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Artificial Intelligence Implementations Towards Shaping the Future of Digital World

# INDUSTRIAL RELOCATION OF MANUFACTURING COMPANIES

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## ABSTRACT

The paper examines the phenomenon of industrial relocation, exploring its theoretical framework and presenting a case study on Romanian manufacturing companies. The study reveals a limited interest in relocation among these companies, both currently and over the past five years, indicating a stable and favorable business environment in Romania. The research identified cost optimization as a primary reason for relocation. As key factors for relocation, reputational risk and sustainability strategies were also identified. The case study used qualitative methodology and the interview method and involved 12 prominent Romanian manufacturing companies to assess their relocation behavior. The results revealed that cost reduction remains the most significant motivator. However, the fear of reputational damage and a strong commitment to sustainability could outweigh the potential benefits of relocating abroad. This suggests a shift towards a more holistic approach to strategic decision-making that takes into consideration more than financial considerations. The paper ends by highlighting the complex interplay of cost, reputation, and sustainability in shaping relocation decisions for Romanian companies, emphasizing the increasing importance of responsible business practices in the globalized economy.

**Keywords:** industrial relocation, offshoring, backshoring, manufacturing companies.

## 1. CONCEPTS IN INDUSTRIAL RELOCATION

The last 30 years have seen major changes in the global location of economic activity. International trade and foreign direct investment (FDI) have increased substantially, and the role of manufacturing plants has shifted from focusing on delivering products to domestic markets by exporting goods to international markets, to supplying international markets through local production in offshore regions [1]. Several parallel trends, including market liberalization, financial deregulation, technological advances, and cheaper transportation, have driven this development. In particular, increased digitization through advances in information and communication technologies (ICT) has enabled the fine fragmentation of value chains, so that activities can be carried out in different locations, while production can still be shared between off- and onshore locations [2, 3, 4, 5].

Global markets can be served in different ways, through export, local assembly, or fully integrated production, either within the firm's production network or by acquiring value-added activities from external actors [6, 7, 8]. As a consequence, highly disaggregated global value chains and production networks are formed and spread across the globe.

However, these developments have not only created opportunities for manufacturing firms. Global competition has also dramatically increased the complexity of decision-making. A multitude of factors outside the firm's control influence the location decision, such as exchange rates, trade agreements, competition, and new technologies. However, the firm's decisions, such as a change in strategy, entering a new market, or introducing new products, can turn a well-configured production

network into a weak one [9, 10]. While it can take more than 10 years to build a coherent production network [6, 11, 5], the geographical location of plants has a long-term impact on the profitability of the firm [12]. Thus, increased globalization has important implications for a firm's production strategy, and continuous evaluation of the strategic positions of factories is a difficult but extremely important task [6].

Following the trend of globalization, many firms in developed countries have relocated their production activities to low-cost economies, e.g. South-East Asia or Eastern Europe. This has been referred to as **offshoring,** which indicates a relocation of value-added activities from the home base to a foreign location [13, 14]. This relocation is largely a balancing act between gaining potential benefits and addressing the costs and risks associated with managing an organization across geographical and cultural boundaries 15, 16, 17].

For many firms, the offshoring experience has not lived up to expectations, as they have experienced problems with low quality, rising inventories, long lead times, or coordination issues, leading to unexpected and additional costs. In addition, recent trends, such as the growing demand for sustainability and the Industry 4.0 revolution, have required firms to change the structure and management of their supply chains [18]. Thus, a new phenomenon has emerged as a counter-reaction to offshoring. Firms have started to bring once-outsourced activities back to their original production locations, an activity referred to as back shoring [19, 20, 21].

Offshoring refers to "the allocation of business activities to locations outside a firm's national boundaries to support existing business operations" [15]. In the literature, the concept of offshoring has often been used interchangeably with the concept of outsourcing, although a clear distinction has been made recently between the location decision and the ownership decision. In this paper, offshoring is considered to be the transfer of production activities from a domestic location to a foreign location, either within the domestic production network or to an external partner.

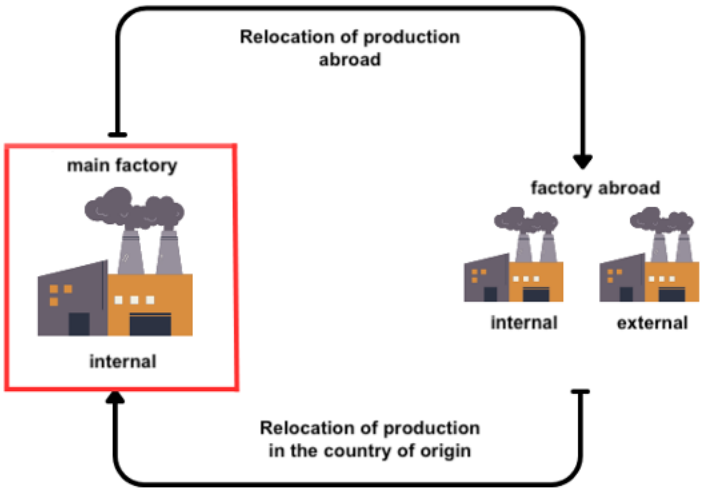


*Figure 1. Description of the phenomenon of production relocation*

The phenomenon of **backshoring** (bringing manufacturing activity back to the area of origin) has received much attention from researchers and policymakers, with the hope that industries in high-cost countries will be revitalized by bringing back previously lost jobs [22]. Backshoring was first defined in academia as "the geographic relocation of a functional, value-creating operation from a foreign location back to the company's home country" [23]. Governments in several countries, such as the U.S., the U.K. and Germany, have even started backshoring initiatives to further stimulate the phenomenon [18].

At the same time, the global manufacturing landscape is constantly changing, and firms need to regularly review and update their location decisions to strike a balance between offshoring and

backshoring and thus maximize performance [24]. This search for optimal locations for specific manufacturing activities has been referred to as right-shoring [25].

However, there is no academic consensus on the terminology. Many alternative terms and definitions have been proposed and discussed, the most common of which are reshoring and re-insourcing (see, for example [11, 26, 27, 24, 28] but there are also other re-shoring alternatives, such as near-shoring [21].

## 1.1. Effects of industrial relocation on operational performance

Industrial relocations are carried out to take advantage of competitive advantages in different regions, with the expectation that the relocation will generate improved operational performance.

In the manufacturing strategy literature, operational performance is assessed in relation to a firm's competitive priorities, usually measured in terms of cost, quality, delivery time and flexibility, but offshoring studies usually also assess innovativeness [15].

In terms of industry, the most active backshoring firms in Europe are found in high-tech industries, such as the automotive industry or the electrical and IT and communication equipment industries [30]. In terms of firm size, production relocation is relevant for all sizes, although it has been argued that large firms would dominate as they are more often members of global production networks [20, 13]. However, there are indications that there are differences in relocation drivers between firms of different sizes. For example, large firms appear to relocate due to market search factors to a greater extent than small firms [20].

Finally, in terms of geography [18], have shown that the attractiveness of regions differs and that the production location decision is influenced by the relative advantages and perceived risks of each region. The regions most commonly involved in production relocation from a European perspective are Eastern Europe, China, and the rest of Asia.

# 2. RELOCATION OF ROMANIAN MANUFACTURING COMPANIES. CASE STUDY

Relocation refers to the practice of a company or organization to relocate business processes, operations, or services from one country to another, usually to take advantage of lower costs, specialized skills, or other competitive advantages. It involves transferring various activities, such as manufacturing, customer support, software development, or back-office functions, to a foreign location.

The significance of industrial relocation in the global business landscape has emerged as a strategic tool for organizations to streamline operations, reduce costs, and gain competitive advantage in an increasingly interconnected and globalized world. Offshoring allows companies to tap into international markets, access a larger pool of talent and take advantage of cost differences between countries. By offshoring certain activities, organizations can focus on core competencies and allocate resources more efficiently.

## 2.1. Research methodology

The objective of this study is to examine the experiences of Romanian companies in the context of industrial relocation. Specifically, the research sought to understand the perspectives, challenges and benefits encountered by Romanian companies in industrial relocation activities, as well as their relationship with stakeholders.

The study set out to explore various aspects, including the reasons why Romanian companies would choose to relocate their activity, the criteria for selecting offshoring destinations, the challenges they would face during the offshoring process, the impact on local employment, the benefits and disadvantages perceived by these companies, and any adaptations or adjustments made to effectively manage the phenomenon.

The research methodology employed for this study was qualitative, with an exploratory and descriptive approach. This methodology aims to understand and interpret social phenomena by exploring the perspectives, experiences and behaviors of individuals or companies, seeking to penetrate the depth and complexity of human experiences and generate rich, descriptive data.

The research method employed in this study was the interview method, specifically the structured interview. This is a widely used qualitative data collection technique, in which the researcher engages in direct conversations with participants to gather information and perspectives related to the research topic. This method entailed the utilization of a predetermined set of questions, allowing for some flexibility in terms of modification.

Participants were selected on the basis of their relevance to the research topic and their ability to provide meaningful information. It was carried out by purposive sampling, with respondents being employees of the target organizations with access to information on the organization's manufacturing and sustainability strategy. The appropriate roles identified for the interview were General Manager and Production and/or Sustainability Specialist, with managerial or non-managerial positions. Diversity in terms of participant characteristics such as age, gender, profession or experience was taken into account in order to capture a wider range of views.

The research instrument consisted of a semi-structured interview guide, a qualitative data collection technique that is widely utilized in research. This approach involves direct interaction between the researcher and the participant, to gather information and perspectives related to the research topic. The semi-structured interview format facilitates in-depth and personal exploration of the participant's perspectives, experiences, beliefs, and attitudes.

The interview guide utilized in this study was an interview guide comprising 44 questions, organized into four sections. The first section focused on the production network of the company being analyzed and included five questions. Its purpose was to identify the specific characteristics of the company's production network and the industry it operates in.

The second section examined the phenomenon of relocation and its relevance to the analyzed companies. This section contained nine mixed-type questions. Additionally, there were thirteen questions related to the offshoring phenomenon. The beginning of this section consisted of general questions about offshoring, the company's perspective on relocating operations from Romania to another country, and the main contextual factors influencing the relocation decisions.

The interview guide continues with section three, entitled Stakeholder Relations. This consists of 12 questions, all with open-ended answers, which aim to explore in detail the relationship companies develop with their stakeholders. This paper will not present the results of this section of the interview guide. The last section, the fourth one, contains questions referring to the organization and the respondent, to identify the typology of products manufactured and marketed by the company and information about the person who represented the company in the research, data about their department, role, and experience in the organizations.

## 2.2. Data collection

The interview period began on October 1st, 2023, and continued through February 1st, 2024. Part of the interviews were conducted face-to-face at the companies' premises. Other interviews were conducted online via online communication platforms such as Microsoft Teams, Google Meet, and Zoom. The average duration was 45 minutes, with a minimum of 25 minutes and a maximum of 120 minutes.

## 2.3. Data analysis

Data analysis was conducted by transcribing the responses given during the interview to identify recurring themes, patterns, and concepts. Qualitative data analysis techniques, such as thematic

analysis or content analysis, were applied, to identify significant insights and connections within the data.

For this research, the data was analyzed using the Excel software (for questions with quantitative data answers) and content analysis for open-ended questions. The informed consent from the participants on the use of the data provided was obtained for the use of the answers for statistical analysis, the names of the companies, and the names of the interviewees.

In the survey, each company was represented by a team member from its employee body. It was considered very important to have access to data and information, and for this reason, the respondents were divided into two categories: members of the sustainability department and members of the highest management level (CEO and deputy CEO).

## 2.4. Sample description

The research study encompassed a total of 12 companies that were engaged in industrial production activities within the Romanian market (Figure 2):

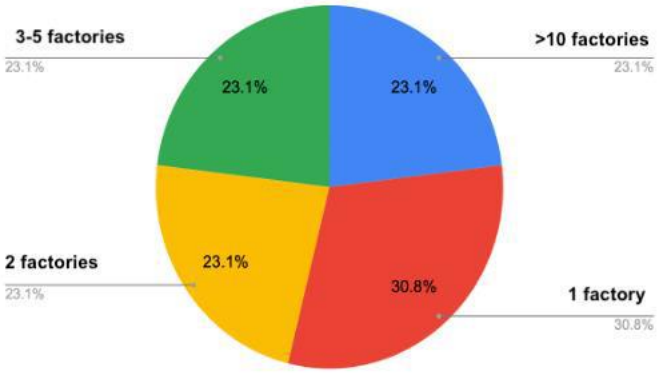


*Figure 2. Number of production units*

Regarding their *number of production units,* a quarter of the analyzed companies have more than 10 production units, a third have one production unit, 21% own 2 production units, and 21% have between 3 and 5 production units. Also, all of the analyzed companies have more than 50 employees. Over 500 of them are working in production units located in Romania.

Concerning the number of production units, 23.1% of the analyzed companies had more than 10 production units, 30.8% had only one production unit, 23.1% had 2 production units, and 23.1% had between 3 and 5 production units. Furthermore, it was determined that all of the analyzed companies had a workforce of more than 50 employees. The data also shows that over 500 of these employees were engaged in production activities in units located in Romania.

In terms of the distribution of the analyzed companies by *field of activity*, all of the investigated companies work in manufacturing/ production (Figure 3):

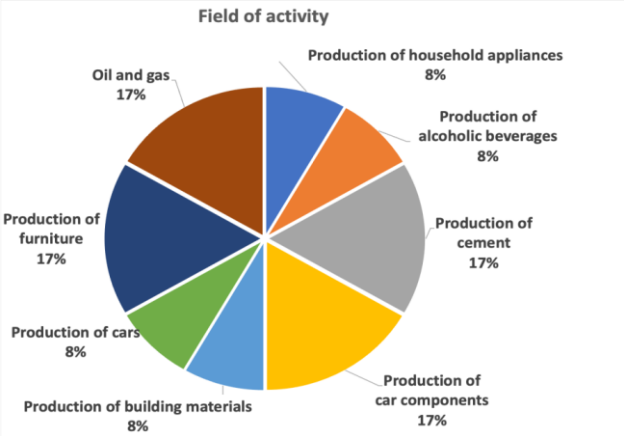


*Figure 3. Distribution of companies by field of activity*

The industries more largely represented in the sample are Oil and gas, the Production of cement, the Production of car components, and the Production of furniture, each contributing 17% to the sample. Other significant, though more lightly represented in the sample with only one company, are manufacturing sectors such as the Production of household appliances, Production of alcoholic beverages, Production of cars, and Production of building materials. Each of these accounts for 8% of the sample.

The interview also collected information on the market for which the companies are producing. Figure 4 shows that over 40% of the production of the analyzed companies is mainly marketed domestically (Figure 4):

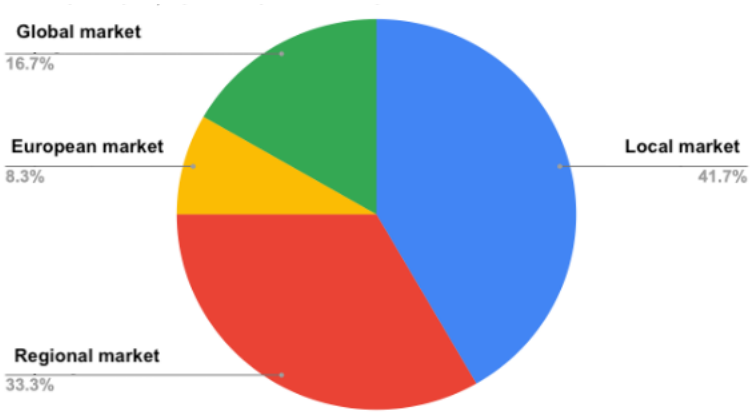


*Figure 4. The main market for which the analyzed Romanian companies are producing*

However, the Romanian companies are also producing for the regional market (33,3%), and for the European one (8,3%). Only 16,7% of the goods produced are marketed globally, showing a rather small reach and penetration of the products manufactured by the investigated Romanian companies.

## 2.5. Results interpretation

### 2.5.1. Factors influencing the decision to relocate the production abroad

During the interviews, the drivers for relocation were identified. A significant proportion of respondents (83%) cited cost optimization factors, including transport costs for finished products and raw materials.

In addition, respondents indicated that the identification of new areas with significant resources, such as oil, natural gas, stone quarries, etc., was a determining factor for relocation.

Furthermore, 66% of the companies surveyed declared that the possibility of expanding the portfolio of customers served as a key factor in their decision-making process. Access to skilled human resources was also a factor considered by 16.6% of respondents, mainly from the automotive components industry.

### 2.5.2. Benefits the companies would gain from relocating abroad

The interviewed companies listed the main benefits they thought they would see from relocating. Almost unanimously, 92% of enterprises stated that the main advantage they would gain from relocating production would be lower production costs. This could include raw materials at lower prices, lower transport costs, lower wage levels, and tax benefits offered by the new host country.

A percentage of 66% of the production firms see the opportunity to expand the distribution network for their products as a benefit. They believe that the presence of production facilities in another country can also be an opportunity to market their products in that country. Proximity to new cultures can help to adapt products to local needs through a deeper understanding of the needs of the potential consumer.

Almost half of them (41%) listed the benefit of broadening their knowledge base and recruiting skilled staff in specific domains.

### 2.5.3. Disadvantages/challenges the companies would face by moving abroad

The disadvantages of offshoring can be many, but the main ones identified by the companies that took part in the research mainly include reputational risk, with 83% of organizations highlighting it as the biggest risk associated with relocating their business. Additionally, 58.3% of companies consider the need to find new employees who can quickly adapt to the organization's culture to be a significant disadvantage. Furthermore, 50% of respondents see the accelerated development of their network of collaborators, suppliers, and other stakeholders as a major challenge and disadvantage. Partnership is a key success factor in which companies invest over a long period of time.

### 2.5.4. Companies' expectations when relocating business from Romania abroad

It can be observed that only 8.3% of the organizations expect to relocate production activities from Romania to abroad. On the other hand, 83.3% of the analyzed companies do not consider the relocation of the activity, and 8.3% were uncertain, answering "I don't know":

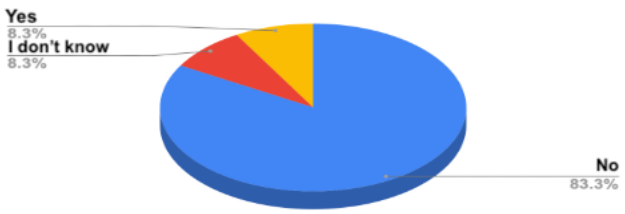


*Figure 2.6 Companies' perception of the possibility of relocation*

This relocation behavior of Romanian companies suggests a relatively stable local business environment that supports retaining operations in Romania. Additionally, the significant majority of production companies not considering relocation, reflects confidence in the domestic resources, infrastructure, and possibly favorable economic or regulatory conditions. However, the 8.3% of

uncertain responses could indicate a degree of ambiguity in long-term planning, possibly caused by evolving market dynamics or unforeseen political or socio-economic challenges. This data shows the need for further exploration into the factors influencing these strategic decisions.

## 3. CONCLUSIONS

This paper offered an examination of industrial relocation, especially for Romanian manufacturing companies. The results show that Romanian companies are not undertaking significant relocation efforts, both over the past five years and at present. This trend can indicate a stable domestic business environment that fosters the retention of companies' operations within Romania. This result aligns with the academic literature which acknowledges that, while globalization presents opportunities, it also introduces complexities and risks. The study results confirm that despite the potential benefits of offshoring, such as lower production costs and market expansion, many companies choose stability and a long-term sustainable strategy.

The study also found that cost optimization remains a significant driver in relocation decisions, influencing both the decision-making process and the assessment of potential risks. Transportation costs for finished goods and raw materials are key concerns. These findings confirm the theoretical accent on cost as a primary determinant factor in relocation decisions. Companies seek locations that offer advantages in terms of resource costs, labor expenses, and transportation costs.

Another important conclusion is that reputational risk is a major concern for Romanian companies facing relocation. This importance of reputational risk is linked to the regulations governing the industries in which the companies operate, as well as their role as major employers in their respective regions. The study highlights that maintaining a positive reputation is crucial for these companies, and relocation might affect it. This concern is confirmed by the theoretical discussions on the difficulties of managing companies across geographical and cultural boundaries, which can lead to unforeseen costs and reputational damage.

In conclusion, while the desire to optimize costs persists, Romanian companies are currently placing a higher priority on mitigating reputational risks and holding sustainability principles. This prioritization, combined with a generally stable and favorable business environment in Romania, is contributing to the low levels of relocation activity of the investigated companies. The study underlines the complex interplay of factors that shape relocation decisions and highlights the growing significance of sustainability and responsible business practices.

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