INTRODUCTION

In May 2000, ABC Industries (a multinational company which is quoted on the New York Stock Exchange) and Quisolvén (a company based on local capital from Columbusland) announced the merger of their separate chemical product distribution businesses, thus creating the second largest company in the sector in Columbusland. The new joint venture Quisolvén was to be directed and operated by both partners, and its main objective was to achieve economies of scale by cutting out redundant operating costs such as: offices, stores and personnel. The master plan in order to achieve this aim was based on the combination of its assets and its customers.

In the presentation ceremony for the new company, the CEO announced:

“This new business unit will have excellent synergies in the field of clients, product lines and suppliers. The customers can rest assured that they will receive products and services which meet both their technological requirements and those of the market.”

As part of the process of change introduced by the merger, the newly formed company carried out an analysis of its strengths and weaknesses. The analysis showed that the ERP system, which had been instigated two years before, was being under-utilised. Consequently, the CEO decided to set up a project team, to be called MERCURIO, aimed at improving the key processes in the business and maximising the ERP system’s potential use.

THE CHEMICAL PRODUCTS DISTRIBUTION INDUSTRY

The chemical products distribution business consists of the procurement, storage and distribution of chemical products. The procurement begins in the negotiations with the international producers and/or traders who sell the products on a worldwide scale. Transportation by sea from the ports of origin to the national ports of Columbusland takes 15 to 30 days, depending on the distance involved.

Once in the country, and with the legal requirements of the anti-drug organisations fulfilled, the products are carried by tanker trucks from the quayside tanks to the company tanks. Once there, they are delivered to customers in large cisterns, with several compartments, or in trucks, which transport the drums. In the case of national products, the supplier, which is the state petrol company, represents a monopoly that controls both the price and the number of the deliveries. It is

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1 The fictitious name of a South American country.
The description of the company ABC-Quisolvén is based on the case "Quisolvén: Implementation of Integrated Systems", prepared by Oswaldo Lorenzo and published by Ediciones IESA in Caracas, Venezuela.

2 Since a number of these chemical products can be used in the production of drugs, strict checks are carried out by governmental organisations.
part of the nature of this business that 80% of the total costs of the companies is related to the cost of the products.

The control of product wastage is one of the critical aspects of the process. Wastage may be the result of evaporation during storage in the tanks on the ships, at the port, or belonging to the company. Other causes are the processes of filling and emptying the tanks used in the transportation. As a general rule, the chemical industry allows for wastage of 1% of the amounts received or delivered in relation to the purchasing orders or the accounts issued.

The administration of permits required by the competent authorities is another important aspect of the purchase of chemical products. The customers must present valid permits for the purchase of the chemical products to the suppliers and the suppliers must subsequently verify the authenticity of these documents with the authorities by fax. Moreover, the companies must annually present their registers of the year’s sales of certain products, like acetone, and accept responsibility for the sale of the products. For this reason, the companies visit the customers to guarantee that they have production processes which do need these controlled chemical products. Some companies have been closed and several owners and managers are behind bars for complicity in the traffic of substances, or simply for not controlling this process correctly.

The supplying companies can be divided into three categories:

- Firstly, companies which have large investments in specific assets, like ABC Quisolvén, distribute their products both to large customers (requiring large amounts of the products, which represent their key inputs and a high percentage of their costs) and to small ones (who demand small amounts stored in drums, either because they do not have tanks themselves or because of their particular production processes). These customers may come from the industries dealing with paints, glues, thinners, printing or tanneries, among others.

- Secondly, there are some brokers whose infrastructure consists of a mobile phone and a few commercial representatives. They sell large amounts in a single operation with distribution directly from the ports, using independent transporters.

- Finally, some international producers are represented in the country by plants or sales offices. At the time in question a number of international traders wanted to enter the country by means of strategic alliances with national companies.

ABC QUISOLVÉN AND ITS PROCESSES

Although ABC Quisolvén has its headquarters in a small town just outside the capital, its storehouses and installations for chemical product distribution are spread over four other towns and it has sales centres in another three towns. Moreover, the storage tanks which receive liquids that are imported in bulk are in one of the most important ports.

ABC Quisolvén sells a wide range of chemical additives and products of high added value for various markets, including: foodstuffs, personal care, combustibles, plastics, paints, etc. The products can be acquired in bulk or in drums.

ABC Quisolvén carries out four key processes: procurement logistics, distribution, sales logistics, and administration of accounts payable and accounts receivable. Each of these processes will now be described in detail. Annex 1 shows a study of the benchmarking of the performance of each process.

- Logistics of supplies: the process of purchasing and acquiring products from suppliers all over the world. It involves: needs analysis, identifying sources of supplies, evaluation and selection of suppliers, selection of purchasing method, monitoring the status of the order form, reception, evaluation and storage of the products.
• Distribution: refers to the movement of liquid products in drums from the central warehouse to the regional storehouses and installations. The products in bulk are delivered straight from the warehouse to customers in all parts of the country.

• Sales logistics: includes five crucial sub-processes: identification of customers, incorporation of customers, processing of the calls for tenders from customers, processing of the customers’ sales orders, and processing of the delivery.

• External accounts (accounts receivable and accounts payable): closely tied to the administration of cash flow. In some companies it comes under processes of supply and/or sales. Like any other distribution company, this is of critical importance to ABC Quisolvén.

THE TECHNIQUE AND ITS TECHNOLOGICAL FACILITATOR

In June 1998, Quisolvén decided to install an ERP system as the key technological facilitator to carry out the company’s business strategy. Two business objectives in particular had been established:

1.- To become the leader in the area of costs, in order to satisfy the customers who required large amounts of products and low costs. These were mainly large companies to whom chemical products represented a high percentage of their costs. These important customers accounted for 80% of ABC Quisolvén’s income.

2.- To use reusable containers and special financing conditions in order to create a margin that would satisfy the needs of the small and medium sized companies, which accounted for 20% of the company’s income.

To attain these objectives, the system would aim for efficiency (especially in time cycles and costs) in the key business processes and in the availability of exact, relevant information, which is necessary in order to handle the complexities involved in dealing with reusable containers and financing. ERP proved to be the most suitable technological means of making this leap in quality, both of efficiency and of information management.

![Alignment Strategy - TI](image-url)
As part of the planning process of this strategy, ABC Quisolvén identified five critical success factors (Order Winners & Order Qualifiers) in achieving the objectives of the business. These are: quality, price, delivery time, containers, and financing. Annex 2 shows a study of benchmarking of the performance in these areas compared with the competitors in the sector.

ALIGNMENT OF THE STRATEGY AND THE OBJECTIVES WITH THE ERP SYSTEM

ABC Quisolvén was one of the first companies to install the ERP system in Columbusland. The installation included two business processes: the sales cycle and the supply cycle. (see figure 2). The company chose a methodology of rapid installation, hoping to complete installation in three months. However, this proved optimistic; the process of installation was plagued with difficulties for over a year.

FIGURE 2
CYCLES OF SUPPLIES AND SALES.

IMPROVEMENT AND OPTIMISATION PROJECT

The team of the MERCURIO project held a series of meetings with a consultant specialised in ERP and consequently redesigned the business processes in order to identify a work methodology that would be successful in achieving the objectives assigned by the CEO. The chosen methodology would go through the following phases: prioritising the critical success factors (CSF), determining how important each CSF was, determining how critical each process was, prioritising and selecting processes, and modelling each process (see Annex 4).

REMARKS

Complete the following tasks, following the methodology described and the multimedia instructions and activities.

- Prioritise the CSFs in order of their importance for the success of the company.
- Determine the criticality of each CSF: importance versus performance
- Determine the criticality of the key business processes.
- Prioritise the key business processes.
- Model and analyse the key business process which was found to have the highest priority.
SUGGESTED READING

ANNEX 1

STUDY OF BENCHMARKING OF PROCESSES

ABC Quisolvén contracted Delphi & Associates to carry out a benchmarking study, in order to evaluate performance in their business processes in relation to the rest of the sector. Taking 10 as the perfect performance of a process, Delphi & Associates provided the following evaluation of the average performance values for the sector:

<table>
<thead>
<tr>
<th>Process</th>
<th>Average Performance</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procurement logistics</td>
<td>8</td>
</tr>
<tr>
<td>Distribution</td>
<td>6</td>
</tr>
<tr>
<td>Sales logistics</td>
<td>5</td>
</tr>
<tr>
<td>Administration of accounts receivable and accounts payable</td>
<td>5</td>
</tr>
</tbody>
</table>

The information which Delphi & Associates collected regarding the processes carried out by ABC Quisolvén, in order to position the company in relation to the average values within the sector, was as follows:

- **Procurement logistics**: since quality is a key qualifier in order to compete within this sector, ABC Quisolvén has dedicated a great deal of time and energy to this aspect, and the company is now one of the best performers in the sector.

- **Distribution**: ABC Quisolvén’s distribution practices place it around average in this area. However, an internal study carried out by the company detected important improvements which would reduce unitary transport costs and increase the effectiveness of the process.

- **Sales logistics**: the analysis of this aspect revealed that this process:
  - Reveals a number of deficiencies, which lead to excessive delays in delivery to the final customer.
  - Is responsible for the few occasions when the product is returned by the final customer.

- **External accounts** (accounts receivable and accounts payable): although the customers in general consider that ABC Quisolvén has flexible methods and conditions, Delphi & Associates noted that the follow-up and control of the accounts receivable were creating problems. One of the main indicators of this fact is the high percentage of unpaid accounts declared annually by the company.
ABC Quisolvén contracted Delphi & Associates to carry out a benchmarking study to evaluate the company’s position with regard to their competitors in the key success factors previously selected. The following table shows the results:

<table>
<thead>
<tr>
<th>ATTRIBUTE MEASURED</th>
<th>INDICATOR</th>
<th>AVERAGE FOR THE SECTOR</th>
<th>ABC QUISOLVÉN</th>
<th>OBSERVATIONS</th>
</tr>
</thead>
<tbody>
<tr>
<td>Quality</td>
<td>Percentage of delivered products returned</td>
<td>8%</td>
<td>3%</td>
<td>It is difficult to maintain the quality of the product due to: ▪ maintenance costs of the tanker trucks and tanks ▪ the possibility of contamination of the product during the transfer to different containers before the final delivery. Quisolvén is considered among the best in the sector in terms of an uncontaminated product.</td>
</tr>
<tr>
<td>Price</td>
<td>Price of each product compared with the average for the sector</td>
<td>Average for most of the products</td>
<td>Since the products sold are commodities, the price competition is tough and sales margins are reduced to under 5%.</td>
<td></td>
</tr>
<tr>
<td>Delivery time</td>
<td>Time from the collection of the sales order until it is delivered to the customer’s warehouse</td>
<td>36 hours</td>
<td>48 hours</td>
<td>The delivery time is a key factor for the large customers, who don’t want inventories in their warehouses.</td>
</tr>
<tr>
<td>Containers</td>
<td>Various types, according to the particular needs of the customers</td>
<td>Difficult to measure</td>
<td>Apart from offering delivery in bulk and/or in new drums, like most of its competitors, ABC Quisolvén is the only company to offer reusable drums and special reusable stainless steel containers with a capacity equivalent to four drums.</td>
<td></td>
</tr>
<tr>
<td>Credit</td>
<td>Flexibility in the conditions of payment</td>
<td></td>
<td></td>
<td>A survey of customers’ opinions showed that they considered ABC Quisolvén was a company that allowed facilities of payment in accordance with the needs of the customers, especially for the small and medium-sized companies.</td>
</tr>
</tbody>
</table>
ANNEX 3
EXAMPLE OF A MODELLED PROCESS USING QUISOLVÉN’S OWN METHODOLOGY.

SYMBOLS
- Data sent by fax and/or phone
- Document present in each task as a mechanism of coordination
- ERP system used in a specific task
- Time taken
- Manual systems

ROLES
- AC Administrative Coordinator
- AM Administration Manager
- FC Financial Coordinator
- HF Head of Finances
- OM Operations Manager
- RC Regulations Coordinator
- SC Sales Coordinator
- SR Sales Representative
ANNEX 4

METHODOLOGY OF BUSINESS PROCESS MANAGEMENT

The management of business processes permits organizations to administrate the life cycle of their business processes. This life cycle consists of the following:

1. **Prioritisation of the critical success factors (CSF)**

The objective of this stage is to identify and evaluate the company’s attributes or critical success factors (CSF), which guarantee it a competitive position in the market. The CSFs are decided by the customers’ needs and form a key input for the design of the business strategy.

In the case of ABC Quisolvén, five CSFs were identified: quality of product, price, delivery time, containers and financing. These five must be prioritised for their importance for the success of the company.

This stage is perhaps the most important because the CSFs represent the link between the business strategy and the plan to improve and optimise the processes.

2. **Determining the criticality of the CSFs.**

Once the CSFs have been prioritised in terms of their importance in the success of the business, the next stage is to determine how critical each CSF is. This has two aspects: the importance (identified in the previous stage) and the company’s performance in the CSF compared with the standard for the sector (the lower the company’s performance, the more critical it is to improve that factor).
Each CSF’s criticality is determined by its position on a chart, where the vertical axis represents the importance of the CSFs for the company and the horizontal axis represents the company’s performance as compared with the rest of the sector.

3. Determining the criticality of the processes.

How critical each business process is, is measured by the impact of each process on the CSFs. This will be calculated by adding up the impact of each process on each individual CSF.

A process will be critical if it has a strong effect on the most critical CSFs. For example, if the most critical attribute for a company is the characteristics of its product, then the logistic process will have low criticality since it barely affects the product design.

This is the stage where the desired outputs (improvements in the CSFs) are related to the inputs the company can act on (the processes).

4. Prioritisation of the processes

Once the effect of each process on the company’s success has been identified, the processes must be prioritised in order to decide the order in which they should be redesigned. The prioritisation must take into account both the criticality of the process and the company’s performance of the process as compared with the standards of the sector.

The processes with the highest priority will be those with the highest product value found by multiplying the criticality of the process by the difference between the company’s performance rating and the average for the sector.

Thus, the processes with the highest priority will be those with high criticality and a large difference in performance rating (in other words, the weakest in comparison with the average performance rating for the sector).

5. Selection of the processes to be improved

Finally, when one list has been drawn up of processes that need to be improved and another of those that don’t need to be improved, the company has to select which processes it can change.

The criteria for this selection is based on the list of priorities, but companies frequently do not have sufficient resources to carry out all the improvements that they would like to. In other words, the financial resources and the internal capacity of the company will condition the total number of processes which can be tackled.

Once the stage of Identification of key processes in the company has been completed, the next stage of the business management cycle is Modelling and analysing the selected processes. In order to carry out this task, the following steps should be taken:

- Definition of the process architecture of the process with the highest priority.
- Modelling of the current situation of the process (‘as is’), using the EPC (Event-driven Process Chain) methodology.
- Analysis of the current processes (‘as is’)
- Modelling of the processes after the proposed changes (‘to be’).