Optimization of the Purchasing Cost of raw materials: Case of companies in the Moroccan automotive sector: «YAZAKI MOROCCO S.A»

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Abstract— In a globalized world, where value creation is a survival key for companies, cost control is a major challenge for business leaders. Indeed, the consequences of the increase in logistic costs considerably affect the financial performance of the company. It is in this context that it is necessary to take into account for these costs using the methods to reduce them, in order to increase the performance of the company. We will present the optimization of logistic costs using the DMAIC approach (the abbreviation of the six-sigma method which is to define, to measure, to analyze, to innovate and to control). Proposing improvements in order to optimize the cost of purchasing raw materials, and implement its quantified measure.

Index Terms— Competitive - Logistic Costs - Cost of purchase – Raw materials - Optimization.

1 Introduction

Dans un marché toujours en rétablissement de l'impact de la crise économique, les entreprises au niveau mondiale se trouvent face à des challenges de plus en plus important, l'environnement est devenu de plus en plus incertain, une concurrence accrue règne sur le monde des transactions avec une régression remarquable de la demande, est que le meilleure gagne.

Le défi pour les entreprises du secteur automobile est de survivre et se développer dans un contexte de concurrence rude entre les principaux pôles mondiaux. Pour se faire, l'entreprise doit se battre en permanence pour rester compétitive. Pour maitriser cette compétitivité, il est indispensable d'agir d'abord sur la performance interne de l'entreprise que celle externe, et ce, en mobilisant les salariés autour d'une dynamique de progrès dans le souci de chercher les meilleurs moyens d'optimiser l'organisation et le fonctionnement de l'entreprise.

Devant cette situation, la maitrise des coûts s'impose pour améliorer l'efficacité en termes de productivité et de satisfaction des clients. C'est pour cela, la présente étude s'inscrit dans le cadre des recherches sur l'optimisation des coûts logistiques et plus spécifiquement, elle porte sur les méthodes d'optimisation du coût d'achat des matières premières. Nous nous intéressons plus particulièrement à la mesure chiffrée d'optimisation de ce coût, en se basant sur sa formule de calcul du coût d'achat dans l'entreprise.

2. Literature Review: Logistic Cost Optimization Methods

L'objectif de toute entreprise est de livrer des produits à ses clients, en quantité demandée, dans le lieu demandé, à la date demandée et au moindre coût. C'est dans ce contexte, nous présentons dans cette section les principales méthodes d'optimisation des coûts logistiques qui existent dans les travaux de recherche. Nous passerons à la revue des méthodes, que nous jugeons les plus pertinentes par notre recherche.

Dans la littérature, nous pouvons extraire des travaux qui rassemblent des travaux de recherche, de synthèse et de publication en optimisation des coûts logistiques, qui sont :

1.- A **la fin des années 1970, l'augmentation de l'offre accrue la concurrence entre les entreprises. Elle devient donc nécessaire de prendre en compte non seulement les activités de production, mais aussi toutes les activités industrielles y compris l'approvisionnement, la distribution et les autres activités qui sont liés au processus de production : « Dans la plupart des entreprises, les responsables de chaque domaine ou service ont tenté de minimiser les coûts liés à leurs activités sans soucier de l'impact de leurs décisions sur les autres parties de la société »[1].**

2.- L'optimisation a été introduite dans un souci

1) Chateau, A (2008). Stochastic Models for Production / Inventory Planning: Application to short Life – Cycle Products.

d'amélioration des services fournis, peu importe le domaine auquel ils s'appliquent. Un problème d'optimisation concerne l'exécution des méthodes spécifiques en quête d'un optimum. Ce denier peut être une valeur maximisant ou minimisant une fonction, dite une fonction objectif ou fonction coût, elle est encore appelée critère d'optimisation.
Selon le cas, qu'il s'agisse d'un problème mono-variable ou multi-variable, continu ou discret, ect. Une méthode d'optimisation adéquate est choisie avec soin, afin de bien cadrer le contexte et résoudre le problème de manière efficace.[2]
3.- Mohsen Ejday dans ses travaux de recherche portant sur l'intégration de l'optimisation adéquate multi-objectifs à base méta modèle pour les procédés de mise en forme, il définit le concept d'optimisation comme comprenant deux phases, qui sont[3]:
- Une première phase : représente la modélisation à travers laquelle la fonction coût serait définie avec une plus, la détermination des variables principales d'optimisation ainsi que des contraintes d'inégalité et égalité.
- Une deuxième phase correspond à la résolution responsable de la recherche des valeurs optimisation la fonction coût ainsi définie et ce grâce à un algorithme d'optimisation élaboré.
4.- Gorder dans son ouvrage constate que : « comme l'entreprise dans son ensemble, l'organisation de la gestion des achats est conduite à des changements liés à la recherche de l'efficience et de l'efficacité »[4]

3. Context of the Study:

Aujourd'hui, le secteur automobile mondial connait une restructuration de sa chaine de valeur avec un basculement de la demande et de l'offre mondiale vers les pays émergents. Cette nouvelle structure de la demande incite les industriels à chercher de nouvelles destinations et localisations vers des pays présentant une offre globale et cohérente de compétitivité (proximité des grands marchés, mains d'œuvre qualifiées, des infrastructures industrielles dédiées…), pour mieux s'adapter aux demandes spécifiques de nouveaux marchés pleins d'émergence.
Dans ce nouveau contexte, l'industrie automobile marocaine renforce son positionnement dans la chaine de valeur de l'automobile, comme en témoignant ses niveaux de croissance soutenus, ses performances particulièrement remarquables enregistrées au cours de cette dernière année 2016, par un volume d'exportations qui franchit un capital de 60 milliards de dirhams, se hissant ainsi le premier secteur national exportateur et premier constructeur en Afrique du Nord.
En effet, dans le contexte économique actuel du marché marocain, le secteur d'industrie automobile est caractérisé par une concurrence exacerbée et des prix de vente le plus souvent imposés par le marché, le maintien des marges des entreprises impose de réaliser des gains avant tous sur la productivité et sur les achats. Ces dernières constituent le poste le plus important du coût de revient des produits et des services qui peuvent présenter en moyenne 50% du chiffre d'affaire des entreprises. Ses enjeux d'une part sont financiers puisque les gains achats générés ont un impact sur la compétitivité des produits et des services, compte tenu de la part des achats dans le coût de revient, et d'autre part, ses enjeux commerciales qui ont un impact sur la performance globale de l'entreprise puisque l'optimisation des achats influence sur la qualité des produits, sur l'innovation, sur l'image globale de l'entreprise (développement durable).
Dans les entreprises industrielles du secteur automobile, l'optimisation des achats de production notamment des matières premières, d'équipements et de composantes constitue un sujet clé depuis plus de 30 ans.
C'est dans cette perspective, M. Hervé Amar5, Dg d'Alma CG cite que : « les grandes entreprises en revanche une vision plus technique des coûts. Elles font des économies stratégiques sur les matières premières ou les proces de fabrication et parfois elles ont recours aux restructurations. Cependant, elles sont conscientes de l'importation des ressources humaines dans leur développement. C'est pourquoi, pour gagner en compétitivité, les grands groupes ont besoin d'une vision alternative pour envisager leurs coûts », ce que nous pouvons comprendre de cette citation ; est que les entreprises cherchent toujours à envisager leurs coûts et par la suite font des économies stratégiques sur leurs matières premières, ce qui nous montre la grande importance de l'optimisation des coûts des matières premières. Ainsi, nous trouvons aussi M. Benoit Jachett6 Directeur du DAF affirme que : « les entreprises ne doivent pas se focaliser sur la réduction des coûts, mais plutôt sur leur optimisation. Il s'agit là d'une démarche saine de gestion au quotidien qui implique d'optimiser à la fois les coûts unitaires mais aussi volumétries », ce que nous pouvons tirer de cette citation : est que l'intérêt pour l'entreprise rédie non seulement dans la réduction des coûts (un rabais, une remise, une ristourne…), mais aussi et surtout, dans l'optimisation par le fait de bénéficier d'une baisse permanente favorisée par un fournisseur sur l'achat d'une immobilisation. Aussi confirme M. Romain Bertant7 Directeur des Solutions de Crédit de Management de Coface Service : « Travailler sur les coûts avant qu'ils ne se présentent est encore la manière d'optimiser ces coûts », ce qui nous pouvons comprendre est que l'entreprise doit toujours penser et travailler sur ses coûts.
C'est pour toutes ces raisons, les équipementiers du secteur automobile marocain entament des réflexions, pour structurer leurs organisations du processus des achats et optimiser leurs dépenses, d'où l'importance de l'optimisation du coût d'achat des matières premières qui revêt comme une nécessité pour les équipementiers automobiles marocains.

2) Sghaier, M (2011). Combinaison des Techniques d'Optimisation et de l'Intelligence Artificielle Distribuée par la Mise en Place d'un Systeme de Covoiturage Dynamique. Lile ECOLE CENTRALE LILE.
3) Ejday Mohsen. Optimisation Multi-Objectifs à base de Métamodéle pour les Procédés de Mise en Forme. ECOLE DES MINES PARIS Teech. Paris: s.n.2011 p136, Thèse de Doctorat.
4) Gorder, V. (1990).Moving Back to Centralization.Credit.Vol16, p: 12-15.

5) Les Rencontres d'Option Finance, juin 2013.
6) Les Rencontres d'Option Finance, juin 2013.
7) Les Rencontres d'Option Finance, juin 2013.

3.1 Problematic of the STUDY:

Within intense competition, a fierce race to cut costs, and a demanding customer, cost optimization appears to be the stumbling block that automotive manufacturers are using to gain a competitive advantage.

So, the key to success in this new environment is to engage on a process of optimizing their costs.

It is in this perspective that it becomes important to study the way in which we can achieve this optimization and more precisely that of purchasing raw materials and measuring its financial impact.

Therefore, our studies fall within the framework of a well-defined problem that is to say:

HOW CAN WE OPTIMIZE THE COST OF PURCHASE OF RAW MATERIALS?

3.2 Scope of the study:

In order to solve our problem, to clarify a particular approach to optimizing the cost of purchasing raw materials, we choose to study the multinational YAZAKI MOROCCO Anonymous Company - Tangier presented as a Japanese automotive supplier which is created in 1941 and installed in Morocco since 2011, its main activity is the cabling and manufacturing of electrical components for automobiles.

3.3 Method of the study:

The success of any study resides in the relevance of its conduct, it is in this perspective, we choose the six-sigma approach as an improvement and management approach, which aims to eliminate definitively the application of defects, the target and reducing any type of dispersion. It is used to reduce costs and improve the process and services.

Six-sigma is a method that relies on the analysis of empirical data to verify how the system behaves and achieve the goal of improving process or service and reducing cost dispersion.

During our study, we use various sources of information: internal documents, digital documents, procedures manuals and we use various quantitative via qualitative methods.

3.4 Analysis and Results

At a time when everything seems to be good or bad, on the application criteria of our study, it is time to present our work according to its DMAIC approach, while explaining and analyzing each step as follows:

Step One: To « Define »:

At this stage, we firstly define our objective, which is to optimize the cost of purchasing raw materials, while ensuring the agreement of YAZAKI CORPORATION mother company in Germany, and this is justified by its significant percentage which takes into account this cost compared to the overall cost of logistic costs. So, we have to show this optimization achieved.

To do this, we then determine the dimensions of our work and its essential aspects using the QQQCPO method, as shown in the following figure:

Elements	Meanings
What ?	- **This is a study to optimize logistics costs.** - **- The cost of purchasing raw materials represents a significant percentage of logistics costs that exceed the targets8**
Why ?	- **This work is proposed to reduce the cost of purchasing raw materials, which subsequently reduces the logistic costs of the company and improve its financial performance.**
Who ?	- **This work will be carried out using all the services of the "Purchase" department, which are concerned by this study because it influences the indicators of this department.**
Where ?	- **- "Direct Purchase of" Commodities "department," Purchase "department.** - **"Financial" department, "Finance and Accounting" department.**
When?	- **This cost appears on each order and in the**

8) According to the company managers (the case of study).

	monthly reports of the "Direct Purchasing" service indicators.
How ?	- **To propose a reliable solution to optimize the raw materials cost of purchasing and quantifying it in order to measure the optimization achieved**

Table 1: the QQQCPO method

Finally, the expected gains from this study are:

- ✓ **Optimization of the cost of purchasing raw materials.**
- ✓ **Enrichment of the suppliers list.**
- ✓ **Improving the performance of the company.**

STEP TWO: "TO MEASURE AND TO ANALYZE"

Normally, in a DMAIC approach, the second step is to " to measure", and then it is followed by the third step " to analyze", but in our study, during data collection, we are at the same time analyzing them and making conclusions about their usefulness in measuring the direct purchase cost calculation formula and its variability, because in our work, the analysis of such an "X" data can lead to the real need of another data "Y", and therefore a new data collection is essential during the "Analyzing" step. So the gathering of these two steps "Measuring" and "Analyzing" becomes mandatory in a single step.

- To analyze, we must measure the existing by studying the formula for calculating the direct purchase cost, first by dissecting it, then, defining the elements constituting the formula by highlighting its main characteristics, and finally, to determine the elements to be improved according to the following points:

➢ **The formula for calculating the cost of purchasing raw materials:**

(Total Storage Space * 250 * 0.11 * Km / 1000) + (0.031 / (Total Storage Space * 250))

➢ **Explanation of the different elements of the purchase cost formula for raw materials:**

- Total storage space represents the storage space of the containers in importing; it is measured in loaded cubic meter.

- 250: this is the weight per loaded cubic meter measured in Kg.

- 0.11: this is the monetary payment value for each cubic meter loaded, it is quoted in Euro.

- 0.031: it is the quotation paid for the sea passage, called the Cost Fery.

- Km: this is the distance between the supplier country and YAZAKI MOROCCO (customer).

➢ **Choice and determination of the axes to improve:**

- ✓ **Total storage space** of containers is calculated by the number of boxes multiplied by the unit space in container, (it can not be changed because it is given as a case).
- ✓ **250:** this weight is limited by the diameters of the container.
- ✓ **0.11:** this price is fixed by the contract.
- ✓ **0.031:** this quotation is fixed by the contract.
- ✓ **KM:** this element represents the distance between the supplier and YMO, it can be changed by the proposal of the suppliers that guarantee more proximity, the purpose is to reduce this distance, and consequently the purchase cost will decrease. As well, we present numerical simulations of this decrease, to convince the mother company YAZAKI, which imposes a list of suppliers. In this regard, we assume that the purchase price is the same, because, the latter is negotiated, then we choose to consider it as a constant element.

➢ **Description of the current status of suppliers at YMO:**

YAZAKI MORROCO S.A holds a list of suppliers of raw materials required by YAZAKI CORPORATION. We group them in three rankings according to their country of implantation, which are Japan, Europe and Brazil.

Each ranking has its calculating formula of the purchase cost that differs from the other, and the components of each cost as shown in the following table:

Ranking	Location	Formula for calculating the cost of purchasing raw materials
Supplier n°1	Europe	Total storage space * 250 * 0.111 * 1822/1000) + (0.031 / (total storage space * 250))
Supplier n°2	Brazil	4711* number of months
Supplier n°3	Japon	2835* number of months

Table 2: YMO suppliers and their purchase costs by location[9]

➢ **Description of the current state of raw materials at YMO:**

- In our work, we choose only two types of raw material which are:

- Grommet is an indispensable tool in the manufacture of cable, used to prevent water leakage, and to prevent tearing during cable operation.

- The protector is a necessary tool to manufacture the cable, which facilitates the insertion of the cable, and to protect the cable from multiple risks (electrical risks for example).

The choice of these two subjects refers to several reasons among them, we mention the main ones:

- They are more voluminous, which take more storage space in containers during the importation, and consequently the quantity imported per carton is limited (between 30 and 45 pieces) on the other hand, the clips for example are imported in large quantity per carton (more than 500 pieces).

- They are more expensive, because they are made of rubber and plastics of good quality.

- We do not choose other types of raw materials such as clips, connectors, because they are less expensive, and with small sizes, which allow to have several items in a single carton.

- **Description of the current state of the importation storage cost for each type of supplier:**

1. **For suppliers located in Europe :**

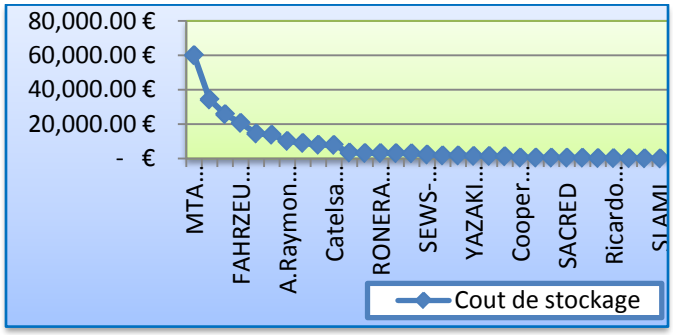

Figure 1: Cost of storing raw materials in containers[10]

- The graph shows the cost of storing raw materials in containers during importation, for each supplier located in Europe, of which we must decrease, optimizing the cost of purchase thereafter.

2. **For suppliers located in Brazil:**

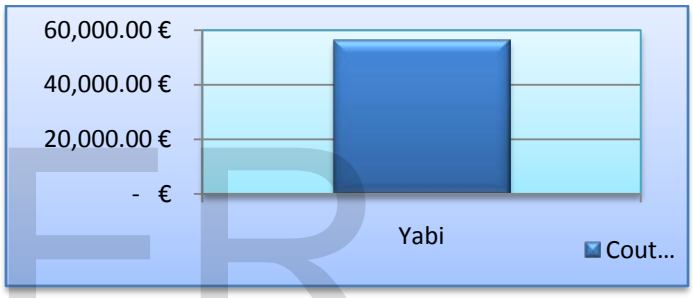

Figure 2: Cost of storage of raw materials in containers of the Brazilian supplier "YABI"[11]

- The graph shows the cost of storing raw materials in containers during the importation of a supplier located in Brazil. For the latter, we are not trying to optimize its purchase cost. (because, there is already only one, so there is not a big profit).

3. **For suppliers located in Japan:**

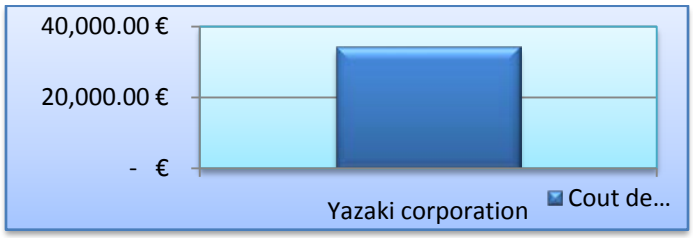

Figure 3: The cost of storage of the raw materials in containers of the Japanese supplier "YAZAKI CORPORATION"[12]

9) Internal document in YMO.

10) Internal document in YMO
11) Internal document in YMO
12) Internal document in YMO

The graph shows the cost of storing raw materials in containers during importation from a supplier located in Japan. For the latter, we cannot change its purchase cost, because, YMO is originally a Japanese multinational.

So, we conclude this step from the measurement and analysis of the current state of our YMO study by the following points:

TO optimize the cost of purchasing raw materials at YMO, by investing in the location of suppliers to reduce the distance between the supplier and the company that represents in our case the desired improvement in direct purchasing.

-To find solutions to achieve this objective of investing in the location of suppliers (which means, guaranteeing more proximity).

Step 3: "Innovate / Improve".

At this stage of our study, we address the improvement point regarding the investment in supplier location by:

Find adequate solutions; see its impact on the cost of purchase again.

Calculate the optimization achieved by this improvement.

Plan its implementation.

Find the possible actions to be carried out in this work as follows.

- **Solution found: benchmarking companies producing the same raw material installed in Morocco.**

a. Presentation of the solution:

In order to invest in localization of suppliers and to guarantee more proximity, we choose to benchmark companies based in Morocco that produce the same raw material, to optimize the cost of importing in terms of Km, and subsequently to decrease the direct purchase cost.

b. Result of benchmarking:

- **Companies located in the Tangier Free Zone**

Company	Activity	Address	Tel/Fax
GMD (Groupe Mécanique Découpage)	Manufacture of plastic components for the automotive industry	lot 108 – Gueznaya 90 000 TFZ	05 39 39 71 10
ELASTOMER SOLUTIONS MAROC SARL	Manufacture and distribution of rubber components for the automotive industry	TFZ, Marvest Building, Lot 798390100 Tangier.	05 39 39 27 35
Polydesign systems S.A.R.L	Manufacture of internal accessories for the automotive sector	Tangier Free Zone, ilot 18B, 90000 Tangier	05 39 39 94 00
SINTEX	Manufacture of plastic components and textile niche products		05 39 39 65 00
SIGIT	Manufacture of rubber profiled parts, low-pressure flexible and profiled elements and thermoplastics	Lots 79 C - 1/79 C - 10, Block 2, Block 3, Export Free Zone, - Tangier - Medina (CA)	05 39 93 40 11
Schelmmer	manufacture of corrugated sheath and automotive accessories	Tangier Free Zone - TFZ, ilot 27, lot 2 - 90000 Tangier free zone	0539 39 4300

Table n ° 2: Result of the benchmark of companies based in Tangier

❖ **Companies located at the Kenitra Free Zone:**

Company	Activity	Address	Tel/Fax
Plastic ElectromechanicCompany (PEC)	Design and manufacture of plastic components.	Atlantic Free Zone Kenitra.	05 39 39 50 18

Table 3: Result of the benchmark of companies based in Kenitra

❖ **Companies located in Casablanca Free Zone:**

Company	Activity	Address	Tel/Fax
Sacred Maroc. S.A	Manufacture of rubber products for the automotive and other industries	Zone ind.MoulayRachid, lot. 108bis - 20450 Casablanca	05 22 72 66 84

Table 4: Result of the benchmark of companies based in Casablanca

❖ **Companies located in Errachidia:**

Company	Activity	Address	Tel/Fax
GECAM	Manufacture of technical rubber parts	Industrial Zone Tassila 3, lot35,	05 22 72 66 84

Table 5: Result of the benchmark of companies based in Errachidia

Firstly, according to this benchmarking we determine, nine companies offering the raw materials (Object of our study). Then, we choose the ones that meet all the conditions required by YMO: cost, quality, delivery time, method of payment ... Finally, we present these results to YAZAKI CORPORATION, so that it chooses the right one.

Step 4: «To master / To control »

Generally, in a "DMAIC" approach the fourth step is to control, so we choose to divide it into two phases;

• **The first phase is "to master / put in control",** which makes it possible to fight against the constraints influencing the reliability of this work;

• And the second phase is "to control", which allows to measure the optimization of the purchase cost of the raw materials.

So, the relevance of the improvement implemented is to increase the optimization of the purchase cost by the choice of the new supplier compared to the old one.

➢ **First phase: "Maitriser / put in control":**

This phase aims to fight against any type of dysfunction or constraint, that is to say, we have the obligation to supervise and follow the implementation of the work, without being influenced by any risk , in order to encourage the central to accept the latter. So its mastery is as follows:

Changing a supplier that delivers not only for YMO, but, for several sites of the multinational YAZAKI, will influence the cost of purchasing the other sites, because the latter conducts its sales price negotiations based on several deliveries.

For this reason, we choose the raw material references that YMO consumes on its own (as shown in the following table), that means, without whatever are common with the other sites, which favors our change of supplier installed abroad by another installed in Morocco, and, which meets any kind of conditions.

Type of raw materials	Part number/ N° of reference
Grommet	7075165330
Grommet	X41535E001
Grommet	X41535E002
Grommet	X41535E003
Protective	7176046230
Protective	7176046330
Protective	X31484E091
Protective	X31484E092
Fuse boxes	7254034430
Fuse boxes	7254034431

Table 6: Type and references of raw materials

This change of supplier concerns just the next projects and for the exact references of the raw materials, so that we can identify several points to know:

- The acceptability of the YAZAKI CORPORATION power station.
- To satisfy customers.
- To avoid any kind of disruption of existing projects (project in the start-up phase, project in decline phase ...).

So, according to the negotiations conducted by the main office, it decides to choose the supplier "SIGIT", among the benchmark realized. It represents an Italian equipment manufacturer that has just planted its banner at the Tangier Free Zone, specializing in the manufacture of rubber profiled parts, low pressure flexible and profiled elements and thermoplastics.

➢ **b. Second phase: "Controlling":**

The purpose of this phase is to measure the optimization of the purchase cost, and hence the relevance and reliability of the improvement implemented.

To set up this optimization, it is essential to compare the old and the new purchase cost, then, we mention the conditions of each, such as:

➢ With the former supplier: in view of its implementation, there is an expense concerning its transport cost in terms of importation per kilometer and sea cost (Cost Ferry), in the case of shipping or both at the same time.

➢ With the new supplier: since its location in the Tangier Free Zone, the company uses only taxis to import its goods, of which, we note an expense calculated on the basis of imported pallet number as it show the following expenses:

- For one to three pallets: a cost of 200 dh.
- For three to eight pallets: a cost of 250 dh.
- For eight to fifteen pallets: a cost of 300 dh.

Then, in order to show the optimization of the purchase cost, we illustrate the two situations in the following table:

Supplier	Purchase Cost Formula	Optimized element
With the former supplier	**(Total storage space * 250 0.111 * KM / 1000) + (0.031 / (total storage space * 250))**	➢ **The maritime cost (cost ferry)** ➢ **Distance in kilometers .** ➢ **0.111 € on every 250KG.**
With the new supplier	**Payment by number of pallets:** **o From 1-3 pallets: 200 DH.** **o From 3-8 pallets: 250 DH.** **o From 8-15 pallets: 300DH.**	

Table 7: The comparison between the old and the new purchase cost

To conclude this step, we can argue that with the choice of the new Italian supplier "SIGIT", we will save more expense illustrated in the table above. Thus, we propose a simulation encrypted as follows:

Numerical simulation of purchase cost optimization:

To put ourselves in a description situation, we treat four references of two types of raw materials namely; grommets and protectors through the change of two European suppliers which are A.Raymond.France and Elastomer Solution Slovakia S.R.O by two suppliers installed at the Tangier Free Zone which are Schlemmer and Sijit.

- Basic Data:

- For the importation of these raw material references, the company uses European type pallets (diameter 120cm / 80cm).

- After our inspection in the reception area, we show that each pallet contains 15 boxes.

- The quotation used EUR / MAD = 11.

Suppliers	Raw materials	References	Number of boxes per year	Number of pallets per year	Annual Cost
Elastomer Solutions Slovakia S.R.O	Grommets	7035013330	765	51	13353.70€
		7035039330	337	23	
		7035292430	259	18	
		7173076130	737	50	
A.Raymond France	Protectors	71242990	703	47	5886,71€
		71243830	6	1	
		71247627	12	1	
		7254042830	172	12	

Table n ° 8: the annual cost of purchasing raw materials for two European suppliers

Suppliers	Raw materials	References	Number of boxes per year	Number of pallets per year	Annual Cost
Elastomer Solutions Slovakia S.R.O	Grommets	7035013330	765	51	13353.70€
		7035039330	337	23	
		7035292430	259	18	
		7173076130	737	50	
A.Raymond France	Protectors	71242990	703	47	5886,71€
		71243830	6	1	
		71247627	12	1	
		7254042830	172	12	

Table 9: the annual purchase cost of raw materials for two suppliers located in TFZ

Table 10: the comparison between the old and the new purchase cost of protectors

Supplier	Raw materials	Cost of purchase	Difference	Interpretation
Elastomer Solution Slovakia s.r.o	Grommets	13353.70€	13069.70€	By changing supplier, the purchase cost of grommets is optimized, which will improve the performance of the company.
Sijit		284€		

Supplier	Raw materials	Cost of purchase	Difference	Interpretation
A.RaymondFrance	Protectors	1471.68€	1286,68€	By changing supplier, the cost of purchasing protectors has decreased by 800%, which will increase the added value of the company.
Shlemmer		184€		

Table 11: Comparison between the old and new purchase cost of protectors

Element	Grommets+ Protectors	
Old cost	14 825.38€	163 079.18DH
New cost	468€	5 148DH
Costsaving	14 357.38€	157 931.18DH

Table n ° 12: the achieved optimization (cost saving)

CONCLUSION

The research we are carrying out aims to study the competitiveness of companies in the sector of the automotive industry in Morocco, in particular, logistic costs. Thus, we conduct an empirical study (fieldwork) with one of the automotive suppliers in Morocco "YAZAKI MOROCCO SA-Tangier". The objective is to find a method of optimizing

logistic costs and more precisely the cost of purchasing raw materials. In this regard, we propose an improvement that concerns the change of suppliers, the purpose of which is to reduce the cost of importing raw materials.

According to the results of this study, it seems that the optimization of the cost of purchasing raw materials is of great importance for the company because:

Faced with a competitive environment, the company needs to maintain its margins in order to ensure its competitiveness and its competitive position in the market.

Faced with a globalized world, customers demand price reductions; hence the company needs to present low prices while ensuring a good level of quality.

Faced with an uncertain environment, the company always needs to increase its performance.

A prospective extension of this study will then measure the financial impact of this optimization.

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