese SMEs are aware of the need for a developed external IS for their international growth strategy, especially since they do not have the contacts facilitated by networks that would inform them of potential partners and openings in foreign markets. Those whose strategy is maintaining their products in foreign markets prefer a simple and direct external IS. State aid for exports is reflected in the signing of agreements to eliminate entry barriers, and efforts by private organizations are made for "business opportunities.” However, the search for potential foreign clients’ rests entirely on the companies.

The study highlights that the internal and external IS evolves with the size of the SMEs, decision-making power, and adopted strategy. The larger the size, the more decentralized the decision-making power; the adopted strategy is external growth, and the external IS is indirect and developed. Nevertheless, at all levels, we notice that the internal IS is still based on direct contacts, the scope of which also changes with the company’s size, decision-making power, and strategy. Therefore, we have noticed that the IS used by Lebanese exporting companies is a hybrid IS. However, the success of
this system is based on the usage skills and technological knowledge of the management and employees responsible for export, which sometimes requires accompanying measures such as training sessions facilitated by the educational level of directors and employees. In its technical dimension (ICT), the I.S. is present in exporting SMEs, as there are financing facilities for tools granted by investment banks. Nevertheless, the main technical usage problem remains the connection cost and poor quality.
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