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A Grounded Theory Study: Representing a New Model for Exploring Transnational Capabilities for Steel Pipe Manufacturing Companies Attaining Competitive Advantages

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ABSTRACT

Competitive advantages play a unique role in the successes or failures of organizations because of customers' very speedy accessibility to suppliers and manufacturers. Indeed, these advantages can make firms and organizations survive and grow in today's increasingly competitive field, attaining by creating and improving their capabilities. The study's primary goal is to design a grounded theory model extracted from the transnational capabilities, but this requires exploring the transnational capabilities aiming for international markets entry. The statistical population of this qualitative research includes experts and managers working in the steel pipe manufacturing companies of the Iranian gas and oil industry. The data are collected via interviews. The validity is assured by consulting with the elites and university professors, and the Delphi technique verifies the reliability. The findings reveal 496 open, 44 axial, and 9 selective codes, including 1) marketing, 2) managerial, 3) human resources, 4) financial, 5) manufacturing, 6) quality and standards, 7) research and development, 8) logistics, and 9) interactions and consulting with the government. Finally, a new model is extracted and represented from the analysis of the axial coding process of the grounded theory. The model clarifies relationships among the components, including casual conditions, context, actions/interactions (strategies), intervening conditions, and consequences. The recognition of the relationships of the components helps better understand the capabilities, attaining the competitive advantages needed for successful entry into the international markets.

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1. Introduction

For almost 200 years, globalization has been seen as a positive development. Late twentieth-century globalization became synonymous with a hyper-efficient networked world economy (Kobrin, 2020, p. 280–281). Globalization has been hailed for promoting freedom and removing barriers to goods and trade while aiding capital flows and international migration to create an integrated world economy (Yameogo et al., 2021). In particular, globalization has helped keep the world interrelated through global connectivity and networks (Amadi, 2020). Whenever companies contemplate internationalization, attention focuses on the resources and capacities necessary to undertake substantial operations in global and competitive environments (Fernandes et al., 2020). Firms must create competitive advantages and new capabilities and improve their current ones to enter the international markets successfully. Competitive advantage is defined as the relative superiority of the export venture's value offering to customers in the target export market and the cost of delivering this realized value.

In contrast, the capability is the ability of an organization to perform a coordinated set of tasks, utilizing organizational resources to achieve a particular result (Ferreira and Coelho, 2019, p.5). Thus, the most crucial goal for firms to create and improve their capabilities is to achieve competitive advantages. Only having competitive advantages makes their possible survival and growth in terms of the difficulty level of competitiveness in the changing and turbulent environment of international markets. Iran's economy mainly depends on gas and oil, and the transit of gas and oil is a critical issue for steel pipelines. The companies that produce these pipes are at the center of attention of this research: pipe manufacturing companies in Iran's gas and oil industry. These companies need to develop their markets for different reasons, such as local competition and some limitations for the execution of internal projects. Thus, one of the most attractive and profitable options is to select international markets, which need competitive advantages. The competitive advantages are obtained from solid capabilities. Therefore, the study aims to fill the lack of studies on identifying and designing a model for the transnational capabilities focused on (gas and oil) steel pipe manufacturing companies in the gas and oil industry to enter international markets.

Section 1 of the paper is the introduction, as explained above. Section 2 presents the literature review related to identifying the primary constructs. After that, in Section 3, the research methods and measurement scales are given. The data analysis using grounded theory will be explained in Section 4, and the findings will be described in Section 5. Consequently, the paper discusses the findings and conclusions in Section 6.

2. Literature review

Business firms strive to outperform their competitors to excel in the ever-changing market (Teece, 2014a). They must improve their capabilities or create new ones to achieve this goal. One of the strategies firms exploit to survive is expanding their markets in a broader range of their saturated local markets. Thus, they try to enter the international markets. They will need the advanced capabilities called *transnational capabilities* in this article to succeed in this area. Transnational capabilities are defined as the capabilities required for a company's success beyond its country's borders. This means that qualitative and quantitative improvements in capabilities play the most critical role in firms' resistance against powerful forces of the fluctuating environment of competition. Therefore, firms must consider the interrelation between capabilities and competitive advantages, primarily if they target to select internationalization. Capability can be considered the ability of an organization to perform a coordinated set of tasks, utilizing organizational resources to achieve a particular result (Helfat and Peteraf, 2003; Ferreira and Coelho, 2019). Resources and capabilities are not strategic and fundamental unless they engender superior performance. The advantages achieved by the resources and capabilities depend not only on a company's ability to establish a competitive advantage but also on how long the company can sustain that advantage (Grant, 2016).

Understanding how some enterprises build capabilities, grow, and create competitive advantage, leading to higher profits (and higher wages) above a perfectly competitive level, is essential for understanding capitalism and the modern economy. Indeed, as John Sutton at the London School of Economics states in his recent book competing in capabilities, the proximate cause [of differences in the wealth of nations] lies mainly in the capabilities of firms. Capabilities arise partly from learning, combining resources, and exploiting complementary assets. Many capabilities become embedded in routines, and some reside with the top management team. Organizational capabilities can fall

into one of two interconnected (but analytically separable) categories: ordinary and dynamic capabilities. Ordinary capabilities are primarily operational, whereas dynamic capabilities are generally strategic (Teece, 2019, p. 8). Therefore, the implied model of capability development and deployment looks like Figure 1. Organizations accumulate experience that leads to the creation of capabilities, which are deployed (implicitly through managerial choices) to generate organizational outcomes (Eggers and Kaplan, 2013).

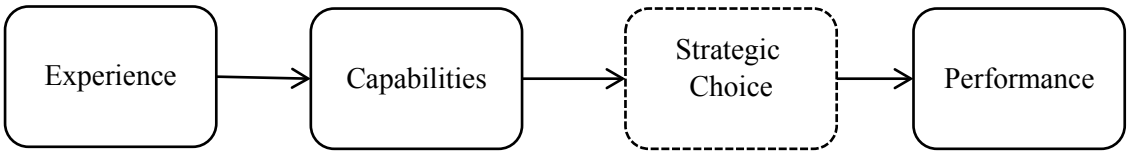

Figure 1. Capabilities and performance: the standard model (Eggers and Kaplan, 2013)

Concerning the influential role of capabilities on firms' competitive advantages, some capabilities studied in many articles as firms' key capabilities are defined as follows:

Organizational capabilities are defined as the firm's ability to manage its resources effectively. It involves making strategic decisions and effectively implementing the strategic decision process to achieve the desired results (Nayeemunnisa and Gomathi, 2020).

Dynamic capabilities are part of a system that includes resources and strategy. They determine the degree of competitive advantage an enterprise can gain over its rivals (Teece, 2018).

Innovation capability enables organizations to apply requisite and appropriate technologies to develop new products, meet market needs, and survive competition (Yusheng and Ibrahim, 2020).

Marketing capabilities: Marketing researchers have conceptualized a firm's ability to use available resources to perform marketing tasks so as to achieve desired marketing outcomes (Morgan et al., 2018).

Managerial capabilities are the firm's skills, knowledge, and experience to deal with difficult and complex tasks in management and production (Choi and Shepherd, 2004) and the ability to choose activities for the production and delivery of products or services to customers efficiently and effectively (Collis, 1994; Srećković, 2017).

Individual capabilities: Birdi et al. (2016) defined individual capabilities as creativity-relevant skills, job expertise, operational skills, contextual knowledge, and motivation.

Technological capabilities are the skills and knowledge needed to use or operate existing technologies or production systems or to change or innovate technologies and production systems (Filho and Moori, 2018).

Thus, capabilities have become precious factors for today's organizations because of their potential to create competitive advantages. The competitive advantage will be explained for its unique role in the export and international market entry.

Competitive advantage refers to the outcome of an organization developing attributes that allow it to outperform its competitors in a way that makes it difficult or impossible for competitors to imitate. It is defined as the relative superiority of the export venture's value offering to customers in the target export market and the cost of delivering this realized value (Ferreira and Coelho, 2019). The organization can gain a larger market share through competitive advantage. Organizations achieve a sustainable competitive advantage in the long run by developing key competencies and providing better services to their target customers than their competitors. The critical and significant aspect of the capability-based theory of competitive advantages is that firms can create distinctive capabilities (robustness and resilience) by adopting systematic activities which allow them to achieve competitive advantage (Afraz, 2021). The resource-based and organizational capabilities views argue that firm-specific resources and capabilities result in competitive advantage. If a firm has rare resources and capabilities, which are difficult to imitate and substitute, it achieves a competitive advantage (Srećković, 2017). An enduring competitive advantage in dynamic markets confirms the ability to obtain, integrate, and reconfigure

resources that match the markets (Ferreira and Coelho, 2019). In their article "Competitive Advantage and its Impact on New Product Development Strategy", Hosseini et al. (2018) identified the following factors influencing competitive advantage.

Table 1: Factors influencing the competitive advantage (Hosseini et al., 2018)

No.	Factor
1	Quality
2	Quick and suitable service
3	Creation of commitment across the organization
4	Customer relation management
5	Customer's loyalty
6	Product rate
7	Training the employees to enhance their abilities
8	Mutual relation between marketing and R & D sections
9	Ability to hire competent employees
10	Entering new markets
11	High investment in innovation
12	Innovation in distribution

Many works have studied the capabilities and impact of their roles in making a success from the perspective of the firm's competitive advantages. Therefore, some of the most critical, widely attentive capabilities are mentioned briefly in Table 2.

Table 2: Capabilities studied for the literature review

No.	Capability	Reference
1	Dynamic	Teece (2018), Martin and Bacrach (2018)
2	Individual	Mudalige et al. (2019), Cohen (2016), Birdi et al. (2016)
3	Innovation	Yusheng and Ibrahim (2020), Sumrin et al. (2020), Ferreira et al. (2019)
4	Managerial	Haapanen et al. (2020), Srećković (2017), Helfat and Peteraf (2015)
5	Marketing	Morgan et al. (2018), Zimmermann and Blythe (2013)
6	Organizational	Naeemunnisa and Gomathi (2020), Wang and Zeng (2017)
7	Technological	Filho and Moori (2018), Guerra and Camargo (2016)

Although many works have been done on different capabilities like marketing, managerial, and financial capabilities mentioned in our research background, no serious works or models have been presented so far, especially in the field of international markets entry by exploring transnational capabilities for pipe manufacturing companies in Iran's oil industry mainly for export improvement as one of the most influential factors of the economic growth. In the next section, the methodology will be explained.

3. Research methods

Scientific research is generally divided into two popular sections: qualitative and quantitative. The current study is conducted on a qualitative basis. Qualitative research focuses on developing a deeper understanding of complex phenomena that can be difficult to measure empirically (Johnson and Waterfield, 2004; Walsh et al., 2020).

The research population includes top managers, especially business, marketing, and sales and procurement managers of steel pipe manufacturing companies in the Iranian gas and oil industry and experts in the transit (gas and oil) steel pipe manufacturing industry. The selected sampling method was non-probability judgmental regarding sensitivities of title and type of the research, and the sample size was determined according to the researchers' experiences and consulting with industrial experts up to the theoretical saturation. The interviews were applied to the data collection.

Types of interviews include different styles (structured, semi-structured, and unstructured). The type of semi-structured interview was selected for the research because of the interviewees' experiences and freedom of speech.

Practical steps for the implementation of the study (conducting grounded theory research):

Step 1: Formulating the interview questions: In qualitative research, it is essential to investigate questions involving the intentions and purposes of people. The "Why?", "How?", and "What kind?" are essential when looking at social science phenomena, not just "How much?" (Croply, 2019). Accordingly, the interview questions are listed in Table 3.

Table 3: The interview questions

No.	Questions
1	What are the needs of the country's pipe manufacturing companies?
2	What specific capabilities should the transit (gas and pipe) pipe manufacturing companies have to be able to enter the international markets?
3	What are the conditions of export in international markets for the transit (gas and pipe) pipe manufacturers?
4	What are the customers' needs and requirements in the international markets?
5	What factors will influence the transit (gas and oil) pipe manufacturers for international market entry in terms of motivations and intensives?
6	What factors will influence the transit (gas and oil) pipe manufacturers for international market entry in terms of facilitation?
7	How can the transit (gas and pipe) pipe Iranian manufacturers increase their market shares in international markets?
8	How can the transit (gas and pipe) pipe Iranian manufacturers increase their competitive strengths in international markets comparing the competitors?
*	Finally, please mention any noticeable statements if untold.

Step 2: Interview: It was a semi-structured interview. Interviewees contributed to the interview were 17 experts, including business, sales, marketing, and procurement managers working in 8 transit pipe manufacturing companies in Iran's gas and oil industry. The companies nearly produced the full pipes needed for the gas and oil transit of the country. The selected respondents were at least 35 years having at least 10 years of related work experience in the industry with Master of Art degrees, mainly in management. The interviews continued up to theoretical saturation. Theoretical saturation occurs when the emergent categories are determined to be well developed (Corbin and Strauss, 2015), achieving what Nelson (2017) termed and indicating that no new categorical dimensions or properties are emerging (Holton, 2007; Bowers and Creamer, 2020).

Step 3: Data analysis of the study using the grounded theory method includes the three-stage (open, axial, and selective) coding process to explore the transnational capabilities.

The first stage, open coding, allows data reduction into concise manageable themes that accurately reflect the phenomenon. Therefore, in this first stage, a phrase (not a complete sentence) usually is written for each point stated by an interviewee (Muratovski, 2016; Thurlow, 2020). This stage will be exemplified in the next section, data analysis.

The second stage, axial coding, involves reassembling large amounts of open-coded data into more abstract conceptual categories. This analytic phase aims to consider and develop relationships between working categories and subcategories to capture both the general properties of a phenomenon and dimensional variation (Scott and Medaugh, 2017). Therefore, open codes with closely similar contents in this stage will be categorized in the axial code group. These codes may come from different interviews but in the same category. The following section will exemplify this stage (Thurlow, 2020).

The third stage, selective coding, involves combining categories and connections and their development into a storyline to describe the mechanics of the issue. According to Muratovski (2016), this is the point where theory can be developed (Thurlow, 2020). In this stage, types of axial codes with closely similar contents will be put in the same category. Indeed, the selective codes use results of the previous stages and create the key categories, which are the study's final expected variables, by selecting the best-fitted axial codes in the same baskets. This stage will be exemplified in the next section as well.

Step 4: representing a grounded theory model (paradigm):

Glaser and Strauss (1967) first introduced grounded

theory (GT). It relies on the absence of an existing theory, which aims to set up a new theory (Muratovski, 2016; Thurlow, 2020). Most hypotheses and concepts come from the data and are systematically worked out concerning the data during the research (Glaser and Strauss, 1967, p. 6; Thurlow, 2020, p.2). The grounded theory further provides a particular set of systematic methods which support abstraction from the data to develop a theory grounded in the empirical data (Vollstedt and Rezat, 2019). The axial coding framework includes causal and intervening micro- and macro-structural, sociopolitical attributes of the context, actions, or interactional strategies used to manage the phenomenon and resulting consequences of interactions and actions taken. Axial coding represents a paradigm grounded in pragmatist and interactionism traditions of social theory, emphasizing human action and social interaction (Scott and Medaugh, 2017).

Paradigm: An analytic strategy for integrating structure with the process. As explained above, the conceptual GT model (paradigm) of the article includes the following components:

Casual conditions: These form the primary phenomenon or the core category. The casual conditions are sets of categories and their features influencing the core (central) phenomena. The casual conditions of the study are mentioned in Figure 2.

Core phenomenon: the central (core) category selected by the researcher is at the center of attention of the study. The core phenomenon determines the relationship between other categories. The core phenomenon of the study is the transnational capabilities of pipe manufacturers in Iran's oil industry

Actions-interactional strategies: These are the responses made by individuals or groups to situations, problems, happenings, and events (Strauss and Corbin, 2008, p. 88). The strategies of the research are mentioned in Figure 2.

Context: Structural conditions that shape the nature of situations, circumstances, or problems to which individuals respond utilizing action, interaction, and emotions. Contextual conditions range from the most macro to the micro (Strauss and Corbin, 2008, p. 87). The context of the study is mentioned in Figure 2.

Intervening conditions: The intervening conditions consist of a set of mediating variables. The intervening conditions of the study are mentioned in Figure 2.

Consequences are outcomes of interactions or emotional responses to events. Consequences answer the questions about what happened due to those interactions or emotional responses (Strauss and Corbin, 2008, p. 88). The consequences are mentioned in Figure 2.

After all, a new grounded theory model extracted from the analysis of the explored axial codes of the study is shown in Figure 2. The figure describes relationships between the components of the model.

Validity: The research validity is achieved by sending the research results to the interviewees and applying their points of view. Finally, the supervisors studied the research, and some items were amended.

Reliability: The Delphi technique was used to improve the research reliability. The confirmation or adjustments of the research components and concepts resulted from analysis of the interviews gained by the Delphi technique and the dominant experts' knowledge and experiences. In the next section, the data analysis will be explained.

4. Data analysis

After formulating the interview questions, the questions answered by the respondents and details of their verbal comments were written down. Then, the written interviews referred to the experts again for additional comments on a comprehensive understanding of the issue. Next, the three-stage coding process (open, axial, and selective coding) of the grounded theory was applied for the data analysis as defined before. The data analysis for one code was described as a practical example. Indicators of the codes for a better understanding will be explained before presenting the practical example.

Indicator X refers to the interviewee; the number inserted in front of it means the interview number. For example, X_4 means interviewee number 4.

Indicator P is abbreviated for the word Point, and the number inserted in front of it means the point number of the interview. For example, P_{40} means point number 40.

X_4 P_{40} means point number 40, expressed by interviewee number 4.

Selecting the points: after writing down each interview comment, the points of each are listed in a table like Table 4. This is the stage before the coding process. The points of interview number 4 presented as a practical example are as follows.

Table 4: Points expressed in interview number 4

Code indicator	The points mentioned in interview number 4 (X_4)
P_1	The first usual challenge regarding the needs of the pipe manufacturing industry is the challenges of human resources, including getting old, lack of motivation, and qualification.
P_2	The second challenge regarding the need of the pipe manufacturing industry includes technology and equipment challenges, such as the depreciation of the country's oil and gas manufacturing industry and oil extraction and exploitation sections.
P_3 . . .	In recent years, overhaul planning was disregarded mainly for lack of spare parts and financial limitations.
P_{39}	To be supported by the government is the first step to entering the international markets.
P_{40}	Drawing attention toward the competitors is an essential factor because they are advancing in technology, communications, and business affairs.
P_{41}	Reducing manufacturing costs is a critical point that helps have a competitive product. This means meager prices of the products to be able to compete with the competitors. The total cost of the industry must be reduced.

Open coding is the first stage of the coding process, as explained in the research method section. Table 5 is an example of the open coding of Table 4.

Axial coding is the second stage of the coding process, as explained in the research method section. Table 6 is an example of the axial coding of Table 5, in which other open codes have been added from different interviews.

Selective coding is the third and last stage of the coding process. Table 7 is an example of the selective coding of Table 6, which includes other axial codes resulting from different interviews.

Table 5: The open coding

The point stated by interviewee No. 4 (X_4)	The defined open code	Indicator of the open code
Drawing attention toward the competitors is essential because they are advancing in technology, communications, and business affairs.	The need for monitoring the international competitors	X_4P_{40}

Table 6: The axial coding

The defined axial code	The defined open codes fit with the interviewees' points	Indicators of the open codes
The need to watch the competitors	Saturation of the region's target markets by the competitors	X_1P_{24}
	The necessity for cooperation and unity with the competitors	X_3P_7
	Using the competitors' experiences	X_3P_9
	Cooperation with the domestic competitors meeting the export barriers	X_3P_{28}
	The need for monitoring the international competitors	X_4P_{40}
	The need to watch the competitors' products	X_7P_{18}
	The necessity for knowing competitors and their products in detail	X_8P_4
	The need for attentively monitoring the quality of the competitive products	$X_{10}P_{18}$

The defined axial code	The defined open codes fit with the interviewees' points	Indicators of the open codes
	The necessity for improving the quality of the products regarding the current competition in the markets	$X_{11}P_{19}$
	The need for competitors' assessment before entering the international markets	$X_{13}P_{7}$
	The necessity for knowing competitors in markets of the target countries	$X_{13}P_{8}$
	The need for knowing competitors in terms of determinant factors of competitive advantage	$X_{13}P_{20}$
	Making better competitive power by improving the quality of the products	$X_{14}P_{32}$
	The need to know competitors' different dimensions	$X_{16}P_{25}$

Table 7: The selective coding

The selective code	The axial codes	Number of the open codes
Marketing capabilities	Local and foreign demand management for gas and oil pipes	5
	Market development	5
	Brand equity	7
	Scientific and professional approach to marketing	16
	After-sales services	6
	The need to watch the competitors	15
	The need for monitoring the customers' needs	36
	The necessity for knowing the customers' characteristics and situations	4
	The necessity for recognition of the target markets	19
	Using services of professional brokerages in markets of the target countries	2
	Marketing information system (MIS)	8
	Product offerings	3
	Cost leading pricing	7
	Ability to win a project contract	11
	Optimizing the export facilities	12

5. Findings

5.1. Results related to identifying the transnational capabilities

All the capabilities explored from the study, along with their sub-codes, are presented in Table 8.

Table 8: Capabilities resulted from the research

No.	The selective code	The axial codes	Number of the open codes
1	Marketing capabilities	Local and foreign demand management for gas and oil pipes	5
		Market development	5
		Brand equity	7
		Scientific and professional approach to marketing	16
		After-sales services	6

No.	The selective code	The axial codes	Number of the open codes
		The need to watch the competitors	15
		The need for monitoring the customers' needs	36
		The necessity for knowing the customers' characteristics and situations	4
		The necessity for recognition and features of the target markets	19
		Using services of professional brokerages in markets of the target countries	2
		Marketing information system	8
		Product offerings	3
		Cost-leading pricing strategy	7
		To be robust and reliable enough to conclude an international contract	11
		Optimizing the export potential	12
2	Managerial capabilities	The need for export strategic planning	35
		Developing managers' communicative skills	12
		Integrated management in the piping industry	2
		Top management's positive attitude toward export	23
		Top management stability	2
		External risk management	9
		Organizational structure reform	9
		Role of influential legal stakeholders for export	2
		Coordination between human resources (HR) strategies and organizational strategies	3
3	Human resources capabilities	The necessity for paying much attention to the HR	15
		Using a suitable system for recruitment	4
		HR training and development	6
		Knowledge management database	4
4	Financial capabilities	The need to reduce the total price of the products	14
		Financing	18
5	Production capabilities	Using modern technologies in production processes	14
		Importance of nominal capacity in production	10
6	Standards and quality capabilities	API standard	21
		Quality management of raw materials and products	17
		Importance of standards in the industry	9
7	Research and development capabilities	Importance of research and development	4
		Upgrading the technical knowledge industry	9
8	Logistics capabilities	Optimization of transportation systems	14
		Supply chain management	6
		Identifying suppliers for the raw material and spare parts	7
9	Capabilities for interactions and consulting with the government	Consulting with the government for export support happens	30
		Consulting with the government for reforms of the export regulations happens	9
		Consulting with the government to facilitate international barriers concerning financial transfers	11

No.	The selective code	The axial codes	Number of the open codes
		Consulting with the government to find reasonable solutions to reduce the political barriers to export	21

5.2. Results related to representing the grounded theory model (paradigm)

The methodology of the conceptual (paradigm) model explained earlier in the section is presented as follows. In this model, the casual conditions mainly cause the primary phenomenon. The primary phenomenon leads to the actions/interactions (strategies). The context and intervening conditions also affect actions/interactions (strategies). The context, intervening conditions, and strategies leading to the consequences affect the central phenomenon. The grounded theory model (paradigm) extracted from the study's findings is presented in Figure 2.

6. Discussions and conclusions

Focusing on the findings, we will mention the following practical guides after consulting with industry experts and university professors. These guides are divided into two sections as follows:

6.1. Guides for the transnational capabilities

The following are the guides for transnational capabilities.

- Establishing the marketing management department in the organizational structure of the pipe manufacturing companies;
- Upgrading the advertisement, pricing strategies, and promotion programs to target customers' attraction and retainment by conducting a systematic and integrated strategy to enter international markets;
- The assessment of the company's position in the international markets and identifying the significant customers mainly in the target countries;
- Identifying SWOT aiming the international market entry by determining modern methods and approaches to improve the weaknesses and threats related to export;
- The top management's attention to the knowledge management database focuses on detaining the technical knowledge and the staff's empirical experiences;
- Making necessary reforms in the organizational structure, focusing on the export and hiring experts and professionals in international trade and marketing;
- Meeting the previous outstanding debts focusing on funding new bank facilities for export;
- The financers' assessment, especially international finance corporations, and focusing on creating strategic alliances to acquire and implement international projects;
- Striving to utilize modern technologies with the approach to high-quality production and agile delivery of products to competitive international markets;
- Focusing specific attention on succession in the production sections with an international attitude;
- Paying attention to the technical and international standards on the quality of the products;
- The need to replace the alternative standards for the available limiting ones in export-oriented productions;
- Establishing an independent department for R & D and allocating a particular budget;
- Utilizing the logistic facilities with an approach to the international market entry;
- Agility for making extensive and continuous interactions with the related ministries of the government to eradicate or reduce export barriers;
- Making strategic alliances with the significant pipe manufacturers of the country, convincing the government to support export financially and politically;
- Sending the questionnaire to foreign experts of the international companies to know their ideas about the studies aiming to find the requirements for the Iranian companies for the international market entry.

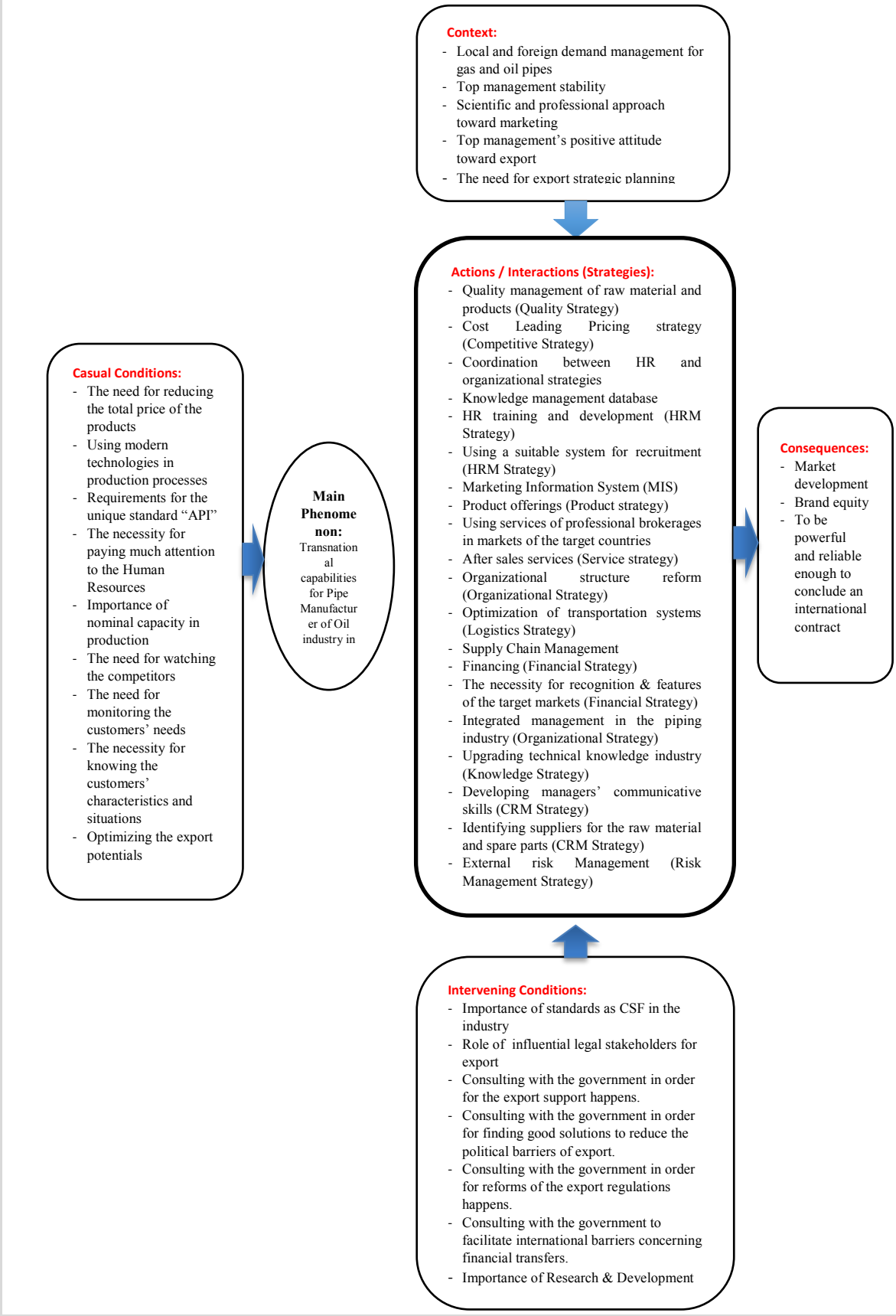

Figure 2: The grounded theory model (paradigm) of the research extracted from the findings of the study

6.2. Guides for the grounded theory model

As presented in Table 2, much research has been done in different industries worldwide using grounded theory. However, no studies have been found explaining the reasons and consequences of investigating the transnational capabilities of the pipe manufacturing companies in Iran's oil industry. Therefore, this research presented a model forming the relationships between the primary phenomenon (the transnational capabilities of the pipe manufacturing companies in the gas and oil industry of Iran for international markets entry) and other categories (e.g., casual conditions, context, intervening conditions, strategies, and consequences) using the grounded theory to fill this gap. This model will lead to the following achievements for the pipe manufacturing companies in Iran's gas and oil industry for international market entry:

- Scanning the local and transnational environments for demands and competitors;
- Knowing the intervening factors of export and brilliant results of export and international projects.

Finally, the study achieved 496 open, 44 axial, and 9 selective codes using the three-stage coding process of the grounded theory from 17 semi-structured interviews. The selective codes were the research's major variables, indicating the transnational capabilities of the pipe manufacturing companies in Iran's oil industry for international market entry. Based on the findings, the capabilities include 1) marketing, 2) managerial, 3) human resources, 4) financial, 5) manufacturing, 6) quality and standards, 7) research and development, 8) logistics, and 9) interactions and consulting with the government. The comparisons between the literature and the capabilities resulting from the interviews showed differences. The number of the capabilities of the literature was seven, but the capabilities that resulted from the interviews were nine. The marketing and managerial capabilities were common in both. There were seven capabilities, including human resources, financial, manufacturing, quality and standards, research and development, logistics and interactions, and consulting with the government, found in the research results but not in the literature.

On the contrary, there were five capabilities, including dynamic, individual, innovation, organizational, and technological, found in the literature but not in the research results. After coding, a grounded theory was designed from the axial codes. This model related six components: casual conditions, primary phenomenon, context, intervening conditions, strategies, and consequences.

After attentively studying the findings, there are some general limitations to mention in the pipe-making industry and for the pipe-manufacturing companies, particularly in the oil industry, especially if they select international markets. First, these companies have vast physical spaces, many employees, and depreciated equipment and machinery, leading to prohibitive costs. The second limitation is the lack of projects because the major customer of these companies is the government. As the government is confronted with international trade restrictions and the COVID-19 pandemic, it is tough to handle the national projects as before. The complementary point to this issue is the accrued liabilities to the banking system. The companies could not manage to do the outstanding debts of the bank loans mainly because of recession, inflation, and a noticeable reduction in the value of the national currency. Consequently, the banking system will not allocate other bank services, such as investment loans. All mentioned above are considered severe limitations for pipe manufacturing companies in the oil industry to enter the international markets.

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