

# Identification and Analysis of Flows in a Key Company of the Agri-food Sector: The Case of the Cooperative of Cereals and Dried Vegetables (CCLS) of Blida – Algeria

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## ARTICLE INFO

## ABSTRACT

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The cereal sector occupies a highly significant position in the Algerian economy due to the central role of cereals in the dietary consumption of the population. The Algerian Interprofessional Office of Cereals (OAIC) serves as the principal and sole instrument of the State, entrusted with a public service mission related to the organization of the cereal market, supply management, regulation, price stabilization, and production support. At the regional level, the office is represented by a range of intervention bodies; however, the CCLS (Cooperatives of Cereal Collection and Storage) and UCA (Regional Supply Units) are the most prominent.

In the Blida-Algiers-Tipaza region, the office is primarily represented by the CCLS of Blida, where we conducted our study. The main objective of this investigation was to identify all physical and informational flows—both internal and external—closely linked to the cereal sector. Once identified, we proceeded with an in-depth analysis of these flows to detect dysfunctions and weaknesses in their management, ultimately leading to the proposal of practical solutions aimed at optimizing and enhancing the overall management of flows within the CCLS of Blida.

**Keywords:** flows, agri-food sector, cereals, information system, CCLS of Blida, Algeria

## INTRODUCTION

Since antiquity, cereals have constituted the staple food in the diet of Algerians. This enduring consumption pattern, marked by the dominance of cereal products, can be attributed, on one hand, to the dietary traditions and consumption habits to which Algerians have remained attached [1][2], and on the other hand, to the food policies and mechanisms implemented over the years that have reinforced this pattern. Indeed, since 1962, the Algerian State has continuously considered itself—and has been regarded—as responsible for providing the basic food supply to the population.

Given the structure of the Algerian dietary model, in which the nutritional and symbolic weight of semolina and bread has been, and remains, essential [3][4], this provisioning role of the State has driven a cereal policy that has maintained consistent objectives, regardless of shifts in economic conditions and orientations. Thus, even in the face of international financial institutions' pressures, the State has reaffirmed its duty and right to ensure that all citizens have access to their basic food supply [5][6].

This position has led to a series of interventions and organizational actions covering all segments of the cereal supply chain in Algeria, with particular attention to wheat. These intervention measures were entrusted to a public body created shortly after independence by the ordinance of July 12, 1962—the **Algerian Interprofessional Office of Cereals (OAIC)**—which was, and remains, the national operator assigned a public service mission to organize the cereal market, ensure supply, regulate and stabilize prices, and support production [4]. Under the impetus of public authorities, the OAIC's missions have expanded to include support for cereal cultivation through

technical, economic, and material assistance mechanisms, as well as the development of infrastructure and equipment related to storage, distribution, and seed production [7][8].

To fulfill its missions, the OAIC relies on a dense network of cereal cooperatives—**Cooperatives of Cereals and Legumes (CCLS)** and **Unions of Agricultural Cooperatives (UCA)**—numbering 46 across the entire national territory. In addition to collecting domestic production and supporting cereal farmers, the CCLS are responsible for receiving, processing, and storing imported cereal grains, which they distribute and sell to different agents depending on the type of cereal [9][10][11].

Among the most significant CCLS within the OAIC is the **CCLS of Blida**, a key operational entity and a major link in Algeria's cereal supply chain. It carries out the aforementioned missions in a region of over four million inhabitants, encompassing the provinces of Algiers, Blida, and Tipaza [12].

Like any other enterprise, the **CCLS of Blida** is, above all, an organization that operates within a clearly defined economic, financial, and legal framework. It must also account for the numerous flows and interactions generated jointly by its internal stakeholders (employees, associates, etc.) and external stakeholders (the supervising ministry, farmers, mills, etc.). These flows can take the form of physical flows—i.e., transfers of tangible goods or services—informational flows, or monetary flows. Thus, a high-performing enterprise is one that optimally and efficiently manages its various flows [13][14].

The research presented in this dissertation is situated within this context, and it seeks to address a central question:

**What are the different flows that exist between the CCLS of Blida and its stakeholders to fulfill its role as a key player in the cereal supply chain, and are these flows managed optimally and efficiently?**

Several subsidiary questions stem from this main question, but we will focus on two specific questions:

- What are the origin, destination, and nature of each tangible or intangible transfer that connects the CCLS of Blida with a partner in the cereal supply chain?
- What are the characteristics, strengths, and weaknesses of these different flows?

Building on these questions, this article aims to:

- Identify the main flows that exist between the CCLS of Blida and its key partners, as well as those circulating within the organization itself;
- Assess the main flows and detect the major problems related to their management;
- Propose appropriate solutions to improve the management of all internal and external flows within the CCLS of Blida.

## II. MATERIALS AND METHODS

### 2.1 Materials

This study was made possible thanks to the results of the survey we conducted at the Cooperative of Cereals and Legumes of Blida, located in El Affroun, specifically within the materials service, which is one of the departments under the sub-directorate of finance and accounting of the cooperative. Our survey lasted for 10 months, from October 2023 to July 2024.

### 2.2 Method

Several investigative methods were employed during this survey. Specifically, we began with observation of the overall operations within the company, and more particularly within the materials service and the sub-directorate of finance and accounting. This technique was used for two purposes: firstly, to gather as much data as possible regarding the conduct of activities in a natural and real work setting; and secondly, to create a climate of trust, build rapport with the staff, make acquaintances and connections, etc., which would later assist us.

Following the observation, we employed the interview technique, recognizing that there are three types of interviews—structured, semi-structured, and unstructured [15]—and we utilized all three in our investigation. Initially, we conducted unstructured interviews, followed by semi-structured interviews, and finally structured interviews. We held interviews with various individuals within the company, ranging from regular employees to senior executives. We even interviewed the sub-directors and the general director of the company.

### **III. RESULTS AND DISCUSSION**

#### **3.1 Results The Blida Cereal and Pulses Cooperative**

The Blida Cereal and Pulses Cooperative, referred to as the CCLS of Blida, is a specialized civil society organization governed by the provisions of Ordinance No. 72/73 of June 7, 1972. It operates under the general cooperative framework established by the Ordinance of July 12, 1962, concerning the organization of the cereal market and the OAIC, as well as Decree No. 72/106 of July 7, 1972, which defines the legal status of agricultural cooperatives.

The CCLS of Blida was established on June 1, 1972, through the merger of the Mitidja West Cooperative (Hadjout) and part of the Mitidja North Cooperative (Algiers). Its headquarters are located in El Affroun, and its territorial jurisdiction includes the wilayas (provinces) of Algiers, Blida, and Tipaza.

The Blida Cooperative is an economically oriented organization with the following core missions:

- To support, assist, and provide guidance to producers of cereals, pulses, and their seeds.
- To supply producers with the necessary equipment and products to optimize agricultural output. This includes, for example, high-quality seeds, fertilizers, phytosanitary products, agricultural machinery, and other essential inputs.
- To collect cereals, pulses, and seeds at prices advantageous to farmers.
- To process (sort, clean, package) cereals for consumption, pulses, and seeds.
- To store, market, and distribute cereals and pulses to relevant clients.

To enable a more thorough analysis of the results from the survey conducted at the Blida CCLS, we have chosen to adopt a relationship-based analytical framework [19][20].

#### **(CCLS – External Stakeholders Relationship)**

In this framework, all incoming and outgoing flows—both tangible and intangible—are accounted for.

It is important to note that the stakeholders considered in this study are those who maintain a close relationship with the Blida CCLS and play a significant role in the national cereal supply chain, as they are often regarded as key actors within it. The objective is to analyze the relationships maintained by the Blida CCLS, as outlined below:

- The relationship between the Blida CCLS and the affiliated farmers operating under its scope;
- The relationship between the Blida CCLS and other grain storage organizations located in different regions of the country;
- The relationship between the Blida CCLS and its grain customers, such as semolina mills and flour mills (for wheat), as well as livestock farmers (for barley);
- The relationship between the Blida CCLS and grain transportation companies;
- The relationship between the Blida CCLS and the OAIC, its supervisory authority, which intervenes in all of the CCLS's operations, as the latter—as established in Part I of this document—functions primarily as an executing body under the directives of the OAIC.

#### **3.2 Discussion**

After identifying all internal and external flows within the Blida CCLS, we can affirm the following:

Overall, the material flows—both internal and external—are effectively managed by the Blida CCLS, particularly concerning cereal grains. These products are considered essential goods and are subject to specific directives issued by the OAIC and the Ministry of Agriculture. Consequently, the Blida CCLS cannot afford any errors in the management of these products and is required to strictly comply with the instructions issued by its supervisory authority regarding the movement of cereals within the regions of Blida, Algiers, and Tipaza.

However, with regard to the information flows between the CCLS and its stakeholders, there are notable inefficiencies. Delays are frequently observed in the submission of required reports to other entities, and there is a lack of a reliable and coherent database. These issues occasionally lead to dissatisfaction among certain stakeholders.

To better understand this situation, consider the example of the Agro Route Centre. As previously mentioned, at the end of each month, the operations manager of Agro Route Centre visits the Blida CCLS with a report detailing all transportation services provided for the cooperative, in order to have them verified prior to invoice generation. At the CCLS's material services department, a corresponding report of the transportation services received from Agro Route is provided to the operations manager.

However, the two reports do not match. As a result, the operations manager of Agro Route decides to leave the headquarters and visit the various units of the Blida CCLS in order to identify and reconcile the remaining discrepancies. Yet even at the unit level, he is provided with a report that differs from both his original document and the one issued by the material services department at the headquarters. These discrepancies are primarily due to data entry errors, omissions, and delays in inputting information within the CCLS's administrative services. What is certain, however, is that this situation negatively impacts the image and credibility of the Blida CCLS.

With regard to internal information flows, the diagnosis is similar to that of external flows. The Blida CCLS operates in a highly compartmentalized manner, where each department functions independently within its specific area and generally refuses to collaborate with other departments, except in cases of extreme necessity (e.g., upon direct instruction from the general director). Interdepartmental communication is virtually nonexistent.

It is important to emphasize that, in line with this compartmentalized logic, each department has developed its own information system without regard for the needs of neighboring departments. In most cases, this system consists of nothing more than a basic Excel spreadsheet or a Word document. Furthermore, the coexistence of multiple, disconnected information systems within a single economic entity results in the following situations:

- **Redundant data entry**, sometimes two or even three times, into separate information systems. For example, the same collection data is entered at both the dock level and in the material services department, as well as in the SAP sub-department, resulting in unnecessary time loss.
- **A high rate of errors and inconsistencies** between the various information systems used by different departments.
- **Data loss incidents**, often occurring due to system crashes during data transfers.
- **Frequent human errors**, such as sending incorrect invoices from the commercial department to the accounting sub-department, or creating duplicates due to accidental double entries.
- **Omissions and entry errors** at the headquarters level, where daily dock reports are manually recorded and then entered into the system.
- **Delays in data entry** at the headquarters, caused by the late arrival of the daily dock reports.
- **Discrepancies between departments**, particularly between the commercial department and the stock management department.
- **Overreliance on telephone communication**, where Blida CCLS personnel frequently use phone calls to obtain critical information such as inventory levels or product inflows/outflows—despite the fact that telephone communication does not constitute an accounting record or official information source.

- **A complete absence of audit and control functions.**

#### IV. CONCLUSION AND RECOMMENDATIONS

The primary objectives of this study were, first, to identify all material and information flows within the Blida CCLS—both among its internal actors and between the CCLS and its external stakeholders—and then to analyze these flows in order to propose solutions where dysfunctions were observed.

We found that material flows within the Blida CCLS are not limited to cereal grains but also encompass other types of products and services, such as fertilizers, phytosanitary products (PPS), delivery sacks, rental of agricultural equipment, rental of delivery packaging, and technical support for cereal farmers. However, the circulation of cereal grains remains the core activity and is generally well managed by the CCLS. This is largely due to the fact that grain circulation is strictly regulated: as an executing body, the CCLS must fully comply with directives from the OAIC, which determines all rules related to supply, transfer, and sale of cereals.

As for information flows, we must acknowledge—somewhat unexpectedly—their significance. Their analysis, which is more time-consuming than that of material flows, relies heavily on field observation. Fortunately, in our case, our internship lasted over 10 months, providing us with sufficient time to observe how information circulates within the Blida CCLS and to identify the negative consequences of poor information flow.

The findings were consistent across both internal and external information flows: they are poorly managed. Information struggles to reach both internal and external stakeholders, leading to repeated dissatisfaction. On several occasions, actors expressed their frustration, indicating that they continue to work with the CCLS only because they are required to do so, as it serves as the primary representative of the National Office of Cereals—the State's main intervention body in the cereal sector.

A proposed solution to address the issues affecting the CCLS's information flows was presented to the staff, who responded enthusiastically, viewing it as the best and most viable option. Nonetheless, a serious feasibility study must be conducted before embarking on an ERP system implementation project.

Within the broader context of information flows, it is important to recognize the rise of the so-called “Information Economy” or “New Economy,” in which information-related work now surpasses that of traditional sectors. Thus, for an enterprise to grow, evolve, and sustain itself, it must master the management of all its flows—material, informational, and financial.

In conclusion, we believe our objectives have been achieved, and we were able to address our initial research question. We confirmed part of our hypothesis—that the three types of flows exist within the CCLS—but the second part of the hypothesis was not validated, as only the material flows are well managed within the Blida CCLS, not all flows.

Lastly, we hope to receive feedback from the Blida CCLS. It is worth noting that this work, pioneering in its scope, is essentially exploratory. It opens several avenues for future research and can serve as a foundation for more targeted studies on specific themes.

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