Dissertation Training

At

EYE-Q VISION PVT LTD.

A STUDY ON SUPPLIER SELECTION CRITERIA FOR INTRAOCULAR LENSES USING AHP METHOD

By

Mr. Prashant Pokhriyal

Enroll No. PG/21/073

Under the guidance of

Dr. Nidhi Yadav
Associate Professor

PGDM (Hospital & Health Management)

2021-23

International Institute of Health Management Research - New Delhi

International Institute of Health Management Research

New Delhi

Internship Training

At

Eye-Q Vision Private Limited

On

A STUDY ON SUPPLIER SELECTION CRITERIA FOR INTRAOCULAR LENSES USING AHP METHOD

Submitted by

Mr. Prashant Pokhriyal

PG/21/073

International Institute of Health Management Research

New Delhi

The certificate is awarded to

Mr. Prashant Pokhriyal

In recognition of having successfully completed his/her

Internship in the department of

Supply Chain Department

And has successfully completed his project on

A STUDY ON SUPPLIER SELECTION CRITERIA FOR INTRAOCULAR LENSES USING AHP METHOD

16th January 2023 – 30th April, 2023

In

Eye-Q Vision Private Limited.

He comes across as a diligent person who has a strong drive and zeal for learning

We wish him all the best for future endeavors.

Training and Development

Mr. Sumit Bhasin

Vice President – Human Resources

Eye-Q Vision Private Limited

TO WHOMSOEVER IT MAY CONCERN

This is to certify that Mr. Prashant Pokhriyal student of PGDM (Hospital & Health Management) from International Institute of Health Management Research, New Delhi has undergone internship training at Eye-Q Vision Pvt. Lmt. from 16 January 2023 to 30 April 2023.

The Candidate has successfully carried out the study designated to him during internship training and his/her approach to the study has been sincere, scientific and analytical.

The Internship is in fulfillment of the course requirements.

I wish him all success in all his/her future endeavors.

Dr. Sumesh Kumar
Associate Dean, Academic and Student Affairs
IIHMR, New Delhi

Dr. Nidhi Yadav
Associate Professor
IIHMR, New Delhi

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Certificate from Dissertation Advisory Committee

This is to certify that **Mr. Prashant Pokhriyal,** a graduate student of the **PGDM (Hospital & Health Management)** has worked under our guidance and supervision. He/ She is submitting this dissertation titled "

A Study on supplier selection criteria for intraocular lenses using AHP method

At

"EYE-Q Hospitals Pvt. Ltd, Gurugram, Haryana"

In partial fulfillment of the requirements for the award of the **PGDM (Hospital & Health Management).**

This dissertation has the requisite standard and to the best of our knowledge no part of it has been reproduced from any other dissertation, monograph, report or book.

Dr Nidhi Yadav
Associate Professor

Institute Mentor Name,
Designation,

Organization
IIHMR Delhi

Organization Mentor Name
Designation,

Organization

VISION PRIVATE LIMITED GURGAON

Sr. Manager
Supply Chain

FEEDBACK FORM

Name of Student: - Mr. Prashant Pokhriyal

Name of Organization in which Dissertation has been completed: - Eye-Q Vision Pvt. Ltd.

Area of Dissertation: - Supply Chain

Attendance: - Yes

Objective Achieved: -

(I) Vendor TAT improvement
(II) Process flow Analysis
(III) Stock segregation

Deliverables: - Process Gap Analysis, Systematic Work

Strengths: - Workholic, Quick learner

Suggestion for Improvement: - Data Analysis, Advance Excel
Exposure to company project and Training

Suggestion for Institute: -
- Increase the No. of summer Enterships of Hospital Government or Private

Mr. Ajay Singh
Supply Chain
Senior Manager Eye-Q Vision Pvt Ltd.

EYE-Q VISION PRIVATE LIMITED GURGAON

Certificate of Approval

The following dissertation titled **"A STUDY ON SUPPLIER SELECTION CRITERIA IN SUPPLY CHAIN MANAGEMENT USING AHP METHOD"** at **"EYE-Q SUPER-SPECIALITY EYE HOSPITALS "** is hereby approved as a certified study in management carried out and presented in a manner satisfactorily to warrant its acceptance as a prerequisite for the award of **PGDM (Hospital & Health Management)** for which it has been submitted. It is understood that by this approval the undersigned do not necessarily endorse or approve any statement made, opinion expressed or conclusion drawn therein but approve the dissertation only for the purpose it is submitted.

Dissertation Examination Committee for evaluation of dissertation.

Name	Signature
Dr Altaf Yousuf	
Dr Rekha Samtani	
Dr Kalpana Goyal	

INTERNATIONAL INSTITUTE OF HEALTH MANAGEMENT RESEARCH, NEW DELHI

CERTIFICATE BY SCHOLAR

This is to certify that the dissertation titled **A STUDY ON SUPPLIER SELECTION CRITERIA FOR INTRAOCULAR LENSES USING AHP METHOD** and submitted by Mr. Prashant Pokhriyal Enrollment No. PG/21/073 under the supervision of Dr. Nidhi Yadav – Assistant Professor for award of PGDM (Hospital & Health Management) of the Institute carried out during
the period from 16 January 2023 to 30 April 2023 embodies my original work and has not formed the basis for the award of any degree, diploma associate ship, fellowship, titles in this or any other Institute or other similar Institution of higher learning.

Signature

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List of Symbols and Abbreviations

1. IOL – Intraocular Lens
2. ISO - International Organization for Standardization
3. AHP – Analytical Hierarchy Process
4. RI – Random Consistence Index
5. CI – Consistency Index
6. CR – Consistency Ratio
7. SCM – Supply Chain Management
8. PO – Purchase Order
9. GRN – Good Receive Note
10. EDOF – Extended Depth of Focus
11. J&J – Johnson & Johnson Vision
12. B&L – Bausch & Lomb

Abstract

This research focuses on bridging the gap in the literature by applying supplier selection methods specifically to the healthcare industry. While supplier selection has been extensively studied in various sectors, there has been limited research in the context of healthcare. To address this gap, the study investigates the supplier selection criteria relevant to the healthcare industry.

The research specifically examines the supplier selection criteria within the healthcare organization Eye-Q Vision Pvt. Ltd, located in Gurugram, Haryana, India. By gathering insights and assessments from the managers of Eye-Q Vision Pvt. Ltd., a unique hierarchical structure is developed to represent the supplier selection model tailored to the healthcare industry.

By taking into account the specific demands and requirements of the healthcare industry, this research ensures that supplier selection criteria meet the industry's goals and problems. Furthermore, the criteria within the model are prioritized, allowing healthcare organizations like Eye-Q Vision Pvt. Ltd. to make informed decisions when selecting suppliers.
By conducting this study and presenting a customized supplier selection model, this research contributes to the field of healthcare management by providing valuable insights and guidance for healthcare organizations seeking to enhance their supplier selection processes.

Keywords: Supplier Selection, Healthcare Sector, AHP, Intraocular Lens, Cataract.

Introduction

Leading Indian eye hospital chain Eye-Q is renowned for providing top-notch eye care. The hospital chain is dedicated to making excellent eye care services available to everyone at reasonable costs. The group of hospitals is headed by renowned eye surgeon Dr. Ajay Sharma. He has played a crucial role in maintaining the hospital network's high standards by registering it under ISO 9001-2015. With 29 hospitals located across different regions in India, including Delhi-NCR, Haryana, Uttar Pradesh, Uttarakhand, and Gujarat, Eye-Q ensures accessibility to a larger population. These hospitals are equipped with advanced facilities and specialized services to cater to diverse eye care needs.

Eye-Q's commitment to quality is evident in its strategic expansion beyond India's borders, establishing three hospitals in Nigeria, Africa. This global outreach reflects their dedication to providing quality eye care to international communities in need. By strategically locating hospitals, Eye-Q aims to bring eye care services closer to the population, ensuring convenience and accessibility for patients seeking specialized treatment.

Vision, Mission & Values:

Vision:

To be India’s foremost chain of eye Hospital in terms of both Quality of eye care and the Number of patients handled.

Mission:

To make every patient an Ambassador for Eye-Q through a combination of: -

1. Highest level of quality and technology in eye care.
2. Exceptional personal care.
3. Complete integrity to the patient and his/her needs

Values:

1. Be honest and open in my communication and do what I say I will do
2. I accept our individual & team responsibility and meet my commitments each & every time.
3. Our clinical & non clinical team is supportive of each other’s efforts and care for

each other.

4. Give care, compassion & respect to patients and colleagues as I expect for myself
5. Will make conscious effort to contribute in creating a social impact
6. Will embrace and drive positive change
7. I will feel Proud of Eye Q

Services offered at Eye-Q hospital:

1. Comprehensive Eye Care
2. Cataract Services
3. Refractive Services
4. Retina Services
5. Glaucoma Services
6. Pediatric Services
7. Visual Aid Services
8. Occuplasty Services
9. Optical Services

Objective of the Study

1. Primary Objective:

The primary objective of this research is to identify the specific criteria employed in the selection of suppliers. In other words, the study aims to determine the factors and considerations that are taken into account when choosing suppliers for procurement in a given context.

2. Secondary Objective:

The secondary objective of this research is to determine the relative importance of the criteria used in the selection of suppliers. While the primary objective focuses on identifying the specific criteria, the secondary objective aims to assess and rank these criteria based on their significance.

Supply Chain:

It is a group of organizations responsible for coordinating the movement of products from suppliers, manufacturers, merchandisers, and transport companies to consumers. In addition, a supply chain can be defined as the flow of goods, services, and information from raw materials to customers. With multiple vendors, both local and global, establishing performance measurement criteria can be challenging, making performance evaluation difficult.

Supply chain management is becoming more important in healthcare to deliver higher-quality services. The reason for this is logistics, medical equipment, consumables, intraocular lenses, pharmaceutical items, and patient satisfaction. The healthcare industry has also undergone a lot of change during the past several years. Despite the fact that industrial settings have challenges, many healthcare organizations are aware that they need to use a better approach and method to implement their supply chain management plans.

In the public and private sectors, improving supply chain management effectiveness is integral to improving healthcare quality.(1)

Supply Chain Management - Supply chain management (SCM) involves organizing, coordinating, and continuously enhancing a series of processes with the goal of providing exceptional customer service while minimizing costs. (2)

Cataract:

Cataracts mainly occur due to the natural aging of the crystalline lens. Unlike many other body structures, the lens keeps growing throughout a person's life as new fibers are continuously added while existing ones are not replaced. The lens maintains its transparency through its small structure, chemical composition, and related factors that contribute to its optical consistency. However, as we age, a yellow-brown pigment accumulates within the lens, diminishing light transmission. Furthermore, changes to the lens fibers disrupt their regular arrangement and overall structure, which is essential for preserving clear vision. Cataract can occur for reasons other than aging.

- The signs and symptoms of cataract change depending on the type of cataract, the person's lifestyle, and their visual requirements.
- Cataract surgery is typically performed in developed countries when the benefits of removing the symptoms outweigh the minimal risks associated with modern surgical procedures.
- After cataract surgery, the majority of patients (around 85-90%) should achieve vision that meets the requirements for driving in most countries.
- Advancements in implant technology show promise in improving image quality and addressing the issue of presbyopia, the need for reading glasses.
- Posterior capsule opacification, which occurs 2-5 years after surgery, remains a challenge in many cases.(3)

Types of Cataract:

1. Nuclear Cataract – Develop at the middle (Nucleus) of the lens leads to yellow/brown color.
2. Cortical Cataract – Develop away from the centre of the nucleus.
3. Posterior Capsular Cataract – Develop quicker than the first two categories and has a greater impact on the back of the lens.
4. Congenital Cataract – this type of cataract present by birth. **(Rare)**
5. Secondary Cataract – Develop in the eye by some Specific medication or disease like Steroid Prednisone, Diabetes & Glaucoma.
6. Traumatic Cataract – this type of cataract develop after some injury but it take

many years to develop.

7. Radiation Cataract – mostly develop in cancer patients

Symptoms:

1. Blurry Vision
2. Loss of vision
3. Poor vision at night
4. Decrease colour perception
5. Photophobia
6. Light Scattering
7. Blurred Image

Diagnosis:

A thorough eye examination will be conducted by medical professionals to check for cataracts and evaluate vision. It will also include a tonometry exam to gauge your eye pressure and an eye chart test to assess your vision at various distances.

The most popular tonometry test flattens your cornea with a painless air puff while measuring your eye pressure. The doctor will also use drops to enlarge the pupils in the eyes. This makes checking for damage to the retina and optic nerve at the rear of your eye simpler.

Checking your sensitivity to glare and how you see colours are two further tests that your doctor might administer.

Treatment:

Replacement of the natural crystalline lens during cataract surgery with an intraocular lens.(3)

Intraocular Lens:

During cataract surgery or other corrective eye surgeries, a small, artificial lens called an intraocular lens (IOL) is implanted inside the eye. It either replaces the natural lens that a cataract has obscured or fixes refractive faults. The IOL serves to restore clear vision by focusing light onto the retina, enabling improved visual clarity and reducing the need for glasses or contact lenses.

Types of Lenses:

There are several types of intraocular lenses (IOLs) available for implantation during eye surgery. Here are some common types:

Monofocal IOLs: These lenses have a single focal point, providing clear vision at a fixed distance, typically for either near, intermediate, or distance vision. Patients may still require glasses for other distances.

Multifocal IOLs: These lenses have multiple focal points, allowing for vision at various distances. They aim to reduce the need for glasses or contact lenses after surgery by providing clearer vision at different distances simultaneously.

Accommodating IOLs: These lenses are designed to move and change shape within the eye, mimicking the natural focusing ability of the eye's natural lens. This allows for a range of focus and improved vision at different distances.

Toric IOLs: Astigmatism, a common refractive defect brought on by a cornea with an uneven shape, is a condition that toric IOLs are specifically made to treat. These lenses correct astigmatism and improve eyesight by having various powers in different meridians of the lens.

Extended Depth of Focus (EDOF) IOLs: EDOF lenses are designed to increase the depth of focus, providing improved vision at various distances without distinct focal points. They offer a broader range of clear vision and reduced dependency on glasses.

The specific type of IOL recommended for an individual depends on various factors, including their vision needs, eye health, and the surgeon's expertise. It is important to consult with an ophthalmologist to determine the most suitable IOL for each patient's unique circumstances.

Due to the complexity of the purchasing context, studies on supplier selection have utilised a range of supplier evaluation criteria. This study will first identify important supplier selection criteria that are significant in the healthcare sector and in a number of purchasing settings in order to assess their worth to procurement professionals.(4)

The major objective in the healthcare sector is patient care, which sets it apart from other industries. However, because of the intense rivalry that is now present, funding is still necessary for healthcare companies to survive. Getting inputs at the proper cost, quantity, quality, and time from the right source is one of the purchasing departments' top priorities. As a result, businesses must pick the best suppliers because doing so saves money for the company. Depending on the type of goods and services to be purchased, different suppliers are chosen. There are often multiple stages to the choosing process, some of which are not relevant to straightforward transactions. At each level, the pool of potential suppliers shrinks until the best acceptable candidate that satisfies the requirements is chosen. The order criteria must first be satisfied by each company. The next step in the selecting process is to compare possible suppliers to order winners.(5)

Literature Review

1. Ghadimia, P., & Heavey, C. (2014). This study emphasizes the significance of supplier selection in supply chain management within the medical device industry. It highlights the transition from traditional criteria to incorporating sustainability factors in decision-making. Managers and CEOs are now placing greater emphasis on integrating sustainability into manufacturing and supply chain operations. As a result, research in supplier selection has shifted towards addressing sustainability challenges..(6)

2. Vonderembse, M. A., & Tracey, M. (1999). This research examines how supplier selection criteria and supplier involvement affect manufacturing performance. The results show that manufacturers who implement these practices observe improved supplier and manufacturing performance. While most firms prioritize supplier selection criteria, supplier involvement in product design and continuous improvement activities is relatively lower. The study establishes positive connections between supplier selection criteria, supplier involvement, supplier performance, and manufacturing performance.(7)

3. Kannan, V. R., & Tan, K. C. (2002). The growing importance of effective supplier selection and assessment is shown by this study as businesses concentrate on their core capabilities and outsource non-core activities. The study investigates the impact of various supplier selection and evaluation criteria on the operational efficiency of American manufacturing companies. The results show that compared to tangible criteria, intangible factors—such as a supplier's strategic commitment—have a higher impact on performance. Furthermore, suppliers' openness to and capacity for information sharing have a big impact on how well a buying company performs.(8)

4. Sagar, M. K., & Singh, D. (2012). This study focuses on identifying appropriate decision-making criteria for selecting suppliers in the Indian automobile sector. The research gathers input from the sector through a standardized questionnaire. The findings provide a foundation for enhancing supplier selection practices and fostering better relationships with suppliers. The study also compares its key findings with previous research conducted in this area..(9)

5. Kar, A. K., & Pani, A. K. (2014). The importance of several supplier selection factors in

Indian manufacturing companies is investigated in this study. Product quality, delivery compliance, and affordability are all deemed to be extremely essential criteria. Furthermore, the emergence of e-procurement platforms has led to the growing importance of e-transaction capability as an evaluation criterion.(4)

6. Beşkese, A., & Evecen, C. (2012). This study looks at supplier choice in the healthcare industry, which has different issues than other sectors. The authors suggest a novel set of criteria that prioritize the health and well-being of customers. They highlight the criterion of "quality" as a crucial factor, serving as a minimum requirement for suppliers.(5)

7. Krop, E., & Iravo, M. A. (2016). This study explores the influence of supplier selection on the performance of the procurement function in the public sector, specifically focusing on the West Pokot County Government. The results indicate that factors such as value for money, product/service quality, process cost management, and timely supply delivery have a considerable impact on procurement function performance. Supplier selection is recognized as a key determinant affecting the overall performance of the procurement function.(10)

8. Edmond Yeboah, N. (2015). The Analytic Hierarchy Process (AHP) is used in this study to assess and prioritise supply chain risks in Ghana's agriculture industry. It emphasises the importance of these risks across a range of industry areas. The study suggests additional empirical studies using Multi-Criteria Decision-Making (MCDM) methods to pinpoint hazards in the agricultural supply chain and create mitigation plans.(11)

9. Saaty, T.L. (2008), In this paper, Saaty emphasizes the importance of organized decision making and information gathering in group decision-making scenarios. He introduces the Analytic Hierarchy Process (AHP) as a valuable method for making decisions. The paper discusses various applications of AHP in different contexts, including its use in public administration. Notable examples include its application in determining the relocation site for the earthquake-affected city of Adapazari in Turkey in 2001 and British Airways' use of AHP in 1998 to select an entertainment system vendor for their entire aircraft fleet.(12)

10. Allen, D., & Vasavada, A. (2006). Allen and Vasavada focus on cataract surgery, which is prevalent in developed countries but remains the leading cause of blindness in the developing world. Alarming statistics reveal the significant impact of cataract-related blindness, with millions affected globally. The paper emphasizes the preventable and treatable nature of cataract blindness and the urgent need for interventions. Despite improvements in surgery safety and outcomes, the concentration of blindness in impoverished areas poses a challenge. Without interventions, the number of blind individuals is projected to reach 75 million by 2020. (3)

Methodology

Study Design: - A descriptive research design was utilised as the approach for this study, with the goal of giving a thorough overview and explanation of the supplier selection criteria applied in the context of Eye-Q Super-Speciality Eye Hospitals. To acquire pertinent data, the study includes both secondary and primary research approaches.

Area of study: -The area of study for this research is focused on Eye-Q Super-Speciality Eye Hospitals. This implies that the research specifically examines the supplier selection criteria within the context of Eye-Q hospitals, which are specialized healthcare facilities dedicated to providing eye care services.

Study duration: - The study period for this research is specified as two months, indicating the timeframe in which data collection, analysis, and interpretation will occur.

Sample population: - The sample population for this study is indicated as 100%, implying that the entire population of interest within Eye-Q Super-Speciality Eye Hospitals will be included in the research. This suggests that the study aims to capture the perspectives and insights of all relevant stakeholders involved in the supplier selection process.

Sampling technique: - Convenience sampling method, As a non-probability sampling technique, convenience sampling involves choosing participants or components based on their accessibility and availability to the researcher. To put it another way, the researcher chooses subjects who are easily accessible or readily available to take part in the study.

Criteria Selection: - The criteria selection is focused on factors that are applicable and relevant to intraocular lenses (IOLs), which indicates that the study specifically examines the criteria associated with selecting suppliers for IOLs.

Method: - The chosen method for analysis is the Analytical Hierarchy Process (AHP), a structured approach used to make decisions by comparing and prioritizing multiple criteria. It allows for the systematic evaluation and ranking of supplier selection criteria based on their relative importance.

Tool: - The tools employed for this research include Microsoft Excel for data analysis, review of existing literature on the topic, and conducting staff interviews. These tools provide a comprehensive framework for data organization, analysis, and the incorporation of insights from relevant sources and stakeholders.

Overall, the methodology described outlines a well-structured approach for investigating the supplier selection criteria within the context of Eye-Q Super-Speciality Eye Hospitals, incorporating both primary and secondary research methods to provide a detailed understanding of the topic.

As previously indicated, the distinct characteristics of the healthcare industry have an impact on the criterion structure and evaluation phases of supplier selection. A draught model has been created after a thorough literature analysis on supplier selection. In the interviews with the purchasing managers of Eye-Q Super-Speciality Eye Hospitals in Gurugram, this model served as the foundation. These interviews revealed that in order to represent the varied needs of the healthcare sector, typical supplier selection criteria that have been recommended for numerous industrial industries in the literature need to be changed and specialized.

An evaluation list of criteria has been filled out to help choose and compare vendors of intraocular lens. "**Quality**" has been identified as an order criterion for this industry due to its exceptionally **high priority**. Suppliers must meet established quality standards in order to qualify.

Then, based on the interviews with the purchasing managers of the Eye-Q Super-Speciality Eye Hospitals in Gurugram, criteria and sub-criteria inside the hierarchical model are created.

Table provides definitions for recommended sub-criteria for supplier selection in the healthcare industry. (Table1)

Table. 1

Criteria	Sub-criterion	Definition
Cost	Total Cost	The total cost of buying goods from a provider, which takes into account the product price, shipping costs, and customs fees.
Service	Delivery Schedule	The compatibility of the healthcare facility's operational schedules with the supplier's suggested delivery timetable.
	On-time Delivery	The time it takes for shipping and the supplier's adherence to promised delivery dates.
	Response to Change	The supplier's capacity to adjust to changes in the demand, pricing, order frequency, and business conditions at the healthcare centre.
	Warranty Period	Duration of the warranty provided for the supplied product.
	Technical Support	Availability of technical assistance for potential issues.
Supplier's Profile	Customer Base	Supplier's past experiences or recommendations.
	Terms of Payment	Payment terms that the supplier is proposing, such as payment deadlines and flexibility with the buyer's payment requirements.
Risks	Geographical Location	Consideration should be given to the supplier's country of origin and the location of their facilities in terms of potential risks such as natural disasters.
	Political Stability	It is important to consider the supplier's country's political climate and economic policies.
	Economy	Long-term connections and currency exchange rates may be impacted by the economic stability of the supplier's nation.

Analytical Hierarchy Process (AHP)

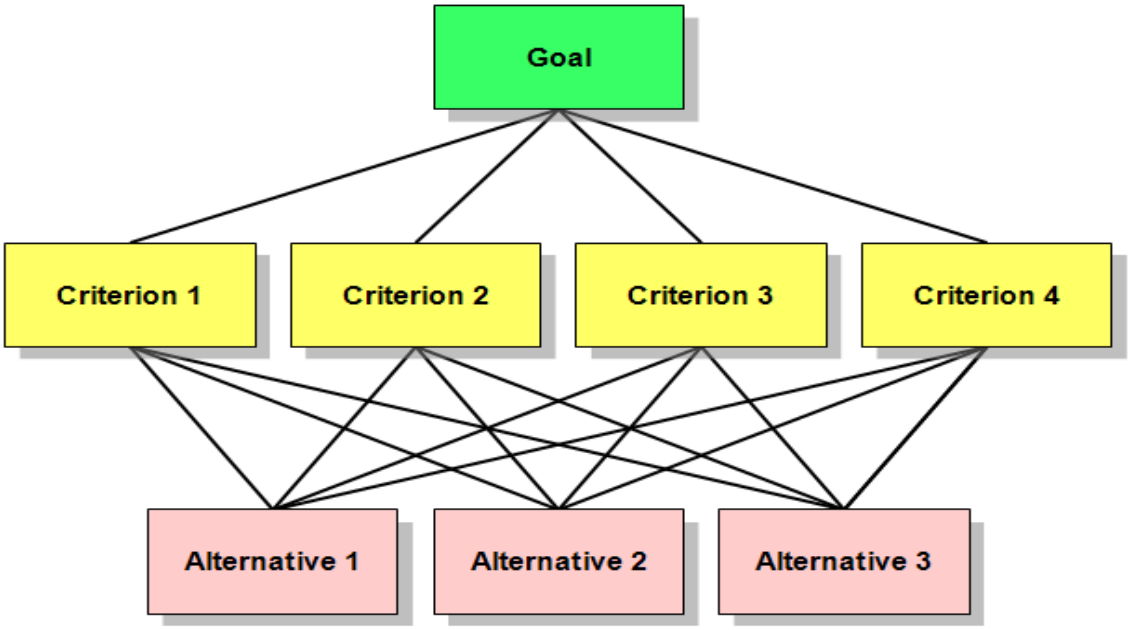
We must break down the decision into the following steps in order to develop priorities in an ordered manner.

1. 1. Specify the issue and decide what kind of information you need.
2. Create a decision hierarchy starting with the main goal, then the broad objectives, and move towards more specific criteria and alternatives.
3. Make pairwise comparisons between elements in each level of the hierarchy.
4. Use the comparison results to assign priorities to each element in the lower level. Repeat this process for every element, considering their respective priorities from the level above. Add up the weighed weights of each element to figure out its overall priority. Repeat this process over and again until you get the final priority for the bottom-level options.

To make comparisons, we use a scale of numbers that shows the relative importance or dominance of one element over another. For example, Table 2 displays this scale.(12)

Table.2

Intensity of Importance	*Definition*	*Explanation*
1	Equal Importance	Two activities contribute equally to the objective
2	Weak or slight	
3	Moderate importance	Experience and judgement slightly favour one activity over another
4	Moderate plus	
5	Strong importance	Experience and judgement strongly favour one activity over another
6	Strong plus	
7	Very strong or demonstrated importance	An activity is favoured very strongly over another; its dominance demonstrated in practice
8	Very, very strong	
9	Extreme importance	The evidence favouring one activity over another is of the highest possible order of affirmation
Reciprocals of above	If activity *i* has one of the above non-zero numbers assigned to it when compared with activity *j*, then *j* has the reciprocal value when compared with *i*	A reasonable assumption
1.1–1.9	If the activities are very close	May be difficult to assign the best value but when compared with other contrasting activities the size of the small numbers would not be too noticeable, yet they can still indicate the relative importance of the activities.



Analysis: -

PAIR WISE MATRIX (A1)							
TERMS OF PAYMENT	ALCON	B&L	CARE GROUP	J&J	PHYSIOL	ZEISS	SUM
ALCON	1.00	0.333	0.20	0.20	0.25	1.00	0.386497
B&L	3.00	1.00	0.50	0.25	0.33	3.00	0.849191
CARE GROUP	5.00	2.00	1.00	3.00	5.00	5.00	3.014233
J&J	5.00	4.00	0.33	1.00	4.00	5.00	2.26025
PHYSIOL	4.00	3.00	0.20	0.25	1.00	3.00	1.102924
ZEISS	1.00	0.33	0.20	0.20	0.33	1.00	0.40548
							8.018575

WEIGHT MATRIX (A2)
0.048
0.106
0.376
0.282
0.138
0.051
1.000

CONSISTANCY MATRIX (A3 = A1*A2)
0.300011978
0.659462758
2.376551903
1.766367977
1.070227897
0.236292878

A4 MATRIX (A3/A2)
6.224282986
6.227048612
6.322191097
6.266454911
7.780867904
4.672811303
6.248942802
LAMDA_MAX

CONSISTENCY INDEX	LAMDA_MAX-N/N-1	N=6
0.04978856		

CONSISTANCY RATIO	CONSISTANCY INDEX/RANDOM INDEX
	AT 6 RI = 1.24
CONSISTANCY RATIO	0.040152065

CR SHOULD BE <0.1

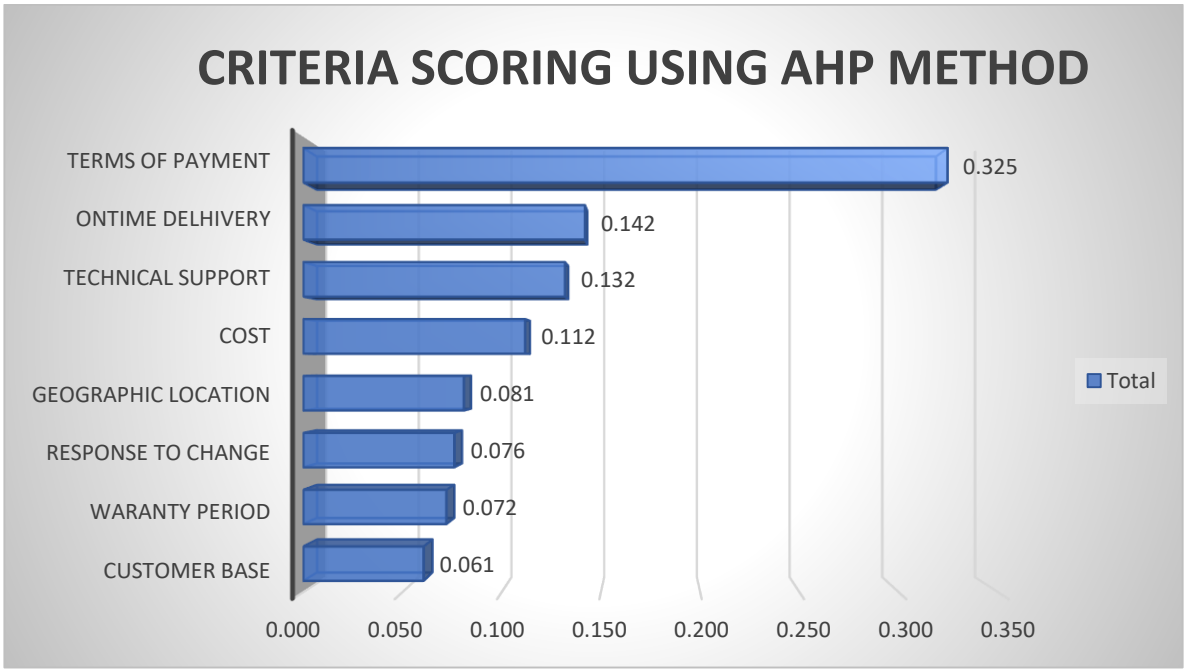
Table.3(12)

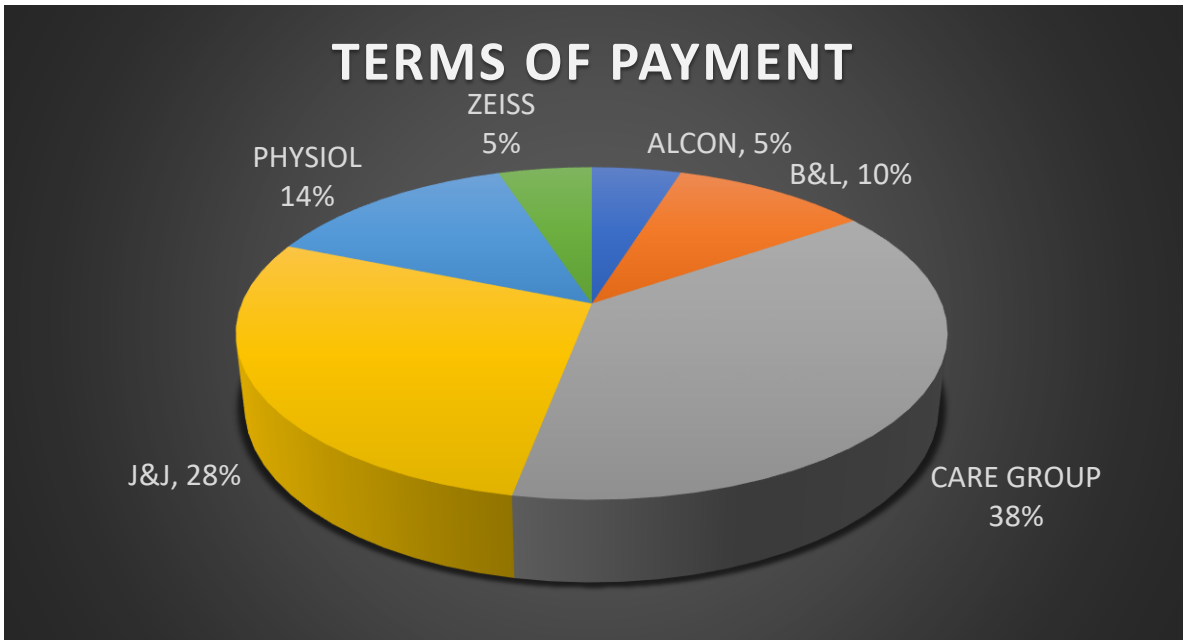
Matrix size	Random consistency index (RI)
1	0.00
2	0.00
3	0.58
4	0.90
5	1.12
6	1.24
7	1.32
8	1.41
9	1.45
10	1.49

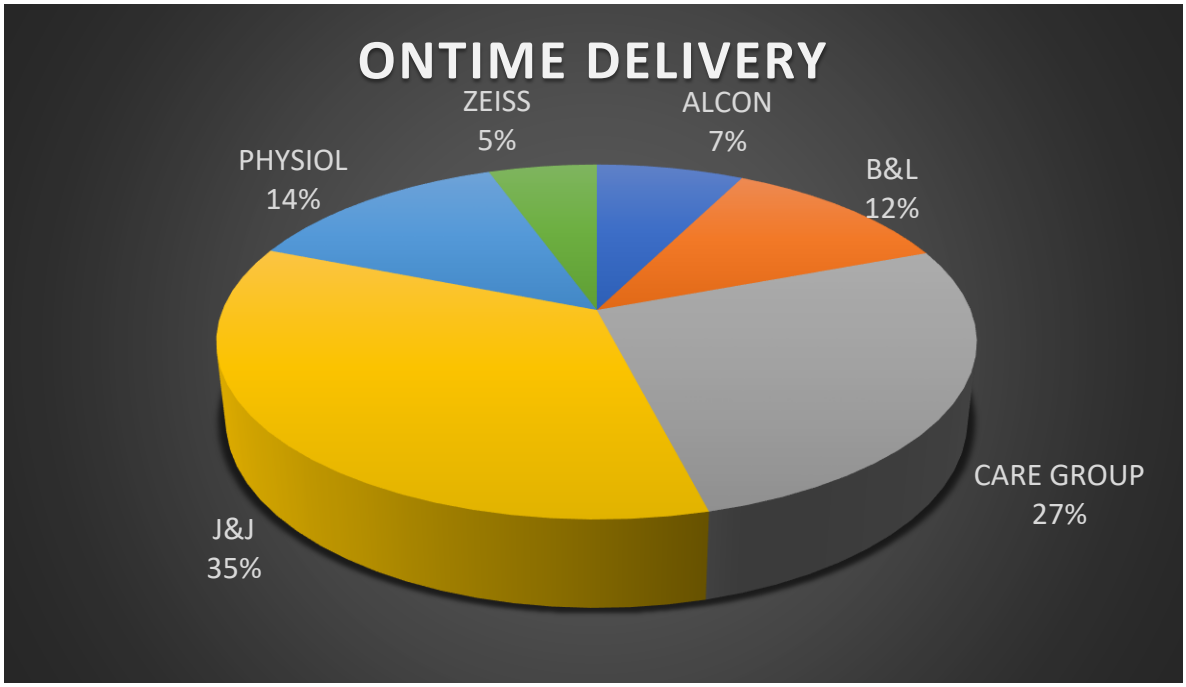
Importance:

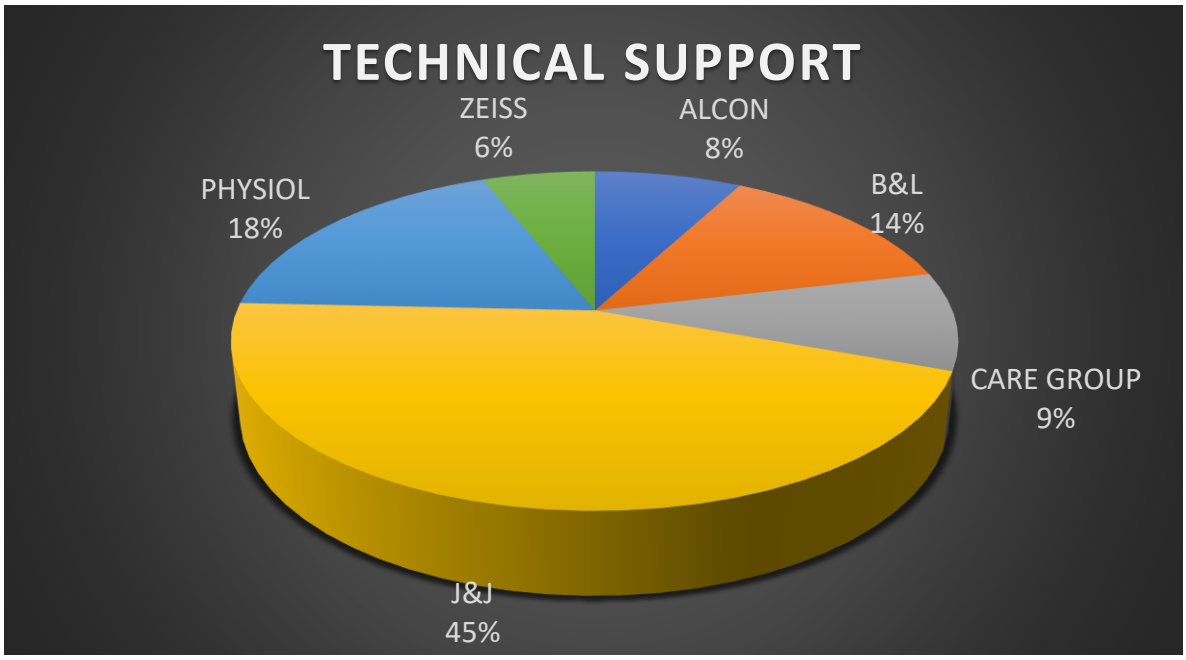
1. The ready-to-use model provides a structured approach for selecting suppliers.
2. The model aims to improve patient care within healthcare organizations.
3. Cost savings are a key consideration in supplier selection.
4. The model emphasizes the importance of delivering the right products, in the right quantity, at the right time, place, and cost to customers.

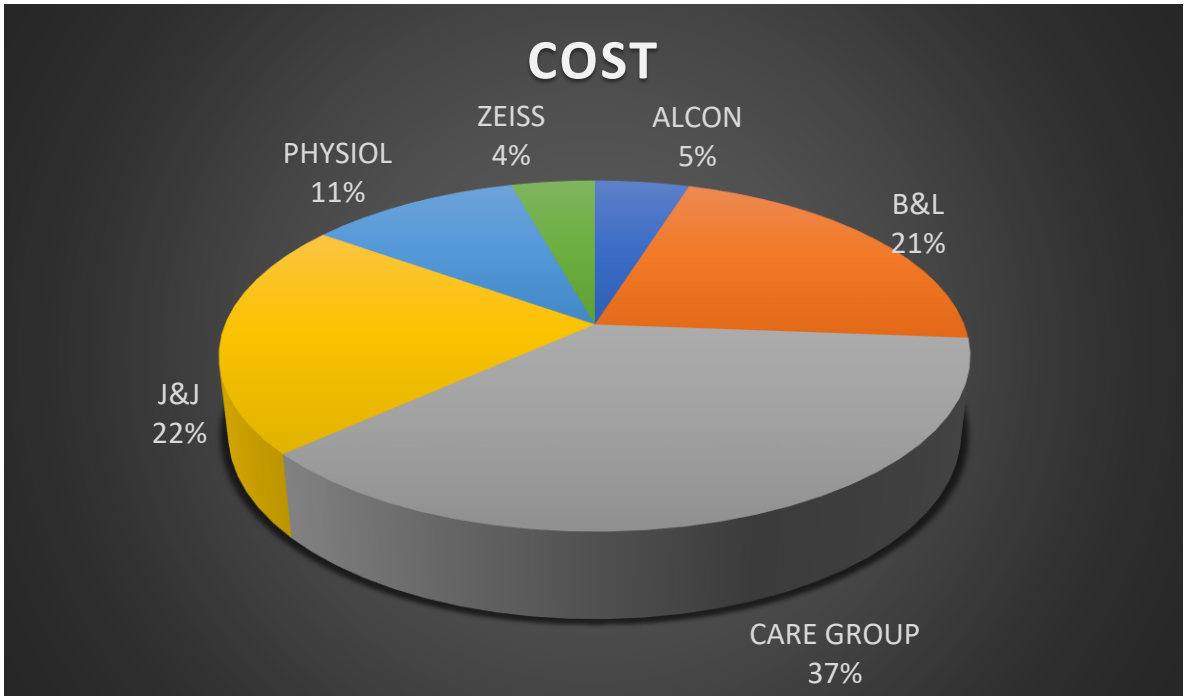
Results

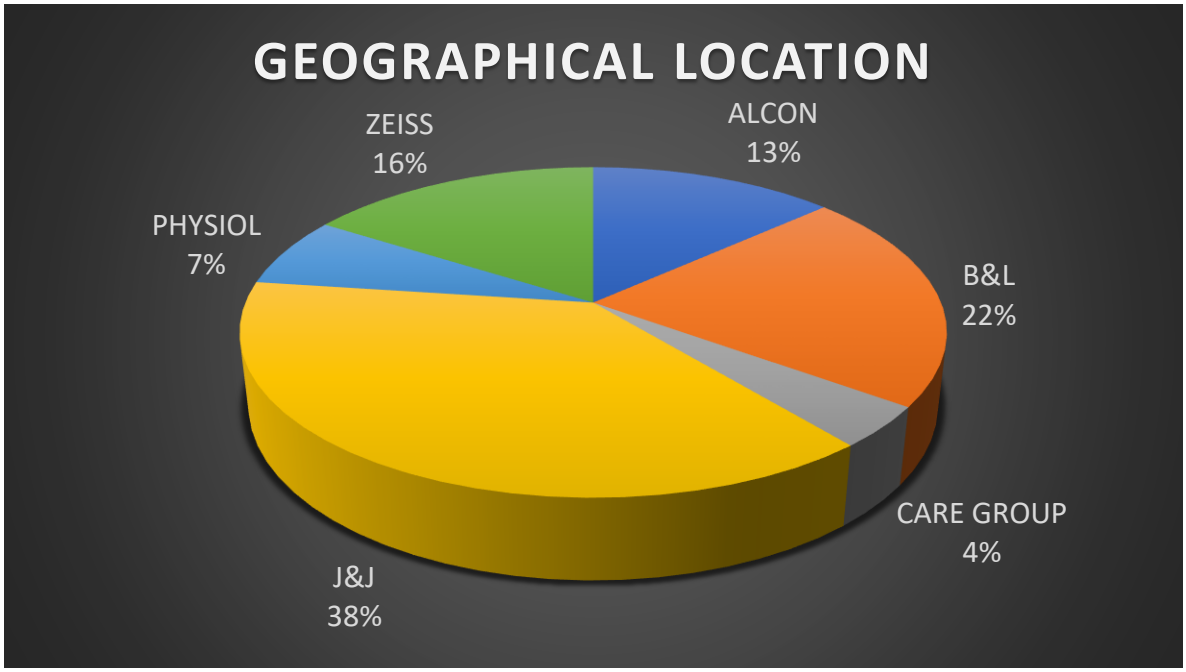

CRITERIA SCORING USING AHP METHOD
TERMS OF PAYMENT
ONTIME DELHIVERY
TECHNICAL SUPPORT
COST
GEOGRAPHIC LOCATION
RESPONSE TO CHANGE
WARANTY PERIOD
CUSTOMER BASE
0.325
0.142
0.132
0.112
0.081
0.076
0.072
0.061
0.000
0.050
0.100
0.150
0.200
0.250
0.300
0.350
Total

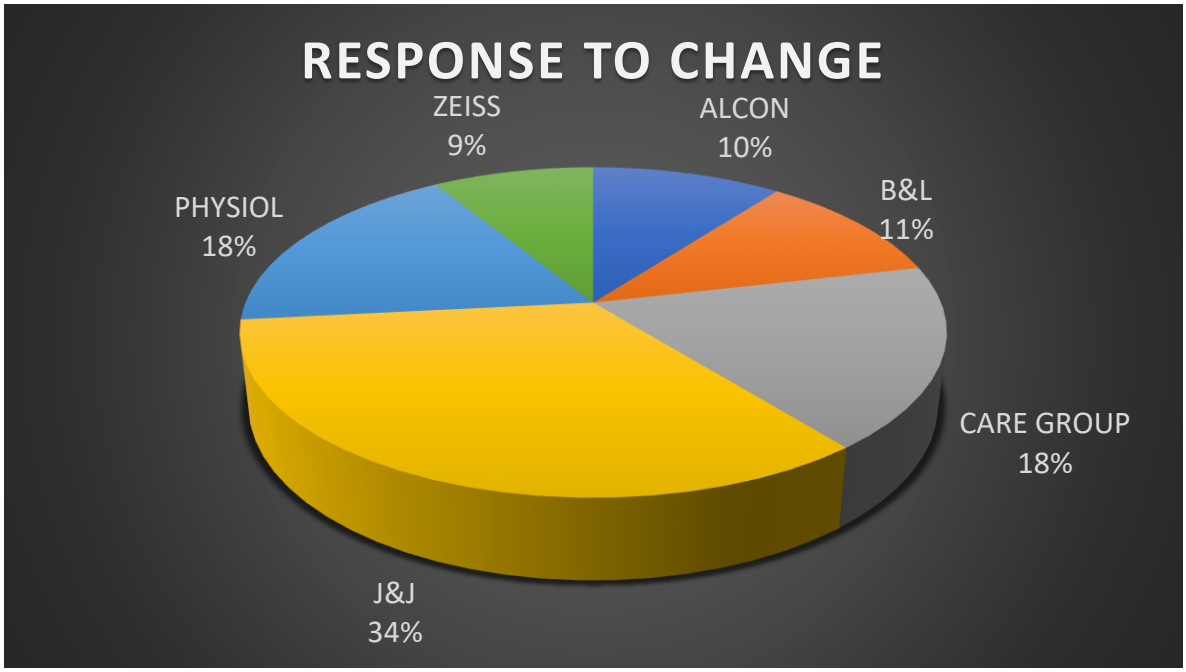

TERMS OF PAYMENT
ZEISS
5%
ALCON, 5%
B&L, 10%
PHYSIOL
14%
J&J, 28%
CARE GROUP
38%

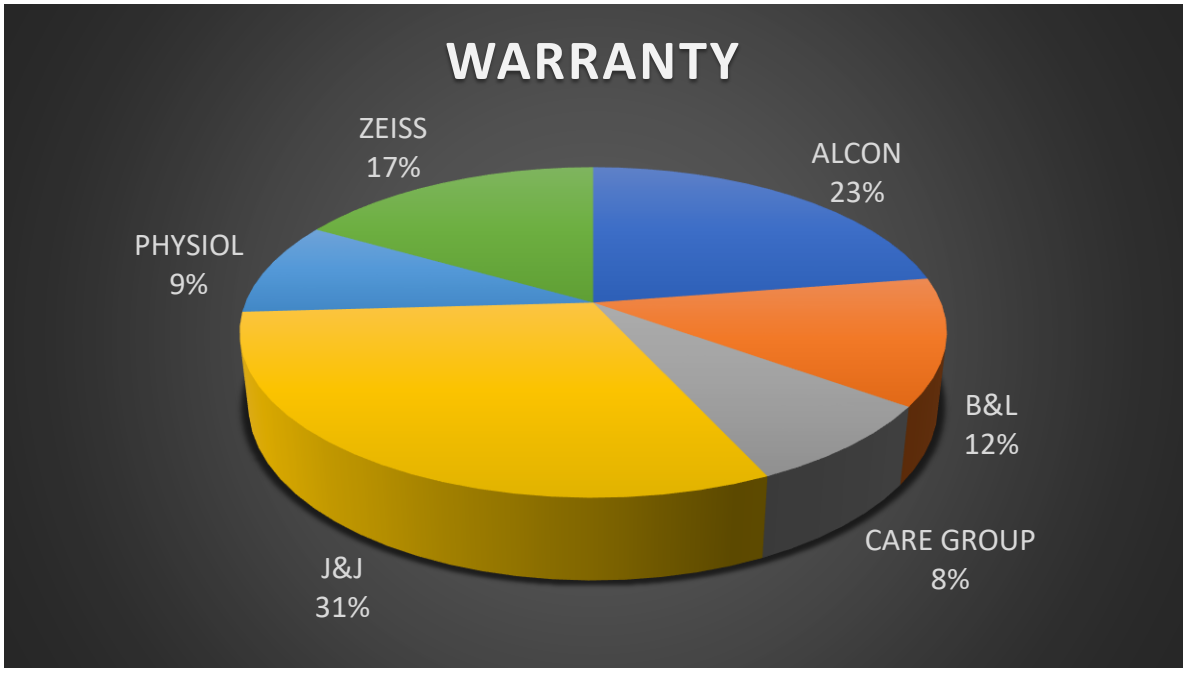

ONTIME DELIVERY
ZEISS
5%
ALCON
7%
PHYSIOL
14%
B&L
12%
CARE GROUP
27%
J&J
35%

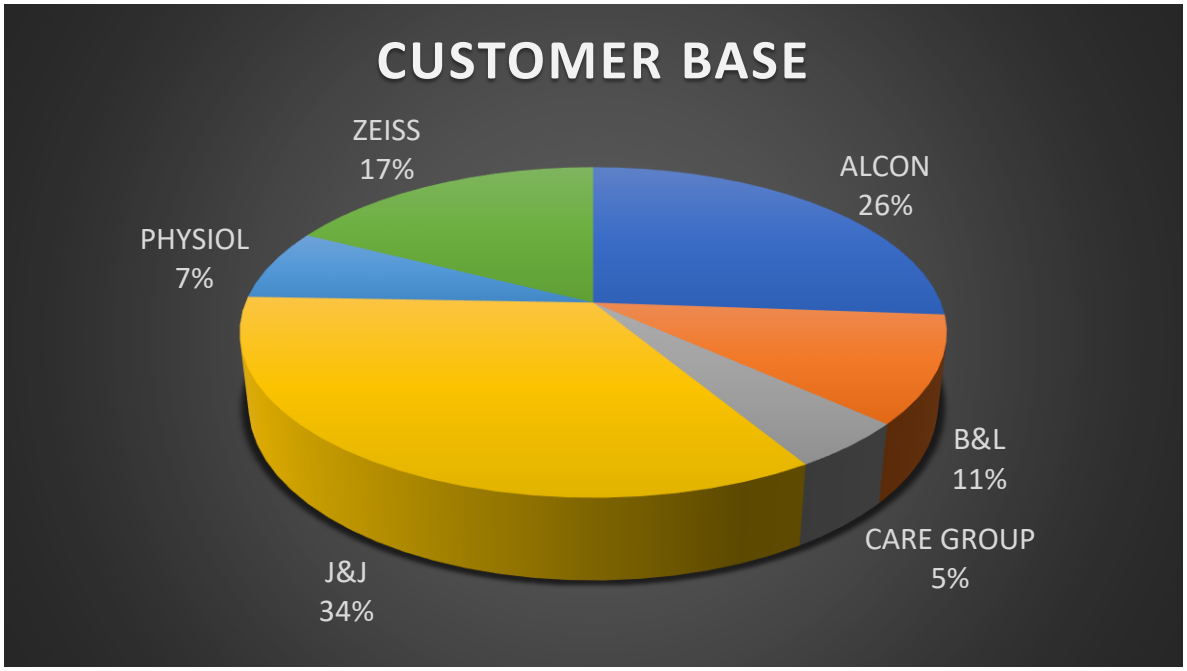

TECHNICAL SUPPORT
ZEISS
6%
ALCON
8%
PHYSIOL
18%
B&L
14%
CARE GROUP
9%
J&J
45%

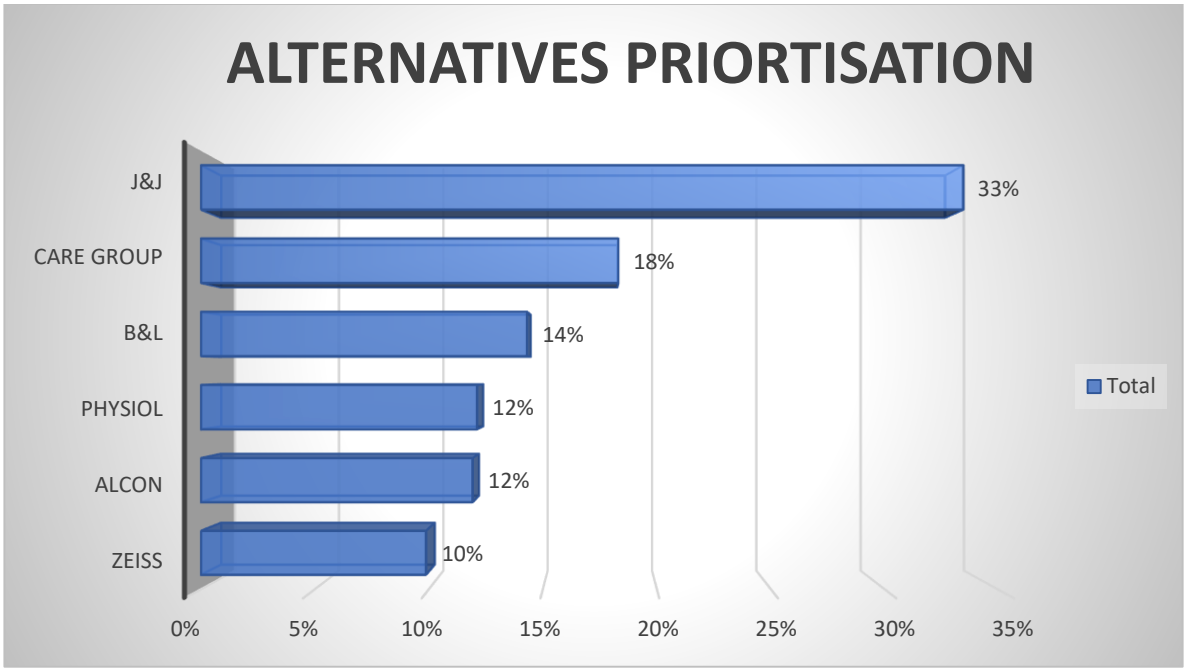

COST
ZEISS
4%
ALCON
5%
PHYSIOL
11%
B&L
21%
J&J
22%
CARE GROUP
37%


GEOGRAPHICAL LOCATION
ZEISS
16%
ALCON
13%
PHYSIOL
7%
B&L
22%
CARE GROUP
4%
J&J
38%


RESPONSE TO CHANGE
ZEISS
9%
ALCON
10%
B&L
11%
PHYSIOL
18%
CARE GROUP
18%
J&J
34%


WARRANTY
ZEISS
17%
ALCON
23%
PHYSIOL
9%
B&L
12%
CARE GROUP
8%
J&J
31%


CUSTOMER BASE
ZEISS
17%
ALCON
26%
PHYSIOL
7%
B&L
11%
CARE GROUP
5%
J&J
34%


ALTERNATIVES PRIORTISATION
J&J
CARE GROUP
B&L
PHYSIOL
ALCON
ZEISS
33%
18%
14%
12%
12%
10%
0%
5%
10%
15%
20%
25%
30%
35%
Total

Discussion

In the evaluation process, the researchers conducted interviews to gather information and insights from stakeholders. Based on the responses obtained, a thorough evaluation was conducted for key criterias. The objective was to determine the relative importance of each criterion in selecting the finest provider.

"Quality is always considered the number one priority because it directly impacts customer satisfaction, reliability, competitiveness, and safety. It ensures that products or services meet or exceed customer expectations, build trust and loyalty, differentiate a business from competitors, and adhere to industry standards. Prioritizing quality leads to positive outcomes and long-term success in various scenarios.

Among the identified criteria, the terms of payment emerged as the most crucial aspect, assigned the highest priority of 0.345. This indicates that the decision-makers consider favorable payment terms to be of utmost importance when choosing a provider. The next significant factor was Ontime delivery, with a priority of 0.142, indicating that timely delivery of products or services is a key consideration.

Other criteria were also evaluated, including cost, technical support, geographical location, responses to change, warranty period, and customer base. Each criterion was assigned a priority based on its perceived importance. Cost received a priority of 0.122, indicating that it is a relevant factor but not as critical as terms of payment and Ontime delivery. Similarly, technical support was assigned a priority of 0.132, highlighting its significance in the decision-making process.

Additional criteria such as geographical location, responses to change, warranty period, and customer base were also considered, although they were given lower priorities compared to the preceding criteria. Geographical location received a priority of 0.081, responses to change were assigned a priority of 0.076, warranty period had a priority of 0.072, and customer base received the lowest priority of 0.061.

Overall, the analysis indicates that service-related factors hold the most weight in the selection process. Prospective suppliers should prioritize improving their service offerings and addressing the specific sub-criteria within the service category. The provided table, Table 1, presents a detailed overview of the weights assigned to each sub-criterion, enabling a comprehensive understanding of their relative importance.

By utilizing the AHP method and prioritizing the mentioned criteria, the study has identified the following suppliers as the most suitable in each scenario:

1. Johnson & Johnson Vision – 33%
2. Care Group – 18%
3. Bausch & Lomb – 14%
4. Physiol – 12%
5. Alcon – 12%
6. Zeiss – 10%

These suppliers have been selected based on their alignment with the established criteria and their corresponding priorities. It is important to note that the specific reasons and criteria for selecting these suppliers are not provided, but they have been determined as the top choices through the AHP process.

Conclusion

This research explores supplier selection in the healthcare sector, which is a relatively unexplored area of study. The findings indicate that Terms of Payment, Ontime Delivery, Technical Support, and Total Cost are the most important factors in the evaluation process. These factors hold significant importance due to the unique nature of the healthcare sector, where uninterrupted service delivery is crucial. Technical Support ensures prompt resolution of technical issues, Ontime Delivery is vital for patient care, Cost impacts financial sustainability, and Quality directly affects patient outcomes. The research provides valuable insights for healthcare organizations to make informed decisions and maintain high standards of care.

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