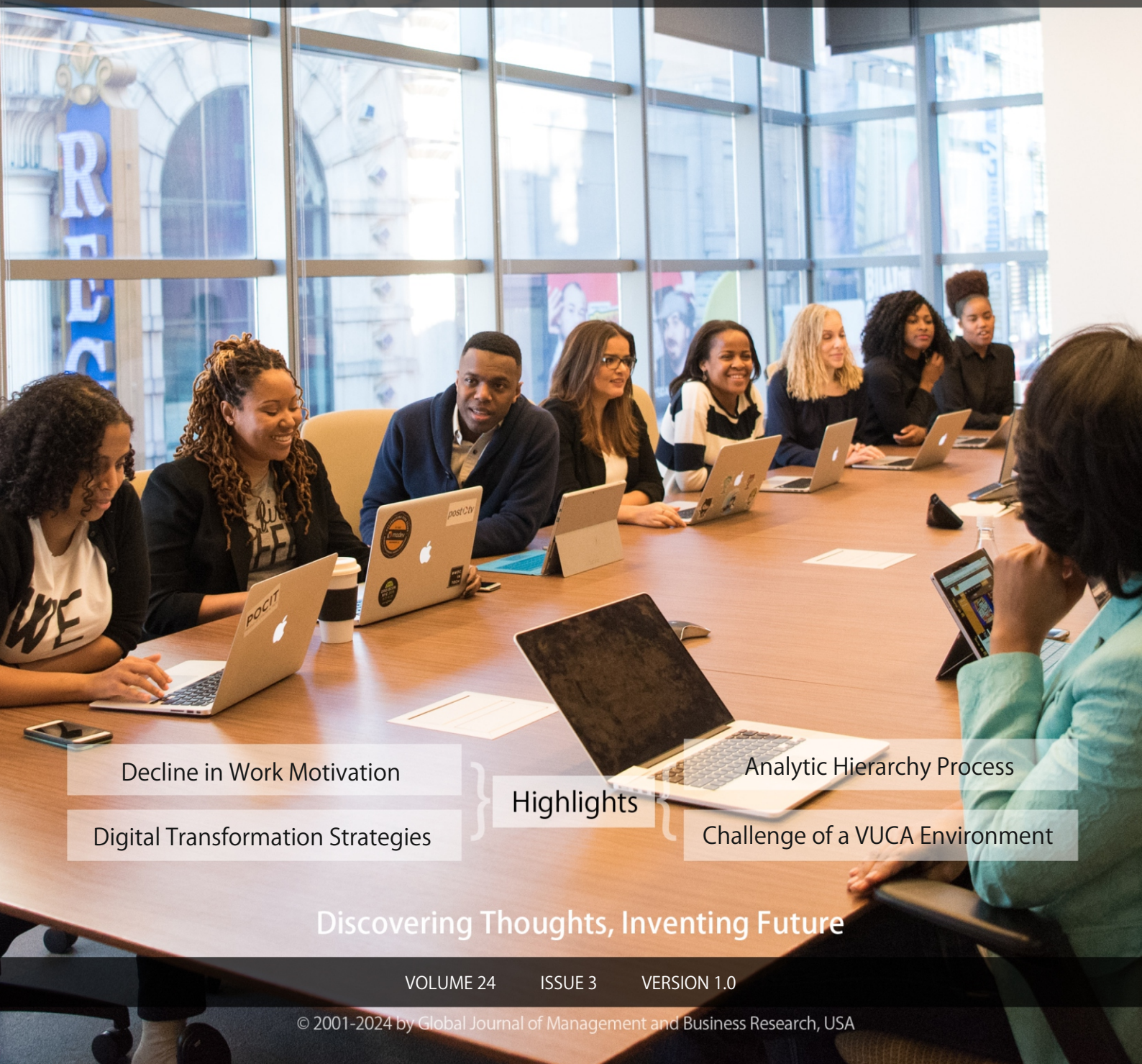


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# Enhancing Hajj Pilgrim Satisfaction: A Strategic Analysis of Service Quality Dimensions using the Analytic Hierarchy Process in Alignment with Saudi Vision 2030

By Rola Younis Masoud Mohammed, Wafa Mohammed Ahmed Zaid  
& Prof. Asma Bahurmoz

*King Abdul-Aziz University*

**Abstract-** Saudi Arabia every year receives more than two million Muslims from all over the world to perform the Hajj (the Muslim pilgrimage to Makkah). "It must take place during a specific period of the year in a specific and limited space." ("Asma BAHURMOZ | Faculty Member | Prof of Operations Research | King ...") To manage and satisfy such crowd, Considering the variety of cultures, languages, and different levels of socio-economic background, is next to impossible. Saudi vision 2030 has taken it as its duty to ensure that pilgrimages will have joyful experience and good memories to take back home. Authorities develop four categories of packages based on quality dimensions to meet different budgets. To manage and provide quality service for the pilgrimages is incredibly challenging task. In an effort from the authors to direct their research towards this goal. A multi criteria decision model MCDM is developed to evaluate the service quality dimensions (SQD) and identify essential criteria that achieve pilgrim's satisfaction and keep up with hajj vision 2030, The aim is to provide an easy tool though a scientific one for companies providing these packages to adjust their services to match pilgrims' expectations.

**Keywords:** Analytic Hierarchy Process; AHP; Service Quality; SQD; MCDM; Hajj; Saudi Arabia.

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# Enhancing Hajj Pilgrim Satisfaction: A Strategic Analysis of Service Quality Dimensions using the Analytic Hierarchy Process in Alignment with Saudi Vision 2030

Rola Younis Masoud Mohammed <sup>α</sup>, Wafa Mohammed Ahmed Zaid <sup>ο</sup> & Asma Bahurmoz <sup>ρ</sup>

**Abstract-** Saudi Arabia every year receives more than two million Muslims from all over the world to perform the Hajj (the Muslim pilgrimage to Makkah). To manage and satisfy such crowd, Considering the variety of cultures, languages, and different levels of socio-economic background, is next to impossible. Saudi vision 2030 has taken it as its duty to ensure that pilgrimages will have joyful experience and good memories to take back home. Authorities develop four categories of packages based on quality dimensions to meet different budgets. To manage and provide quality service for the pilgrimages is incredibly challenging task. In an effort from the authors to direct their research towards this goal. A multi criteria decision model MCDM is developed to evaluate the service quality dimensions (SQD) and identify essential criteria that achieve pilgrim's satisfaction and keep up with hajj vision 2030, The aim is to provide an easy tool though a scientific one for companies providing these packages to adjust their services to match pilgrims' expectations. The Analytic Hierarchy Process (AHP), a well-known methodology, is chosen to develop a selection model to help both companies and pilgrims make the best of the Hajj experience.

The results will help hajj service providers to identify relevant areas for improvements in services the originality and value of the study is represented in the SQ framework based on AHP to examine hajj campaigns that are considered as a novel contribution that widens our existing knowledge in terms of hajj SQ literature.

**Keywords:** Analytic Hierarchy Process; AHP; Service Quality; SQD; MCDM; Hajj; Saudi Arabia.

## 1. INTRODUCTION

Hajj is the fifth pillar of Islam and the most significant manifestation of Islamic faith and unity. Undertaking Hajj once is a duty for Muslims who are physically and financially able to make

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the journey to Makkah. Allah says in the Qur'an [And pilgrimage to the House is a duty unto Allah for mankind, for him who can find a way thither] (Aal`Imran 3:97). It must take place during a specific period of the year in a specific and limited space (Bahurmoz, 2006 a).

The Hajj experience brings together people from various socio-economic cultural and ethnic backgrounds the preservation of the tradition and the special atmosphere associated with Hajj can only be achieved through the efficiency of services provided to the pilgrims (Vision2030.gov.sa). Managing and organizing the various Hajj service providers has become increasingly complex as political, social, and environmental issues and problems relating to safety precautions and pilgrims' satisfaction have been added to other factors, including service delivery quality, cost, and service package provision (Grand & Wolff, 2022).

"Although the Hajj, fundamentally, is a religious affair drawing the line between where the rituals stop and where management starts is a difficult undertaking. Managing its operations represents a challenge to the Saudi government which assumes the responsibility and the honour of serving the pilgrims" (Bahurmoz, 2006). It is challenging to provide quality services to such enormous number in small space.

The program for realisation the KSA vision 2030 is to provide an opportunity for the largest possible number of Muslims to fully perform Hajj and Umrah and to work on enriching and enhancing their experience. This is through preparing the Two Holy Mosques, achieving Islam's universal message, preparing tourist and cultural sites, and providing the best services before, during and after their visit to Makkah, Medina, and the Holy Sites. In addition, this program will serve as a platform to confirm the effective role of the private sector to contribute and benefits from the economies of the Hajj season.

Over \$100 billion in U.S. dollars has been spent in the last forty years on projects to expand and improve the general infrastructure of the Holy sites, not to mention other expenses incurred by other ministries and organizations that contribute to serve pilgrims directly. For example, the government has begun the Makkah

Metro project, with railroad and train initiatives, to transport pilgrims to the Holy Mosque and holy sites. The transportation network has been strengthened to allow access and help pilgrims perform their trips with more ease and convenience (Grand & Wolff, 2022). These expenditures provide a lucrative source of income for businesses related to service industries. Accommodations, catering, health, and communication services are among the top Hajj expenditures. The income generated from the pilgrims is minuscule in comparison to the investments made by the government. However, it is estimated that income generated this year (2023) through pilgrims from outside the kingdom accounts up to 11% of total national income. To optimize and sustain such source of income there is need for launching a new concept of services provided to pilgrims.

Saudi Arabia has proposed a series of policies to improve the environment for pilgrims through regulatory reforms and tougher rules. These rules are set to guarantee the quality-of-service providers to serve pilgrims with facilities and services according to predetermined quality standards to provide a better experience for the pilgrims. The existing literature cites several studies that have dealt with various aspects of Hajj strategies, policies, and procedures (Bahurmoz, 2006; Eid, 2012; Othman et al., 2019; Mohammed, 2021). However, there is a lack of literature in terms of addressing (SQD) for services provided to pilgrims during Hajj. These services which is known as Hajj package that the external pilgrims must pay for before arrival. And before getting the permit to perform Hajj for internal pilgrims. These packages are classified into four categories and provided by many authorized agents like what is known worldwide tourism agents. This paper will propose an AHP model that identifies essential criteria that are relevant to the evaluation of reliable service standards for the continuous improvement of services provided during Hajj campaigns. The result of this research will be a program of support to policymakers to evaluate the services provided by Hajj campaigns. Service quality is important because it helps both public and private organizations understand and meet customer needs and expectations.

In line with this policy, the objective of this paper is to develop a scientific system to help policy makers and pilgrims as well to evaluate the Hajj services and assess the (SQD) based on pilgrims' preferences. SQD are mixed of tangible and non-tangible factors and of conflict nature when they are compared from point of view of pilgrims who are a small representation of the world population. Thus, we are managing a group multi-criteria decision-making problem (GMCDM). Although there are many MCDM tools to manage this type of problems, we have selected the AHP to develop our proposed model. AHP can be applied to complex problems involving conflicting, tangible, and non-tangible, and qualitative and quantitative criteria. It can

manage group decision making problems as well. It is easy to learn and applied however it is based on robust mathematics. Thus, the quality of services provided can be effectively measured within the remit of the MCDM approach (Smith, 2020; Velasquez & Hester, 2013). The importance of this study lies in the analysis of (SQD) and their applicability to Hajj campaigns. This in turn, it will provide insights for decision-makers to control development the services offered to pilgrims.

Service quality is important because it helps both public and private organizations understand and meet customer needs and expectations. Research by Zeitham, Parasurman, and Berry (1985) uncovered five categories of customer preferences in evaluating service quality (Angelova & Zekiri, 2011). SQD helps to measure and improve service quality to increase organizations' profits and maintain a positive reputation (Pakurár et al., 2019) Factors relating to service quality that affect levels of customer satisfaction will be the criteria for our study, and these are Tangibility, Reliability, Assurance, Empathy and Responsiveness (Zeithaml, 2000). The provision of Hajj services depends on housing, transport, healthcare, catering and security (Bahurmoz, 2006). These services are offered to be sold to pilgrims as a single package to choose from four alternatives. Hajj campaigns are classified (A), (B), (C), and (D) based on the diverse services provided. These categories will be analysed through cost-benefit analysis and four packages will be the variants made available to suit all pilgrim's budgets. The result of the study will be an evaluation model to support policy makers in evaluating the services provided by Hajj campaigns. Hajj campaigns as Service providers must constantly evaluate and assess by the SQDs.

This paper will address the definition of service quality dimensions, examine their importance, and look at how they can be used to ensure a consistent level of service quality in hajj campaigns to meet and maintain the Hajj vision 2030 in terms of pilgrim satisfaction. If service providers can understand these factors, namely, (SQDs) they will earn the loyalty and respect of their customers (Al-Dhani and Ali, 2019). The remaining of the paper will be devoted to explaining the Hajj context, Methodology, Results, Discussion and Conclusion.

## II. THE SCOPE OF THE PROBLEM

### a) Hajj Vision 2030

The goal of the Pilgrim Experience vision 2030 Program is to enable Muslim pilgrims to enjoy Umrah and Hajj to the greatest extent, and its job is to enrich and enhance the experience of all visitors. This is achieved through the preparation of the two Holy Mosques and other cultural and tourist before, during and after pilgrims' visits to the holy destinations of Medina Munawara and Makkah. The program should



reflect Saudi Arabia's positive image in serving both the pilgrims and the sacred sites (Ministry of Hajj, 2010).

Traveling without a bag, it was launched in 2019 and its aim is to facilitate the pilgrims' visits to the Holy Mosques, and to provide them with the services they require while enriching their cultural and religious experiences (Alsharief et al., 2022; Vision2030.gov.sa). The initiative shortens airport wait times by transporting pilgrims' luggage directly from the airport to their homes. During the 2019 Hajj season, approximately 600,000 bags were delivered to 500,000 pilgrims, reducing airport wait time by 51% and saving over 400,000 working hours. In addition, the Umrah season has been extended to eight months, and the use of cutting-edge technology has decreased the visa waiting period for Hajj and Umrah travellers from fourteen days to five minutes. As a result, the number of Umrah tourists rose from 7.42 million in 2018 to 8.2 million in 2019 (Mohammed & Yaqub, 2024).

These programs were put into effect through the services provided in these categories in the Hajj campaigns. To successfully achieve this, service providers must constantly evaluate and assess the SQDs, which will be considered in the following sections.

#### b) *The Administration of Hajj*

Managing the Hajj pilgrimage is the responsibility of the Ministry of Pilgrimage, overseen by the Supreme Hajj Committee which in turn is responsible to the King of Saudi Arabia in his role as Custodian of the Two Holy Mosques. The ministry coordinates arrangements in Saudi Arabia and abroad, dealing with the arranging, supervision, and implementation of the process. Other ministries also have roles to play in the proceedings, including the ministries of Religious Affairs, Information and Culture, Defence and Aviation, Health, Telecommunications, Interior, and Information Technology. There is also Ministry of Islamic Affairs, Dawa and Guidance. It cares for mosques and manages their assets and endowments (Ministry of Hajj, 2022). Coordination among ministries and other national provisions such as the KSA Red Crescent and the National Guard to prepare for and oversee the annual Hajj is a year-round issue. The costs of the process of enabling visitors to "perform the rites smoothly and comfortably" exceeds 4 billion US dollars. (Henderson, 2010; Ministry of Economy and Planning, 2020). Administering the Hajj is an extremely complicated process in which Saudi Arabia's private and public sectors are deeply involved. The private sector is represented "Tewafa" organizations work as the main organizers of Hajj affairs from the private sector, while two government bodies – the Central Hajj committee at local levels and the Supreme Hajj committee at national level – manage public sector affairs.

Hajj requires systemized management approaches to standardise activities related to the provision of services to pilgrims (Kemenag, 2018; Ahmad et al., 2014). Pilgrims pay fees for the service to perform Hajj, so they demand quality services to live up to their expectations. Those involved in the campaigns do not always know about service quality dimensions that must be in place and available as part of any service provided, regardless of the level of the category of the service. Providers must also be aware of the extent to which these criteria can be achieved and applied in the services provided in all hajj categories to achieve the Hajj 2030 vision and meet the accepted level of satisfaction for the pilgrims.

### III. METHODOLOGY

#### a) *The Analytic Hierarchy Process (AHP)*

AHP is a well-established MCDM methodology was founded by Saaty in the seventies to help decision makers organize their thought processes, so they lead them to good decisions. It "contributes to solving complex problem by deconstructing it into a hierarchy of undependable criteria, stakeholders, and outcomes and by eliciting judgments to develop priorities" (Saaty, 2016). Each level of the hierarchy consists of a few undependable components that can be devolved into a series of sub-components relating to the decision criteria, the problem, and any potential alternative decisions. Decomposition, priority synthesis and comparative pairwise assessment are the three main principles of AHP. (Saaty, 2016). In using the AHP, one constructs a hierarchy (consisting of goal, criteria, and alternatives), and then makes judgments (or performs measurements) on pairs of elements with respect to a controlling element. Ratio scales are derived from these judgments and then synthesized throughout the structure to select the best alternative (Bahurmoz, 2006 b).

##### i. *Problem Decomposition*

The problem is structured in a hierarchy with a goal at the top and then criteria (and often sub criteria at several levels, for additional refinement) and alternatives of choice at the bottom. (Bahurmoz, 2006 b). The criteria can be subjective or objective depending on the means of evaluating the contribution of the elements below them in the hierarchy. Furthermore, criteria are mutually exclusive, and their priority or importance does not depend on the elements below them in the hierarchy. The number of alternatives should be reasonably small because there would then be a problem with improving the consistency of the judgments. Miller law states that an individual cannot simultaneously compare more than seven objectives (plus or minus two) without becoming confused & Group of citation. (Miller, 1956), ( Saaty & Ozdimer 2003)

Decomposing the problem in a hierarchy serves three purposes:

1. Providing an overall view of the complex relationships inherent in the situation.
2. Capturing the spread of influence from the more important and general criteria to the less important ones.
3. Permitting the decision maker to assess whether he or she is comparing issues of the same order of magnitude in weight or impact on the solution.

Decomposing the problem in a hierarchy structure is an important step. It should be done with thoughtfully matter. Therefore, the literature provides references to help designing the hierarchy, to name only few, Brugha (2004) has provided a complete guideline to structure a problem hierarchically. The Hierarchon (Saaty and Forman, 1993) a dictionary of hierarchically structured decisions and the Encyclicon (Saaty and Ozdemir, 2005), a dictionary of more general network structured decisions.

ii. *Pairwise Comparison*

AHP is an absolute scale in which people use numbers to express how much one element dominates another with respect to a common criterion. The scale derived from these absolute numbers is a ratio scale. It does not require units in the comparison. The judgement is a quotient  $a/b$  of two quantities  $a$  and  $b$  having the same units (intensity, meters, utility, etc.). The decision maker does not need to provide a numerical judgement; instead, a relative verbal appreciation, is sufficient. Comparisons are recorded in a positive reciprocal matrix (1).

$$A = \begin{bmatrix} 1 & a_{12} & \dots & a_{1n} \\ a_{21} & \dots & a_{ij} & \dots \\ \dots & a_{ji} = 1/a_{ij} & \dots & \dots \\ a_{n1} & \dots & \dots & 1 \end{bmatrix} \quad (1)$$

where  $a_{ij}$  is the comparison between element  $i$  and  $j$  if the matrix is perfectly consistent, then the transitivity rule (2) holds for all comparisons:

$$a_{ij} = a_{ik} * a_{kj} \quad (2)$$

For example, if  $A = 2 B$  and  $B = 3 C$ , then it is expected with the transitivity rule (2) that  $A = 6 C$ . However, this is seldom the case because our world is inconsistent by nature. As a minimal consistency is required to derive meaningful priorities, a consistency test was proposed by Saaty (2012).

iii. *Judgement Scale*

AHP enable the decision maker to evaluate equally quantitative and qualitative criteria and alternatives on the same preference scale. These can be numerical, verbal, or graphical. The use of verbal

responses is intuitively appealing, and more common in our everyday lives than numbers. Ratio scales are necessary, to perform pair wise comparison, which is the only way to be able to aggregate measurement, as in a weighted sum (Saaty, 1994). The verbal statements are converted into integers from one to nine. The resulted scale is called The Fundamental Scale of Absolute Numbers. It is reproduced below.

*The Fundamental Scale of Absolute Numbers*

Saaty's nine-point scale

Intensity of importance	Definition
1	Equal importance
3	Somewhat more important
5	Much more important
7	Very much more important
9	Absolutely more important
2, 4, 6, 8	Intermediate values

Elements in each level are compared pairwise with respect to their importance to an element in the next higher level, starting at the top of the hierarchy and working down, a number of square matrices called preference matrices are created in the process of comparing elements at a given level. Judgments of preference are made on pairs of elements in the structure using the fundamental scale mentioned above. It enables the decision maker to incorporate experience and knowledge in an intuitive and natural way (Ishizaka, A., Labib, A. (2011). "This scale is insensitive to small changes in a decision maker's preference, thereby minimizing the effect of uncertainty in evaluations." (Bahurmoz, 2006 b).

iv. *Synthesizing*

After forming the preference (judgement) matrices, the process moves to the step of deriving relative priorities for the various elements. The goal is to find a set of priorities  $P_1, P_n$  such that  $P_i/P_j$  match the comparisons  $a_{ij}$  in a consistent matrix and when slight inconsistencies are introduced, priorities should vary only slightly. Different methods have been developed to derive priorities. Saaty used the mean of the row. This old method is based on three steps (Ishizaka and Labib, 2011):

1. Sum the elements of each column  $j$ :  $\sum_{i=1}^n a_{ij} \forall i, j$
2. Divide each value by its column sum:  $\sum a_{ij} = a_{ij} / \sum a_{ij} \forall i, j$
3. Mean of row  $i$ :  $P_i = \sum_{j=1}^n a_{ij} / n$

The relative priorities (weights) of the elements of each level with respect to an element in the next higher level are computed as the components of the normalized eigenvector associated with the largest

eigenvalue of their comparison matrix. The composite weights of the decision alternatives are then determined by aggregating the weights throughout the hierarchy. This is done by following a path from the top of the hierarchy to each alternative at the lowest level and multiplying the weights along each segment of the path. The outcome of this aggregation is a normalized vector of the overall weights of the options.

v. *Consistency Versus Inconsistency*

AHP provides decision makers with a useful way of checking and improving consistency. A by-product of solving the eigenvalue problem to measure priorities is the principal eigenvalue,  $\lambda_{max}$ , from which we can derive the consistency index (C.I.) as follows:  $C.I. = (\lambda_{max} - n)/(n-1)$ , where n is the order of the comparison matrix.

Once judgements were elicited, A Judgment matrix is created based on the pairwise comparison made by the decision maker, A normalized matrix (N) must be created from the judgment matrix to be able to calculate the consistency ratio (CR) to check the consistency by using the following formula:

$CR = \frac{ConsistencyIndex}{RandomConsistency} = \frac{CI}{RI}$ , where  $CI = \frac{\lambda_{max} - n}{n-1}$ ; where RI is the random index which is the average of CI's of large number of matrices of the same order. Saaty, 2016)

The measurement of consistency reflects whether the decision maker understands and captures the interactions among different factors of the problem, or his decision is a matter of random hitting the target. However, perfect consistency is hard to achieve in real life problem solving. Saaty states "inconsistency must be precisely one order of magnitude less important than consistency, or simply 10% of the total concern with consistent measurement. If it were larger, it would disrupt consistent measurement and if it were smaller, it would make insignificant contribution to change in measurement" (Saaty 2016 & 2004).

Due to its pragmatic approach and adaptability, it has numerous applications in all aspects of decision making. Its widespread justifies having a specialized journal called "The International journal of the AHP (IAHP)" which is specialized in publishing theoretical and application papers related to the AHP and an international symposium (ISAHP) is held every other year to address developments in the process and its applications. To grasp the philosophy of the AHP readers are referred to read the following (Saaty, 2016, Saaty 2008 & Saaty, 2012).

In what follows, an AHP model is developed to select the best campaign to perform Hajj.

b) *Developing the AHP Model*

*Developing the AHP model involves the following steps:*

*Step 1: Structuring the hierarchy*

*The Goal:* select the best campaign to perform Hajj in four categories.

*The Criteria:* In this regard SQDs are used as the main criteria, i.e. tangibility, reliability, responsiveness, assurance, and empathy which are known in the quality literature as the SERVQUAL model (Parasuraman, Zeithaml, and Berry, 1988). Depending on the industry involved, there are different definitions of service quality dimensions (Parasuraman et al., 1988; Angelova & Zekiri, 2011; Alsharief et al., 2022). Service quality dimensions represents the total of all the procedures that influence customers' opinions on the performance of a service or the delivery of a product. (Parasuraman et al., 1988). Meanwhile, according to Eid, (2012), the satisfaction of the pilgrims is linked to the service quality levels customers receive. Concepts of quality of service are strongly emphasized in marketing studies and literature, the concept acts as a main determining factor of satisfaction and response on the part of customers. Assuring service quality is challenging, however, as it varies from one industry to another, the nature of the service and the setting in which that service is provided, as well as external factors such as the economy, cultural preferences, and current trends in the market. Because of this, service quality can be assessed through different approaches, and there is no one-size-fits-all approach that could cover all markets – although numerous attempts have been made to generalize approaches to evaluating the way in which service quality is measured.

Scholars have stressed the significance of customer satisfaction and service quality across a wide range of sectors (Angelova & Zekiri, 2011; Emtu, 2017; Eid, 2012), and many studies have been made on the dimensions of service quality specifically within the hajj context, as these factors are becoming increasingly important dimensions of the Hajj. Defining service quality for the pilgrimage is necessary, along with the development of a measuring process (Harris et al., 2020; Alsharif et al., 2022; Eid, 2012; Sadq et al., 2020). Service quality literature is broadly divided into two schools; the Nordic school that sees it as a two-dimensional process and the American school that contains the five-dimensional SERVQUAL model (Parasuraman, Zeithaml, and Berry, 1988). Scholars choose one of the two models as the basis for their studies. The SERVQUAL model is adopted in this study as mentioned above. Its five dimensions are considered as the main criteria for the proposed AHP model. (Table 1 and 2). Based on these dimensions, service providers must re-examine the quality of the services they provide to customers to improve their services and maintain customer satisfaction (Sadq et al., 2020).



Table 1: Criteria & Sub criteria for each dimension

Main Criteria	Sub criteria
Tangibility (TAN <sub>1-7</sub> )	Appearance of physical facilities such as housing, personnel, equipment, transport, and communication technology (modern equipment, appealing facilities, tidy employees, and attractive materials linked to the service provided). Providers must consider details and information, resulting in the straightforward appearance of physical surroundings.  (For example, understanding pilgrims' needs in terms of providing different choices of housing, food, and beverages).
Reliability (REL <sub>1-5</sub> )	Ability to undertake promised services accurately and dependably. Providing services within the promised deadlines, showing interest in problem-solving, doing things right the first time, and maintaining error-free paperwork.  (For example: using written contracts to demonstrate the level of service provision, and reliability and timeliness of performance and delivery; No complaints from pilgrims relating to how services were provided and how campaigns providers were effective in saving pilgrims time, effort, and money (Smith, 2020).
Responsiveness (RES <sub>1-5</sub> )	A willingness to assist pilgrims and provide a prompt and reliable service. Informing customers when things will be done, providing efficient service by helpful employees and always being ready to respond to questions. Responsiveness and effectiveness of service delivery, including operational efficiency and rapid response to specific demands (Parasuraman et al., 1985).  For example, using electronic services such as websites, apps, and emails to respond to pilgrims.
Assurance (ASS <sub>1-5</sub> )	Good levels of knowledge and courtesy from employees as well as ability to earn loyalty and confidence by being confident, making customers feel safe in any transactions with the suppliers. Employees always maintaining a polite demeanour and being sufficiently knowledgeable to answer pilgrims' questions). Showing confidence in ensuring security to protect pilgrims from crime, hygiene issues, illness, and accidents.
Empathy (EMP <sub>1-4</sub> )	Providing caring and tailored attention to pilgrims through convenient operating hours keeping the customers interests in mind and understanding their specific needs. Providing care relating to the numbers of pilgrims, their budgets and the size and standard of facilities. Providing specific needs for children and the elderly.

Sources: Parasuraman et al., (1985); Badri (2001); Smith (2020)

The alternatives:

Having explained the dimensions of service quality as criteria and sub criteria and contexts of "hajj", campaigns as alternatives, which are category of hajj campaign A, B, C and D as illustrated in table 2.

Table 2: Categories of Hajj campaigns from A to D as alternatives

Category of hajj campaign A	campaigns that provide the highest level of luxury services in hajj.
Category of hajj campaign B	campaigns provide a high level of services to pilgrims but lower than that of hajj campaign A.
Category of hajj campaign C	campaigns that provide the lowest level of services than A, B campaigns but higher than D campaigns.
Category of hajj campaign D	campaign that provides the services to limited income pilgrims.



The AHP hierarchy is shown in Figure 1

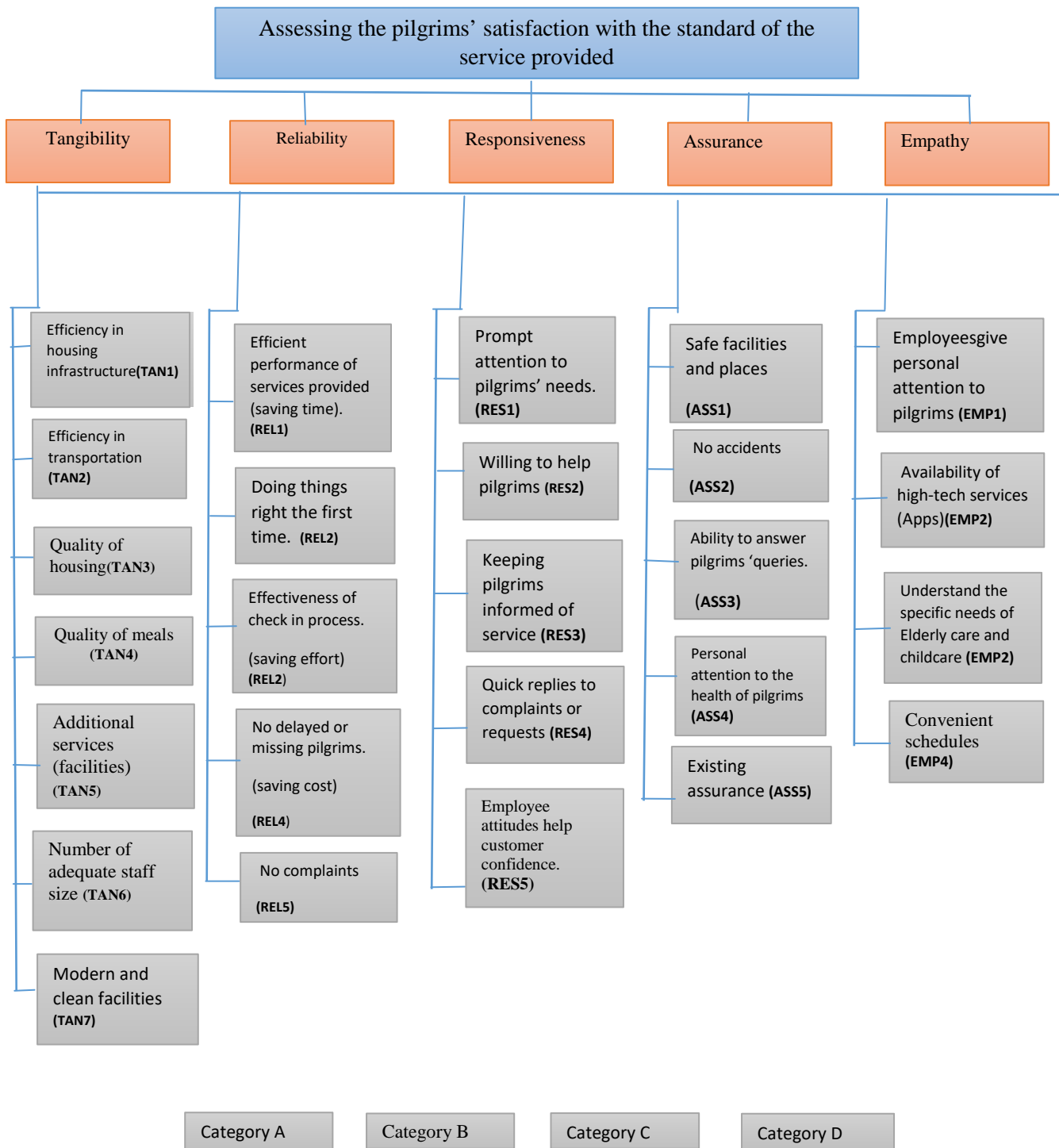


Figure 1: AHP model

Step 2: Compare criteria and sub-criteria in pairs to determine priority vectors. Construct a set of pairwise comparison matrices. Each element in an upper level is used to compare the elements in the level immediately below with respect to it. ("Urban Vulnerability Assessment Using AHP - Hindawi") Saaty's nine-point

scale (Table 0) is used to perform a pairwise comparison of the criteria and the sub-criteria involved.

13 Expert of Pilgrims, who had experience in practicing hajj many times, were asked to compare the service dimensions in terms of main and sub-criteria. The author was asked pilgrims about service provided

according to Vision 2030 (Masoud, 2022). The aggregate pairwise comparison weight matrices and their associated CR values are shown in Table 3. According to Kannan (2010), the normalized weights of

each row were averaged to show the priority of each criterion over others to calculate the priority vector based on relative weights.

**Table 3:** Weighted aggregate pairwise comparisons of main criteria and priority vector with respect to the goal

Criteria	Tangibility	Reliability	Responsiveness	Assurance	Empathy	Priorities
Tangibility	1	2.98	3.2	4.13	5.00	0.456
Reliability	0.335	1	3.00	2.00	2.94	0.232
Responsiveness	0.312	0.333	1	2.11	0.78	0.119
Assurance	0.242	0.5	0.474	1	0.63	0.084
Empathy	0.2	0.341	1.28	1.59	1	0.11
<b>Notes:</b> CI=0.095, CR=0.046						

Table 4 shows the relative weights of the criteria and the sub-criteria, which can be seen in the priority

vector column. The priority weights can then be used to rank main and sub-criteria in the dimension of service.

**Table 4:** Aggregate pairwise weight comparisons of level 3 sub criteria and their priority vector

Tangibility	TAN1	TAN2	TAN3	TAN4	TAN5	TAN6	TAN7	Priority Vector
TAN1	1	0.5	3	2	2	0.5	0.333	0.138
TAN2	2	1	2	2	3	2	2	0.239
TAN3	0.333	0.5	1	2	2	2	0.333	0.125
TAN4	0.5	0.5	0.5	1	2	0.5	0.5	0.088
TAN5	0.5	0.333	0.5	0.5	1	0.5	0.5	0.660
TAN6	2	0.5	0.5	2	1	0.5	0.5	0.132
TAN7	3	0.5	3	2	2	2	1	0.212
Reliability	REL1	REL2	REL3	REL4	REL5	Priority Vector		
REL1	1	2.11	2	2	0.5	0.243		
REL2	0.474	1	2	2	0.333	0.184		
REL3	0.5	2	1	0.333	0.5	0.109		
REL4	3	2	3	1	0.5	0.121		
REL5	3	3	2	2	1	0.342		
Responsiveness	RES1	RES2	RES3	RES4	RES5	Priority Vector		
RES1	1	2	0.5	0.5	0.5	0.132		
RES2	0.5	1	2	0.5	2	0.361		
RES3	2	0.5	1	0.5	2	0.079		
RES4	2	2	2	1	2	0.194		
RES5	2	0.5	0.5	0.5	1	0.234		

Assurance	ASS1	ASS2	ASS3	ASS4	ASS5	Priority Vector
ASS1	1	0.5	2	2	2	0.180
ASS2	2	1	2	0.5	0.5	0.126
ASS3	0.5	0.5	1	2	0.333	0.094
ASS4	0.5	2	0.5	1	0.333	0.237
ASS5	0.5	2	3	3	1	0.362
Empathy	EMP1	EMP2	EMP3	EMP4		Priority Vector
EMP1	1	0.2	0.333	3		0.198
EMP2	5	1	0.5	3		0.275
EMP3	3	2	1	5		0.387
EMP4	0.333	0.333	0.2	1		0.140
<b>Notes:</b> CI=0.095, CR= 0.045						

After the relative priority for each criterion and sub-criterion were estimated, we can go on to work out the local priority score of each Hajj campaign based on the study of the sub-criteria.

categories in terms of each sub criteria. The CR was also estimated for each matrix, and the results were found to be less than 0.10. This means that the judgments are consistent.

Table 5 displays the aggregate pairwise comparison weight matrices for Hajj campaign

Table 5: Weighted averages of pairwise comparisons for level 4 alternatives

	A	B	C	D	PV	CR		A	B	C	D	PV	CR
	TAN1							TAN 2					
A	1	2.06	7	9	0.424		A	1	2.57	3	4	0.487	
B	0.2	1	5	7	0.332	0.086	B	0.39	1	2.06	3	0.260	0.024
C	0.143	0.2	1	3	0.158		C	0.333	0.485	1	2	0.158	
D	0.111	0.143	0.333	1	0.085		D	0.25	0.333	0.5	1	0.158	
	TAN3							TAN4					
A	1	3.58	4	5	0.557		A	1	2	3	3.91	0.458	
B	.279	1	2	3	0.221	0.029	B	0.5	1	2	3	0.273	0.034
C	0.25	0.5	1	2	0.138		C	.333	0.5	1	3	0.181	
D	0.2	0.333	0.5	1	0.084		D	0.256	.333	0.333	1	0.088	
	TAN5							TAN6					
A	1	2.57	4	5	0.522		A	1	3	4	4	0.519	
B	0.39	1	2	3	0.240	0.036	B	0.333	1	2	3	0.234	0.06
C	0.25	0.5	1	3	0.159		C	0.25	0.5	1	3	0.162	
D	0.2	0.333	0.333	1	0.078		D	0.25	.333	0.333	1	0.085	
	TAN7							REL1					

A	1	3	3	4	0.490	0.059	A	1	2.34	3	4	0.468	0.037
B	0.333	1	2	4	0.258		B	.428	1	2	5	0.296	
C	0.333	0.5	1	3	0.172		C	.333	0.5	1	2	0.153	
D	0.25	0.25	0.333	1	0.080		D	.25	0.2	.5	1	0.084	
			REL2						REL3				
A	1	3	3	4	0.489		A	1	2.91	4	3	0.500	
B	.333	1	2	3	0.238	0.079	B	0.344	1	2	3	0.247	0.055
C	.333	0.5	1	4	0.193		C	.25	.5	1	2	0.148	
D	.5	.333	.25	1	0.081		D	.333	.333	.5	1	0.105	
			REL4						REL5				
A	1	2.57	3	4	0.471		A	1	2	2	2	0.387	
B	0.39	1	3	3	0.279	0.076	B	.5	1	2	2	0.275	0.045
C	.333	.333	1	3	0.164		C	.5	.5	1	2	0.198	
D	.25	.333	.333	1	0.085		D	.5	.5	.5	1	0.140	
			RES1						RES2				
A	1	2	3	3	0.439		A	1	3	3	3	0.477	
B	0.5	1	2	3	0.277	0.054	B	.333	1	2	2	0.226	0.081
C	.333	.5	1	3	0.186		C	.333	.5	1	3	0.189	
D	.333	.333	.333	1	0.098		D	.333	.5	.333	1	0.108	
			RES4						RES3				
A	1	3	3	2	0.452		A	1	2	3	3	0.429	0.081
B	.333	1	2	2	0.237	0.080	B	0.5	1	3	3	0.303	
C	.333	.5	1	2	0.173		C	.333	.333	1	3	0.170	
D	.5	.5	.5	1	0.138		D	.333	.333	.333	1	0.098	
			RES5						ASS1				
A	1	2.34	3	2	0.435		A	1	3.58	3	4	0.509	
B	.428	1	1	3	0.240	0.072	B	2.79	1	2	3.91	0.251	0.059
C	.333	1	1	2	0.198		C	.333	.5	1	2	0.152	
D	.5	.333	.5	1	0.127		D	.25	.256	.5	1	0.088	
			ASS2						ASS3				
A	1	2.34	3	3	0.453		A	1	3.06	3	4	0.498	
B	.428	1	2	3	0.265	0.062	B	.326	1	3	2	0.249	0.067
C	.333	.5	1	3	0.184		C	.333	.333	1	2	0.150	
D	.333	.333	.333	1	0.098		D	.25	.5	.5	1	0.103	
			ASS4						ASS5				



A	1	2	3	3	0.446		A	1	2.55	4	5	0.523	
B	.5	1	1	3	0.237	0.044	B	.392	1	1	3	0.202	0.043
C	.333	1	1	3	0.218		C	.25	1	1	4	0.202	
D	.333	.333	.333	1	0.098		D	.2	.333	.25	1	0.073	
EMP1							EMP2						
A	1	3.06	2	4	0.461	0.061	A	1	2.34	4	4	0.497	0.049
B	.326	1	2	3	0.252		B	.428	1	2	3	0.252	
C	.5	.5	1	3	0.201		C	.25	.5	1	3	0.165	
D	.25	.333	.333	1	0.085		D	.25	.333	.333	1	0.086	
EMP3							EMP4						
A	1	3.07	3	4	0.504	0.032	A	1	2.91	3	5	0.509	0.037
B	.326	1	1	3	0.204		B	.344	1	2	3	0.240	
C	.333	1	1	2	0.205		C	.333	.5	1	3	0.173	
D	.25	.333	.333	1	0.087		D	.2	.333	.333	1	0.078	

Step 3: Synthetization

The data obtained during step 2 could then be synthesized. To begin with, the calculated weights for each of the sub-criteria were obtained by multiplying the relative weights of the main criteria by the sub-criteria (Dastorani, 2022). We then calculated the overall

satisfaction score (the global priority score) for each of the of Hajj categories by multiplying the evaluated weight for each of the sub-criteria by each local priority score that corresponded to each of the sub criterion and adding them together for column. Table 6 shows the results of these calculations.

Table 6: Weighted averages of pairwise comparisons and normalized benefits

Level 2 Main Criteria	Priorities	Level 3 Sub Criteria	p	A	B	C	D	Rank	Normalized benefits
Tangibility	0.456	TAN1	0.138	0.424	0.332	0.158	0.085	3	6.29%
		TAN2	0.239	0.487	0.260	0.158	0.158	1	10.9%
		TAN3	0.125	0.557	0.221	0.138	0.084	5	5.7%
		TAN4	0.088	0.522	0.240	0.159	0.078	6	4.01%
		TAN5	0.066	0.557	0.221	0.138	0.084	5	3%
		TAN6	0.132	0.519	0.234	0.162	0.085	4	6.01%
		TAN7	0.212	0.490	0.258	0.172	0.080	2	9.6%
Reliability	0.232	REL1	0.243	0.468	0.296	0.153	0.084	1	5.6 %
		REL2	0.184	0.489	0.238	0.193	0.081	3	4.27%
		REL3	0.109	0.500	0.247	0.148	0.105	5	3.52%
		REL4	0.121	0.471	0.279	0.164	0.085	4	2.80%
		REL5	0.234	0.387	0.275	0.198	0.140	2	5.41%
Responsiveness	0.119	RES1	0.132	0.439	0.277	0.186	0.098	4	1.57%
		RES2	0.361	0.477	0.226	0.189	0.108	1	4.29 %

	RES3	0.079	0.429	0.303	0.170	0.098	5	1%
	RES4	0.194	0.452	0.237	0.173	0.138	3	2.3%
	RES5	0.234	0.523	0.202	0.202	0.073	2	2.78%
Assurance	0.084 ASS1	0.180	0.509	0.251	0.152	0.088	3	1.51%
	ASS2	0.126	0.453	0.265	0.184	0.098	4	1.05
	ASS3	0.094	0.498	0.249	0.150	0.103	5	0.7%
	ASS4	0.237	0.446	0.237	0.218	0.098	2	1.99%
	ASS5	0.362	0.523	0.202	0.202	0.073	1	3.04%
Empathy	0.11 EMP1	0.198	0.461	0.252	0.201	0.085	3	2.18%
	EMP2	0.275	0.497	0.252	0.165	0.086	2	3.03%
	EMP3	0.387	0.504	0.204	0.205	0.087	1	4.25%
	EMP4	0.140	0.509	0.240	0.173	0.078	4	1.54%
Overall priority			0.477	0.256	0.173	0.094	100%	

Step 4: Standard of services provided.

We can associate normalization with the concept of the abundance or scarcity of a given criterion in a set number of alternatives (Saaty, 1990; 2008). As a result, normalization can be used to differentiate between categories when deciding. If the criterion is scarce, more of it will be assigned to the more dominant alternative, which means that it will have a greater impact on the final ranking of that alternative.

According to Saaty (1990; 2008), we can assess absolute measurement clustering according to each of the alternatives in descending order based on the absolute measurement for every attribute. Absolute measurements are based on the memorized observations that are based on depend on memory recall and experience. When evaluating absolute measurements, it is best to begin by sorting and clustering the elements, before assessing relative measurements for greater accuracy (Dastorani, 2022).

Category A could expect to operate at an elevated level of efficiency standard. For a complete evaluation, an efficient standard would be required to

compare with other categories B, C, and D, respectively. As a result, there will frequently be opportunities for efficiency improvements that are obvious from available techniques (which is going to be described below). We can see the end results in Table 6 as normalized and idealized priorities. According to Saaty (1990; 1994; 2008), Cost-Benefit Analysis (CBA) can be evaluated by combining absolute and relative measurements. CBA entails using the relevant criteria to normalize each set of measures on the same standard scale with respect to those criteria. The answers will not be the same as those obtained using standard arithmetic, leading to the premature conclusion that the AHP is faulty. To avoid such problems, caution must be exercised when converting standard scale measurements to comparative values when several criteria are involved. From different perspectives. Table 7 shows the relative cost, relative benefit, and the relative gap improvement. The effect is to make this category A as ideal with others getting their proportionate value. The interpret the results category B is about 53.7% as good as one with category A.

Table 7: The Ideal Intensity for alternative decision Mode

Level 4 Category	Priorities weighted	idealized (Divide by largest value)	Relative Benefits	Relative gap improvement	Relative cost
Category A	0.477	1.000	100%	100%	100%
Category B	0.256	0.537	53.6%	46.4%	53.6%
Category C	0.173	0.362	36.2%	63.8%	36.2%
Category D	0.094	0.197	19.7%	80.3%	19.7%

The rating categories for Tangibility criterion as outstanding, above average, below average, and unsatisfactory. Pilgrims compare them for preference using a pair-wise comparison matrix as giving in Table 8.

Table 8: Deriving priorities for rating on Tangibility

Intensities	Outstanding	Above average	average	Below average	Unsatisfactory	Priorities
Outstanding	1.0	2.0	3.0	4.0	5.0	0.419
Above average	0.5	1	2.0	3.0	4.0	0.263
Average	1/3	½	1.0	2.0	3.0	0.160
Below average	¼	1/3	½	1	2	0.097
Unsatisfactory	1/5	¼	1/3	1/2	1	0.062

To obtain the idealized priorities normalized by dividing by the largest of the priorities. Table 9 gives covering criterion and Figure 5 their corresponding numerical ratings from Table 8 with their totals given in the first column on the left.

Table 9: Standards Criteria and Intensities for Rating service campaigns

Tangibility 0.456	Priorities weighted by 0.456	idealized (Divide by largest value)
Outstanding	0.191	1.000
Above average	0.119	0.623
Average	0.073	0.382
Below average	0.044	0.230
Unsatisfactory	0.028	0.146

Ratings for each criterion and sub-criterion identified the grade which best described it. The hierarchy for the evaluation and priorities derived through paired comparisons are shown in Figure 2 (for other calculation of SQD see appendix B). The rating categories for all the covering criteria and their priorities are established in analogous way are giving in Table 9. It is then followed by a rating of each Hajj campaign for

the quality's performance under each criterion and summing the resulting scores of obtain its overall rating. As a result, the evaluation program to support policymakers to evaluate the services provided by Hajj campaigns. For example, to show how to obtain the total score for evaluating campaign A:  $0.00 \times 0.465 + 0.00 \times 0.232 + 0.00 \times 0.119 + 0.00 \times 0.084 + 0.00 \times 0.11$ .

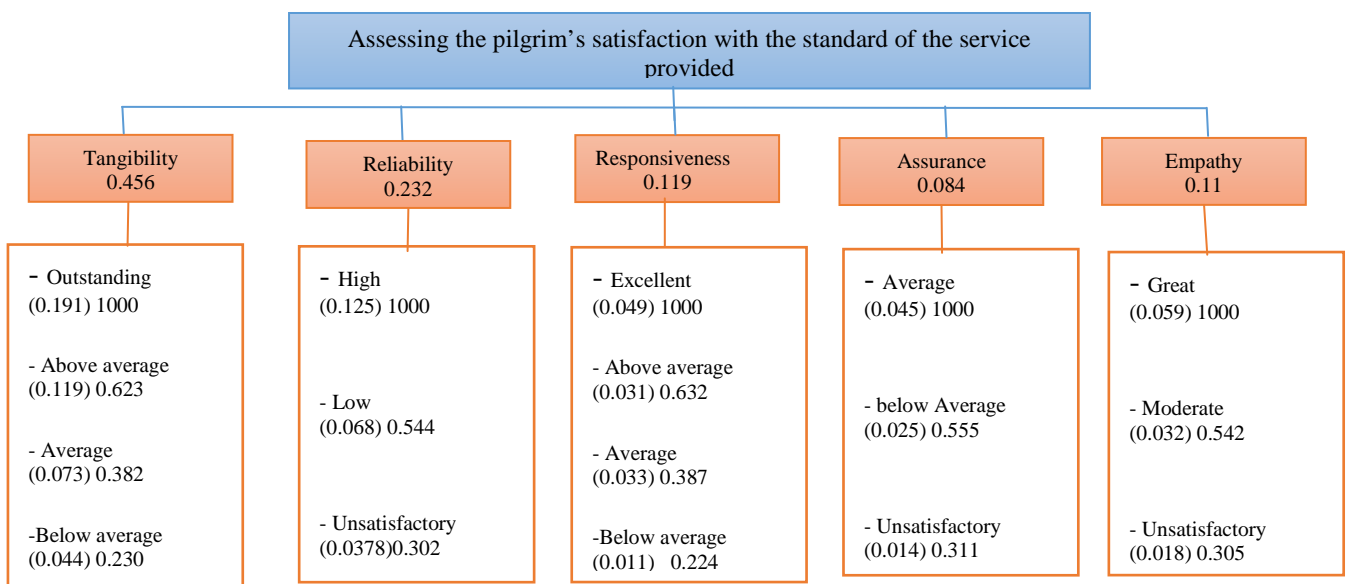


Figure 2: Hierarchy for evaluating Hajj campaigns.

Following this process, the framework for SQD in categories of Hajj campaigns were measured and evaluated using a series of different steps. The next section explores the findings and presents a discussion based on this analysis.

#### IV. FINDINGS & DISCUSSION

Table 6 shows the overall findings of the research, which shows the ranking of priorities in the principal dimension of service criteria (level 2), the ranking of the sub-criteria in terms of priority (level 3), and the relative importance of various alternatives for the Hajj campaign categories relative to each sub-criterion.

##### a) Interpretation of level 2 and level 3 priorities

The results show that pilgrims see *Tangible services* as the highest priority when it comes to assessing SQ, assigning it a *weight of 45.6%* (Figure 3). It is therefore important that Hajj providers offer tangible physical services. We can see from the results that of the four Level 3 sub criteria, TAN2 – which is transportation handling mechanisms by Hajj service providers – is seen to be the as the most important service sub-criterion, carrying a weight of 23.9%, followed by TAN7 – which covers the provision of clean and modern facilities by Hajj agents – with a weight of 21%, TAN1 – which is efficient accommodation – at 13.9% and TAN6 – providing enough staff – at 13.2%. Hence, Hajj campaigns should focus on places close to the holy sites, and the efficiency of providing transportation is more important. Cleaning and modern facilities are the second factors to focus on when it comes to packages differentiation.

*Reliability* ranked as the next most crucial factor in quality of service during Hajj pilgrimages, with a weight of 23.2% (Figure 3). The results demonstrate that of the four Level 3 sub-criteria) REL1 – which is the efficient provision of service – is considered the most vital sub criterion of service with a weight of 24.3%, followed by REL5 – which is the absence of complaints and the good reputation of Hajj agents – was rated by pilgrims as the second-highest priority, followed by REL2 – that Hajj agents perform services right the first time – and REL4 – that Hajj agents prevent delays and do not lose any of their party of pilgrims. Hence, Hajj campaigns must stress on punctuality performance, and must improve their operations (processes) that not only operate on time but also make suitable arrangements to satisfy their clients.

*Responsiveness* was ranked third most important in terms of quality of service in the pilgrimages, with a weight of 11.9% (Figure 3). The results demonstrate that in the four Level 3 sub-criteria, RES2 – that staff agents are always helpful – ranked as the most vital sub-criterion with a weight of 36%, followed by RES5 – service staff behaviour and attitude – at 23%, and RES4

– dealing with to requests or complaints. Hence, Hajj campaigns must lay stress on prompt service to pilgrims by providing sufficient training and qualifying staff.

*Empathy* was rated as the fourth most important aspect of service quality, with a weight of 11% (Figure 3). Of the four Level 3 sub-criteria, EMP3 – understanding the specific needs of pilgrims such as caring for the elderly and children, was considered the most important sub-criterion, with a weight of 38%, followed by EMP2 – availability of technology services – at 27%, EMP1 – agents provide personal attention to pilgrims' needs – at 19.8% and EMP4 – convenient schedules – at 14%. Hence, Hajj campaigns must lay stress on incorporating convenient services to all international pilgrims and suitable for all ages.

*Assurance* involves making pilgrims feel cared for by the service providers during the Hajj pilgrimage, and this category had a weight of 8.04%. Of the four Level 3 sub-criteria, ASS5 – the availability of Haj agents to provide assurance – was seen as the most vital sub-criterion with a weight of 36%, followed by ASS4 – caring about the health and welfare of the pilgrims – at 23%, and ASS2 – keeping the process accident-free – at 12.6%. Hence, Hajj campaigns must lay stress on pilgrims' safety by providing safe housing health care and safe facilities.

We can summarize this information by concluding that tangible physical services were the most vital sub criteria, with a weight of 45.6% followed by Reliability (23.2%), Responsiveness (11.9%) and Empathy and Assurance (11% and 8% respectively). These conclusions are summarized in Figure 3. The results show that the sub-criteria of service in each category of service provided from the most or least important in term of satisfaction rating. The data provide valuable insights into each sub criteria, and these will help service providers to design positive strategies to improve, modify or upgrade their current standards of service quality.



Figure 3: Priorities

b) Interpretation of Level 4 Priorities and Decision Alternatives

Table 6 and Figure 4 show the importance of the standards of the four categories of Hajj campaigns in terms of each of the twenty-six services' dimension sub-criteria. The results show that of the twenty-six sub criteria, Category A has the most crucial factor and is considered as the highest service priority in tangibility, reliability, responsive, empathy, and assurance. The outcomes show that of the specific sub-criteria of the service dimension of each category, Category A has the highest priorities in the twenty-six sub-criteria while category B has the second highest. The results show that the sub-criteria of service in each category of

service provided from the most or least important in term of satisfaction rating.

The data provide valuable insights into each category, and these will help service providers to design positive strategies to improve, modify, or upgrade their current standards of service quality. These providers can be seen in their ideal form by dividing every one of the priorities by the largest priority (0.477 for category A as shown in Table 7). The effect of this is to see each category as an alternative to the ideal one to allow all categories to show their proportionate value. The results show that category B is 53.6% and C is 36.2% as important as Category A.

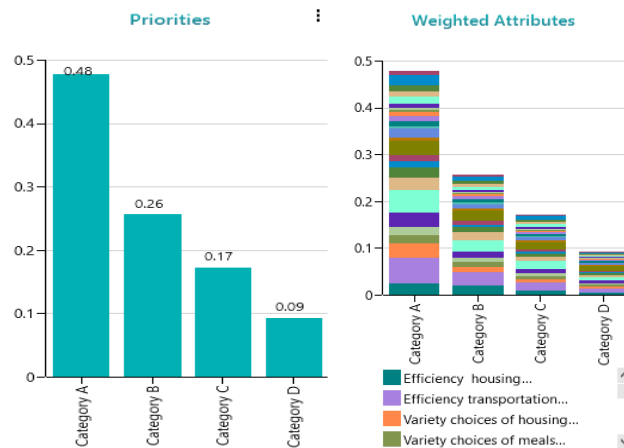


Figure 4: Priorities/Weighted attributes

c) Interpretation of Standard Matrices for Services Provided According to Criteria and Decision Alternatives

Tables 7, 8 and Table 9 show the ratings where a hierarchy has been established depending on the level of the criteria and the sub-criteria. These ratings are subdivided into levels of intensity that show variations in the quality of specific criteria. Meanwhile, summarizes service capabilities through the intensity of preferred quality to obtain the priorities for dealing with decisions from all four categories. The rankings can then be

compiled into one overall mark by evaluating the best alternative for each benefit as well as cost for the strategic category that an individual or government will use to decide in terms of whether to choose one of the decisions, they find themselves facing. The four ratings demonstrate the priorities of the decision-making process, which can then be used to evaluate the weights of the priorities of all the alternatives in relation to their merit (Figure 2 & 5). The result of this research will be a program of support to policymakers to evaluate the services provided by Hajj campaigns.



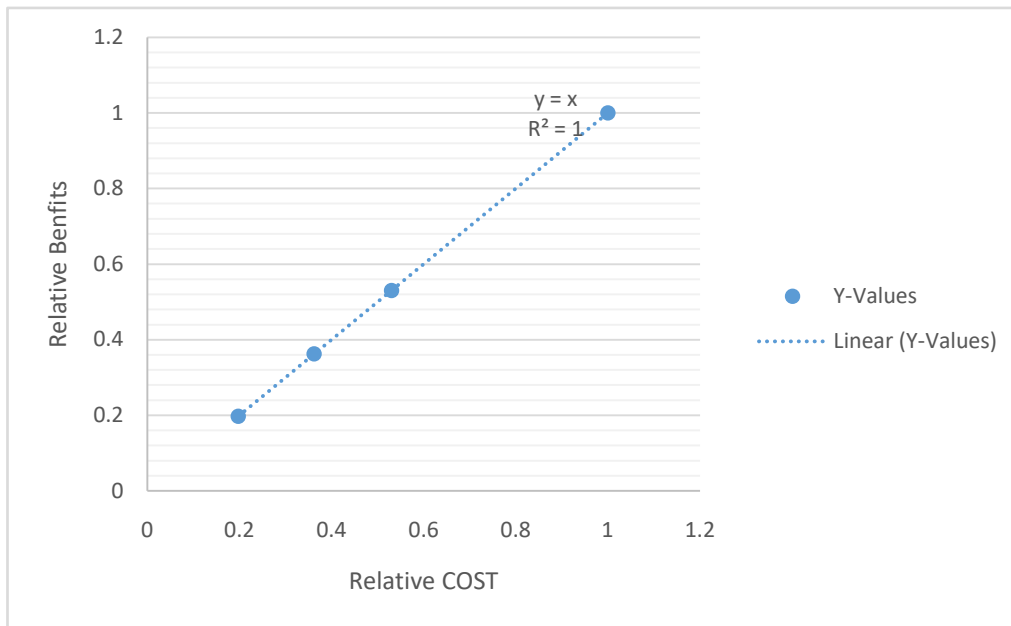


Figure 5: Categories of values

*Improved SQ gap*

In order to develop service improvement strategy for the Hajj campaigns (category B) there is a need to interpret SQ gap to identify areas of service improvement. Table 6 shows the service performances in four categories. The result shows that category A was rated as the best overall performer and is treated as ideal. For each service sub criteria were ranked with a satisfaction score. In order to assess category B position, the SQ gap was estimated for each SQ sub criteria. This implies that category B underperform category A in 26 SQ sub criteria when compared to the leader which is category A. In order to improve the Hajj campaign need to develop strategies based on these SQ gaps (Table 7). SQ ranking within each main SQ criteria, and overall SQ sub criteria has been estimated (Figure 2), which provide useful managerial insights.

V. LIMITATIONS & SCOPE FOR FUTURE RESEARCH

There are limitations to this study. Firstly, SERVQUAL data was collected only from the perspective of Hajj pilgrims, which means that the results are valid only in the Hajj context because the data were derived from pilgrims' views. In addition, the possibility of bias where it was taken from the pilgrim's perspective. Secondly, the framework that was covered in this research work only helps identify and evaluate SQD in the categories of Hajj campaigns, and the approach does not address filling gaps or identifying future actions that need to be made to address deficiencies. However, the results of this study will serve as guided evidence for decision makers to identify weaknesses and improve them. Thirdly, in the present

research the AHP framework used modified SERVQUAL SQ dimensions to suit the context where five quality dimensions were used for quality assessment. Future research work should try to incorporate other dimensions to extend the framework that was proposed in this study or taking on other service dimensions. This would mean that the results would be more generalizable and would be applicable to other service sector industries.

For future studies, other scales of service quality measurement could be used to obtain data, such as fuzzy logic-based evaluation and service quality classification. Qualitative expert opinions could also be considered when evaluating service quality to prioritize other factors for improvement. In this case, pilgrims' satisfaction could be analysed and compared for pre-and post-improvement studies to measure the success of any activities that were implemented to improve service levels. Meanwhile, the number of observations could also be increased in future research to obtain a higher predictive performance.

VI. MANAGERIAL IMPLICATIONS

Using the classification model, we propose will improve Hajj service quality provision by identifying necessary preventive actions that need to be taken and monitoring any fluctuations in observed or predicted quality of Hajj services. As such it should be possible to prevent the quality of services offered by Hajj service providers before any decrease in the quality level becomes irreversible. The study results have many managerial and practical implications, and the research offers a process based on the AHP-SQ framework for conducting the assessment of attributes of the service

quality dimensions in the Hajj context. The framework will help Hajj service providers to identify areas in which improvements in service quality need to be made and to compare the weaknesses and strengths of their services and identify any gaps by using SQD attributes. This will help decision makers to formulate strategies for the improvement of their SQ performance to achieve better levels of satisfaction for the pilgrims.

Using the AHP SQD framework in the Hajj context helps to identify categories of Hajj campaigns and their relative importance in terms of overall performance of service providers based on the SQD attributes. This framework will assist researchers when they identify service categories in Hajj campaigns service qualities need can be improved to improve the services offered and enhance pilgrims' satisfaction. In a modern world of resource constraints and changing market dynamics, this framework will help to identify which dimensions of SQ attributes need to be prioritized. The framework offers a holistic perspective of quality provision in literature in the Hajj context.

## VII. CONCLUSION

This research study has presented a framework to evaluate service quality to support the policymakers. It started by identifying service quality dimensions, and to evaluate attributes and decision alternatives, an AHP hierarchy was constructed to assess and identify aspects of service quality in different Hajj campaign categories to maintain the Hajj vision 2030 plans on terms of pilgrim satisfaction. Following this, pairwise comparisons were used to evaluate the relative priority weighting for each of the main criteria and sub-criteria, and local priority weights were ascribed to each decision alternative with respect to each main and sub-criterion. These weights were added together to produce a global priority score. The priorities can be summarized by determining that tangible physical services were found to be the most crucial sub criterion, with a weight of 45.6%, followed by reliability 23.2%, responsiveness 11.9%, empathy 11% and assurance 8%. The findings indicate the varying levels of importance for the sub-criteria within each service category, as reported in satisfaction ratings. This data offers valuable information on each sub-criterion, which can aid service providers in developing effective strategies for enhancing, adjusting, or elevating their existing levels of service quality. On the other hand, it can be acknowledged that the framework of this work can be applied to diverse services and sectors, whether governmental or private. For example, it can be applied to evaluate the quality of services provided in the healthcare sectors, education sectors, and in the aviation sector etc.

Overall, The AHP-SQ framework used in this study was proved to help decision makers to evaluate

service quality during Hajj campaigns and service performance to improve the quality of services to keep up with Saudi Arabia's Vision 2030 goals.

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## APPENDIX A

Questionnaire for measuring quality dimensions (SQD) provided in the categories of Hajj campaigns.

We use Analytical Hierarchal Method to compare each two criteria, for example, which please follow it.

For measuring and evaluating service quality dimensions in the categories of hajj campaigns, which of the following criteria is most important and in which level.

### 1. Tangibility or Reliability

Suppose that was your choice tangibility most important by 5 degrees than reliability where in

Intensity of importance	Definition
1	Equal importance
3	Somewhat more important
5	Much more important
7	Very much more important
9	Absolutely more important
2, 4, 6, 8	Intermediate values

Then we put a mark to the important criteria from your point of view

	1	2	3	4	5	6	7	8	9
Tangibility									
Reliability					✓				

Note, in each question, please choose one number for intensity of importance in each criterion.

## FIRST PART: GENERAL INFORMATION

Gender:

- Male
- Female

Age:

- 25-36
- 37-50
- 50+

Hajj Experience:

- 2
- 3
- 4
- More than 4

## SECOND PART: COMPARISON OF THE MAIN CRITERIA

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Following criteria is most important and in which level.

2. Tangibility or Reliability

	1	2	3	4	5	6	7	8	9
Tangibility									
Reliability									

3. Tangibility or Responsiveness

	1	2	3	4	5	6	7	8	9
Tangibility									
Responsiveness									

4. Tangibility or Assurance

	1	2	3	4	5	6	7	8	9
Tangibility									

5. Tangibility or Empathy

	1	2	3	4	5	6	7	8	9
Tangibility									
Empathy									

6. Reliability or Responsiveness

	1	2	3	4	5	6	7	8	9
Reliability									
Responsiveness									

7. Reliability or Assurance

	1	2	3	4	5	6	7	8	9
Reliability									
Assurance									

8. Reliability or Empathy

	1	2	3	4	5	6	7	8	9
Reliability									
Empathy									

9. Assurance or Empathy

	1	2	3	4	5	6	7	8	9
Assurance									
Empathy									



### THIRD PART: COMPARISON OF SUB CRITERIA

1. Comparison of sub criteria for the main criteria (Tangibility)

With respect to measuring the tangibility, which of the following two sub criteria are more important and in which level?

	1	2	3	4	5	6	7	8	9
Efficiency housing infrastructure									
Variety choices of housing									
	1	2	3	4	5	6	7	8	9
Variety choices of meals									
Additional services									
	1	2	3	4	5	6	7	8	9
Number of adequate staff size									
Modern and clean facilities									

2. Comparison of sub criteria for the main criteria (Reliability)

With respect to measuring the reliability, which of the following two sub criteria are more important and in which level?

	1	2	3	4	5	6	7	8	9
Efficient performance of services provided									
Performing the services right at the first time.									
	1	2	3	4	5	6	7	8	9
Efficiency of check in - out process.									
Remedial process for delayed or missing pilgrims									
	1	2	3	4	5	6	7	8	9
Remedial process for delayed or missing pilgrims									
No complains									

3. Comparison of sub criteria for the main criteria (Responsiveness)

With respect to measuring the responsiveness, which of the following two sub criteria are more important and in which level?

	1	2	3	4	5	6	7	8	9
Prompt services to pilgrims' orders.									
Always willing to help pilgrims.									
	1	2	3	4	5	6	7	8	9
Keeping informed about the time of service.									
Prompt response to passengers' requests or complaints									
	1	2	3	4	5	6	7	8	9
Prompt response to passengers' requests or complaints.									
Employee behaviour and attitude instil confidence.									



4. Comparison of sub criteria for the main criteria (Assurance)

With respect to measuring the assurance, which of the following two sub criteria are more important and in which level?

	1	2	3	4	5	6	7	8	9
Safe places and facilities.									
No accidents									
	1	2	3	4	5	6	7	8	9
Knowledge to answer pilgrims'									
Individual attention to the health of pilgrims									
	1	2	3	4	5	6	7	8	9
Individual attention to the health of pilgrims									
Existing assurance									

5. Comparison of sub criteria for the main criteria (Empathy)

With respect to measuring the empathy, which of the following two sub criteria are more important and in which level?

	1	2	3	4	5	6	7	8	9
Employees give personal attention to pilgrims.									
Availability of high-tech services (webs, apps)									
	1	2	3	4	5	6	7	8	9
Understand the specific needs of Elderly care, children									
Convenient schedules									

APPENDIX B

Table Deriving priorities for rating on Reliability.

	<b>s</b>	<b>Low</b>	<b>Unsatisfactory</b>	
High	1.0	2.0	3.0	0.540
Low	0.5	1	2.0	0.297
Unsatisfactory	1/3	1/2	1.0	0.163

<b>Reliability 0.232</b>	<b>Priorities weighted by 0.232.</b>	<b>idealized (Divide by largest value)</b>
High	0.125	1.000
Low	0.068	0.544
Unsatisfactory	0.0378	0.302

Table Deriving priorities for rating on Responsiveness.

	<b>Excellent</b>	<b>Above average</b>	<b>Above average</b>	<b>Below average</b>	<b>Unsatisfactory</b>	
Excellent	1.0	2.0	3.0	4.0	5.0	0.419
Above average	0.5	1	2.0	3.0	4.0	0.263
Average	1/3	1/2	1.0	2.0	3.0	0.160
Below average	1/4	1/3	1/2	1	2	0.097
Unsatisfactory	1/5	1/4	1/3	1/2	1	0.062

<b>Responsiveness 0.119</b>	<b>Priorities weighted by 0.119.</b>	<b>idealized (Divide by largest value)</b>
Excellent	0.049	1.000
Above average	0.031	0.632
Average	0.019	0.387
Below average	0.011	0.224
Unsatisfactory	0.007	0.142

Table Deriving priorities for rating on Assurance.

	<b>Average</b>	<b>Below average</b>	<b>Unsatisfactory</b>	
Average	1.0	2.0	3.0	0.540
Below average	0.5	1	2.0	0.297
Unsatisfactory	1/3	1/2	1.0	0.163

<b>Assurance 0.084</b>	<b>Priorities weighted by 0.084.</b>	<b>idealized (Divide by largest value)</b>
Average	0.045	1.000
Below average	0.025	0.555
Unsatisfactory	0.014	0.311

Table Deriving priorities for rating on Empathy.

	<b>Great</b>	<b>Moderate</b>	<b>Unsatisfactory</b>	
great	1.0	2.0	3.0	0.540
moderate	0.5	1	2.0	0.297
unsatisfactory	1/3	1/2	1.0	0.163

<b>Empathy 0.11</b>	<b>Priorities weighted by 0.11.</b>	<b>idealized (Divide by largest value)</b>
great	0.059	1.000
moderate	0.032	0.542
unsatisfactory	0.018	0.305



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## Beyond Screens: Crafting Effective Digital Transformation Strategies for Optimal Customer Satisfaction

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**Abstract-** This theoretical investigation delves into the domain of digital transformation strategies, surpassing traditional screen-centric approaches. Entitled "Transcending Screens: Formulating Digital Transformation Strategies for Enhanced Customer Satisfaction," the research explores the dynamic landscape of technology integration to elevate customer experiences. By questioning the prevalent screen-focused paradigm, this study explores alternative pathways for digital transformation, advocating for a holistic approach that extends beyond conventional interfaces. The research posits that achieving optimal customer satisfaction in the digital age requires a comprehensive reassessment of strategies, embracing innovative methods that surpass the confines of screens. The development of theoretical frameworks aims to clarify how organizations can harness emerging technologies like augmented reality, virtual assistants, and immersive experiences to cultivate more profound connections with customers.

**Keywords:** *beyond screens, digital transformation strategies, customer satisfaction, technology integration.*

**GJMBR-A Classification:** *LCC Code: QA76.9.C65*



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# Beyond Screens: Crafting Effective Digital Transformation Strategies for Optimal Customer Satisfaction

Baqer Khudair Al-Hadrawi <sup>α</sup>, Ameer Rajeh Jawad <sup>σ</sup>, V. Kanimozhi <sup>ρ</sup> & Olufunke Meadows <sup>ω</sup>

**Abstract** This theoretical investigation delves into the domain of digital transformation strategies, surpassing traditional screen-centric approaches. Entitled "Transcending Screens: Formulating Digital Transformation Strategies for Enhanced Customer Satisfaction," the research explores the dynamic landscape of technology integration to elevate customer experiences. By questioning the prevalent screen-focused paradigm, this study explores alternative pathways for digital transformation, advocating for a holistic approach that extends beyond conventional interfaces. The research posits that achieving optimal customer satisfaction in the digital age requires a comprehensive reassessment of strategies, embracing innovative methods that surpass the confines of screens. The development of theoretical frameworks aims to clarify how organizations can harness emerging technologies like augmented reality, virtual assistants, and immersive experiences to cultivate more profound connections with customers. This abstract underscores the study's dedication to advancing theoretical comprehension, prioritizing conceptual foundations over empirical validation, and emphasizing their pivotal role in shaping effective digital transformation strategies. By venturing into unexplored realms beyond screens, this research endeavors to offer valuable insights for businesses seeking to revolutionize their customer satisfaction paradigms within the ever-evolving digital landscape.

**Keywords:** *beyond screens, digital transformation strategies, customer satisfaction, technology integration.*

## I. INTRODUCTION

In the contemporary era dominated by technology, businesses find themselves compelled to transition from traditional to digital strategies, turning digital transformation into an imperative rather than a mere option. This investigation delves into the intricacies of this shift, underscoring the importance of strategies that not only incorporate technology but also prioritize customer contentment.

The swift advancement of digital transformation has not only reconfigured industries and customer expectations but has also necessitated a reevaluation of fundamental organizational strategies. Success in this realm extends beyond the mere adoption of digital tools; it hinges on the development of carefully devised

strategies that transcend the confines of screens. This study endeavors to untangle the complexities of this transformative journey, with a specific focus on establishing theoretical foundations that promote optimal customer satisfaction in the digital age. Acknowledging the uniqueness of digital transformation for each organization, the study advocates for a holistic approach that extends beyond superficial interactions with user devices. It entails a reimagining of business processes, organizational culture, and customer interactions.

The theoretical framework at the core of this study revolves around perceiving digital transformation as a multifaceted undertaking. While technology serves as a catalyst, the key to success lies in the harmonious integration of human creativity, organizational flexibility, and the ever-evolving needs of customers. Examining interconnected layers ranging from organizational structures to user experience design, the study provides guidance for developing comprehensive digital transformation strategies. The pivotal role of customer-centricity is underscored, recognizing that the dynamic nature of technology necessitates a proactive and adaptive strategy. Beyond the confines of screens, the study emphasizes the necessity to create seamless, intuitive, and personalized digital experiences that surpass customer expectations.

Entitled "Beyond Screens: Crafting Effective Digital Transformation Strategies for Optimal Customer Satisfaction," this study transcends a surface-level understanding. By delving into the nuances of strategy formulation, organizational dynamics, and user-centric design, it contributes valuable insights to the ongoing discourse on digital transformation. The study aims to guide organizations in strategically leveraging technological change to achieve unparalleled customer satisfaction.

## II. DIGITAL TRANSFORMATION STRATEGIES

The transformation brought about by digital technology represents a paradigm shift that has significantly altered the fabric of both business and society. It stands as a pivotal historical development in how organizations leverage technology to enhance their operations and improve customer experiences (Kraus et

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al., 2021). Although the roots of digital transformation can be traced back to the widespread adoption of computers in the mid-20th century, the term itself gained prominence in the late 20th and early 21st centuries as technology rapidly evolved (Zaoui & Souissi, 2020: 222). The 1990s marked a crucial phase with the advent of the internet, enabling businesses to establish a global presence and connect with customers and partners in unprecedented ways (Nadkarni & Prügl, 2021: 135). This era laid the groundwork for early digital strategies, emphasizing the creation of websites, implementation of e-commerce platforms, and automation of basic business processes. As the internet matured, organizations recognized the necessity for more comprehensive digital transformation strategies (Gong & Ribiere, 2021).

The 21st century witnessed the emergence of disruptive technologies such as cloud computing, big

data analytics, and mobile applications, becoming integral components of digital transformation. These innovations allowed companies to streamline operations, analyze vast amounts of data, and engage with customers through multiple channels (Hanelt et al., 1162). The concept of Industry 4.0 highlighted the integration of the Internet of Things (IoT) and artificial intelligence (AI) into manufacturing and industrial processes (Al-Hadrawi & Jawad, 2022).

In recent years, digital transformation strategies have evolved beyond mere technology adoption to encompass a holistic approach (Mugge et al., 2020: 29). Organizations now recognize the importance of cultural and organizational changes, along with a focus on customer-centricity (Lanzolla et al., 2020: 342). Core principles guiding digital transformation initiatives include data-driven decision-making, agility, and innovation (Teng et al., 2024).

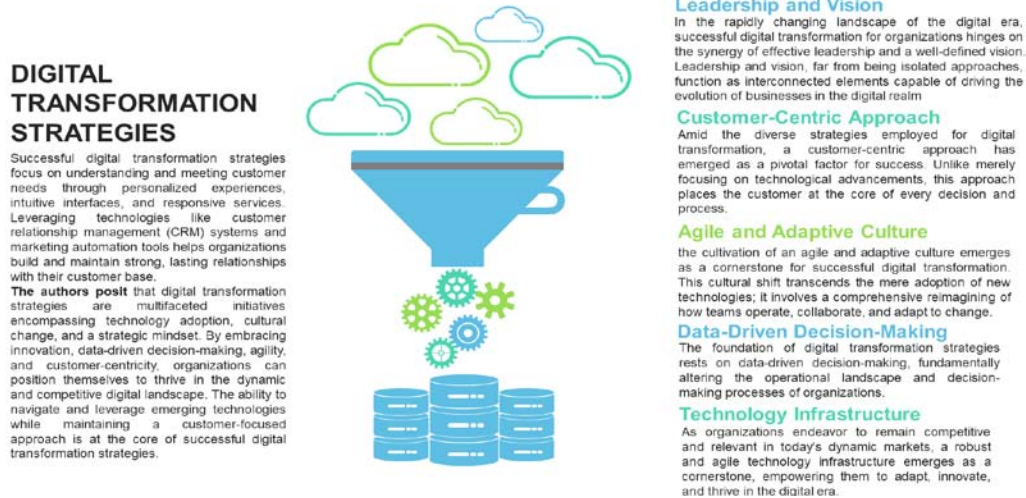


Figure 1: Digital Transformation Strategies

Looking to the future, the historical development of digital transformation strategies is expected to continue its trajectory, with emerging technologies like blockchain, 5G, and quantum computing playing pivotal roles. The ongoing journey of digital transformation reflects an adaptable response to the evolving possibilities and challenges presented by the digital age (Chen et al., 2024).

Digital transformation strategies are crucial for organizations seeking to adapt and thrive in today's rapidly evolving technological landscape (Matt et al., 2015: 339). In essence, digital transformation involves leveraging digital technologies to fundamentally change how businesses operate, deliver value to customers, and stay competitive (Brummer & Ueno, 2024:2). This comprehensive overhaul encompasses not only technology adoption but also a shift in organizational culture, processes, and mindset (Shaughnessy, 2018: 21).

At the core of digital transformation strategies lies the recognition that the digital era demands more than just incremental changes (Tekic & Koroteev, 2019: 684). It necessitates a holistic approach that integrates technology into every aspect of an organization, enabling it to meet the evolving needs of customers, optimize internal processes, and stay ahead of market trends (Al-Hadrawi et al., 2023). Key components of effective digital transformation strategies include innovation, data-driven decision-making, agility, and customer-centricity (Hess et al., 2016).

Innovation is a cornerstone of digital transformation, requiring organizations to continuously explore and adopt emerging technologies. This involves investing in research and development, fostering a culture that encourages experimentation, and collaborating with external partners to tap into new ideas (Mitroulis & Kitsios, 2019: 59). Embracing technologies like artificial intelligence, blockchain, cloud computing,

and the Internet of Things enables businesses to streamline operations, enhance efficiency, and create new revenue streams (Chaniyas & Hess, 2016).

Data-driven decision-making is another critical aspect of digital transformation strategies. Organizations increasingly recognize the value of data as a strategic asset (Chaniyas, 2017). By harnessing the power of data analytics, businesses can gain insights into customer behavior, market trends, and operational performance, empowering informed decision-making and allowing proactive strategic choices (Korachi & Bounabat, 2020: 494).

Agility is a key organizational characteristic that digital transformation strategies seek to instill. Traditional, rigid structures give way to more flexible and adaptive frameworks that can swiftly respond to market shifts (Gobble, 2018: 67). This involves not only the adoption of agile methodologies in project management but also a cultural shift that values experimentation, continuous learning, and quick adaptation to change (Bresciani et al., 2021: 7).

Customer-centricity is paramount in the digital age, where customer expectations are constantly evolving (Chaniyas et al., 2019: 18). Successful digital transformation strategies focus on understanding and meeting customer needs through personalized experiences, intuitive interfaces, and responsive services. Leveraging technologies like customer relationship management (CRM) systems and marketing automation tools helps organizations build and maintain strong, lasting relationships with their customer base (Mishra et al., 2023).

The authors posit that digital transformation strategies are multifaceted initiatives encompassing technology adoption, cultural change, and a strategic mindset. By embracing innovation, data-driven decision-making, agility, and customer-centricity, organizations can position themselves to thrive in the dynamic and competitive digital landscape. The ability to navigate

and leverage emerging technologies while maintaining a customer-focused approach is at the core of successful digital transformation strategies.

### III. STRATEGIES FOR EFFECTIVE DIGITAL TRANSFORMATION

Digital transformation entails utilizing digital technologies to fundamentally alter the way businesses function and provide value to their customers. Achieving successful digital transformation necessitates a holistic strategy that encompasses multiple facets of the organization, such as processes, technology, culture, and customer experience (Brunetti et al., 2020: 697). The following are essential strategies for ensuring a successful digital transformation:

#### a) Leadership and Vision

In the rapidly changing landscape of the digital era, successful digital transformation for organizations hinges on the synergy of effective leadership and a well-defined vision. Leadership and vision, far from being isolated approaches, function as interconnected elements capable of driving the evolution of businesses in the digital realm (Imran et al., 2020: 82).

Leadership acts as the guiding force steering an organization through the intricacies of digital transformation. A visionary leader possesses the insight to recognize the significance of digitalization and cultivates an innovative culture within the company (Persson & Manas, 2021). These leaders inspire teams to embrace change, fostering an environment that encourages experimentation and views failure as a stepping stone to improvement. By championing a mindset that values adaptability, leaders can shape a workforce capable of navigating the uncertainties inherent in the digital landscape (Philip & Aguilar, 2022: 88).



Figure 2: Leadership and Vision

Effective leadership in digital transformation also entails bridging the gap between the current state

of the organization and the envisioned future. Leaders must skillfully align the company's goals with the



potential opportunities offered by digital technologies (Senadjki et al., 2023). This alignment requires a profound understanding of the organization's core values and objectives, enabling the formulation of a vision that seamlessly integrates digital tools to enhance efficiency, customer experience, and overall competitiveness (Makedon et al., 2022).

Vision, as a crucial component of digital transformation, serves as a roadmap for the organization's journey into the digital realm (Živković 2022: 239). A well-defined vision outlines strategic objectives, sets priorities, and provides a clear direction for the entire organization. It acts as a catalyst, motivating employees to commit to the transformative journey, fostering a shared sense of purpose and direction (Gurbaxani & Dunkle, 2019).

Furthermore, a compelling vision acts as a guiding light in decision-making processes (Cavus & Aghamiri, 2023: 233). It helps leaders and teams prioritize initiatives, allocate resources effectively, and make informed choices in alignment with overarching digital transformation goals (Teichert, 2019). This coherence ensures that the organization remains focused on end objectives, minimizing the risk of deviating into unproductive tangents (Seleari, 2021).

The authors contend that leadership and vision are symbiotic strategies crucial for effective digital transformation. A visionary leader not only embraces digital opportunities but also instills a culture of innovation and adaptability within the organization. Combined with a clear and compelling vision, leadership provides the necessary framework for navigating the complexities of digital transformation, ensuring that every strategic step aligns with overarching goals. In the digital age, where change is constant, organizations that leverage leadership and vision as strategic cornerstones are better positioned to thrive amidst the dynamic challenges of digital transformation.

b) *Customer-Centric Approach*

In the dynamic digital landscape, businesses are in a constant state of evolution to meet the ever-changing demands of their customers (Seymen, 2022). Amid the diverse strategies employed for digital transformation, a customer-centric approach has emerged as a pivotal factor for success. Unlike merely focusing on technological advancements, this approach places the customer at the core of every decision and process (Mubako, 2017: 55).



Figure 3: Customer-Centric Approach

Essentially, a customer-centric approach in digital transformation revolves around comprehending, anticipating, and fulfilling customer expectations throughout their journey with a brand (Gupta & Ramachandran, 2021: 598). It goes beyond streamlining internal processes and employs technology to enhance the overall customer experience (Al-hadrawi & jawad, 2022). Businesses prioritizing a customer-centric approach acknowledge that digital transformation isn't solely a technical upgrade; it signifies a fundamental

shift in how they engage and serve their clientele (Kumar & Setia, 2023: 14).

A crucial facet of this strategy is the use of data to glean valuable insights into customer behavior (Shrivastava, 2017). Through advanced analytics and artificial intelligence, companies can collect and analyze extensive data to comprehend customer preferences, trends, and pain points (Sarkkinen & Pöyry-Lassila, 2020:18). This data-driven approach empowers companies to tailor their products and services, creating



personalized and relevant experiences that resonate with their target audience (Simon et al., 2016: 161).

Furthermore, a customer-centric approach involves seamless integration across various touchpoints, be it online platforms, mobile applications, or in-person interactions. Customers expect a consistent and cohesive experience, and digital transformation facilitates breaking down silos, enabling cross-channel integration for a unified customer journey. This not only elevates customer satisfaction but also fosters brand loyalty, as customers feel valued and understood at every interaction (Khanom, 2023: 29).

Moreover, the customer-centric approach acknowledges the significance of real-time communication and engagement (Butt et al., 2024). Social media, chatbots, and other digital communication tools provide avenues for businesses to connect with customers instantly, addressing queries, concerns, and feedback promptly. This responsiveness not only builds trust but also enables businesses to adapt swiftly to changing customer needs (Baines et al., 2024: 63).

The authors contend that adopting a customer-centric approach is a strategic imperative in the realm of digital transformation. Businesses that prioritize understanding and fulfilling customer needs through data-driven insights, seamless integration, and real-time communication are better positioned to thrive in the

digital landscape. As technology continues to advance, the focus on the customer will remain a guiding principle, ensuring that businesses not only survive but excel in the digital age by building lasting and meaningful relationships with their customers.

c) *Agile and Adaptive Culture*

In the dynamic landscape of today's digital age, organizations are increasingly realizing the necessity for transformative strategies to maintain competitiveness and relevance. Amid various approaches, the cultivation of an agile and adaptive culture emerges as a cornerstone for successful digital transformation. This cultural shift transcends the mere adoption of new technologies; it involves a comprehensive reimagining of how teams operate, collaborate, and adapt to change (Siakas & Siakas, 2007: 598).

At its essence, an agile and adaptive culture revolves around flexibility, collaboration, and continual improvement. It revolves around creating an environment where teams can swiftly adjust to evolving circumstances, respond agilely to customer needs, and iteratively refine solutions (Cobb, 2023:2). This cultural transformation is particularly vital in the digital realm, where technology evolves rapidly, and customer expectations are in a constant state of flux (Odeh et al., 2023: 441).

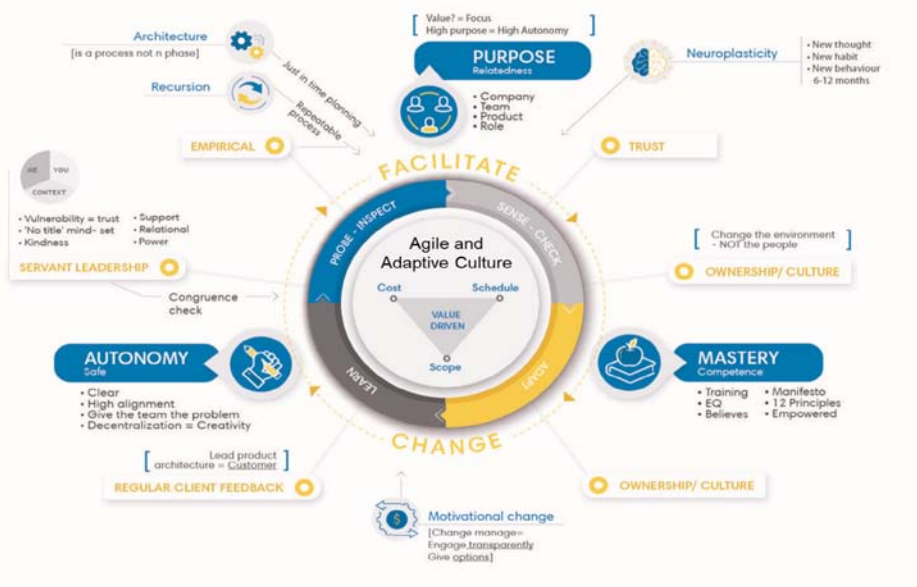


Figure 4: Agile and Adaptive Culture

Embracing iterative development methodologies, such as Scrum or Kanban, is a key tenet of an agile culture. These methodologies advocate breaking down complex projects into manageable tasks, facilitating the regular delivery of incremental value (Ylinen, 2021: 252). This not only expedites time-to-market but also allows organizations to receive early feedback and adjust strategies promptly. In the context

of digital transformation, this adaptability is crucial, ensuring organizations can swiftly pivot in response to market shifts or emerging technologies (Kompella, 2014: 40).

Collaboration is another essential aspect of an agile and adaptive culture. Traditional hierarchical structures often impede effective communication and collaboration. Embracing a culture where cross-

functional teams collaboratively work fosters a collective sense of ownership and accountability (Iivari & Iivari, 2011: 510). This collaborative spirit is vital in navigating the intricate landscape of digital transformation, where interconnected systems and interdisciplinary approaches are often prerequisites for success (Verdu-Jover et al., 2018: 332).

Continuous learning and improvement are integral to an agile culture. This requires a shift in mindset from a fear of failure to an embrace of experimentation (Cabrera & Cabrera, 2023: 3). In a digital transformation journey, where uncertainty is inherent, organizations must encourage a culture that views setbacks as opportunities for growth and learning. This openness to learning from failures accelerates innovation and allows organizations to stay ahead of the curve (Costanza et al., 2016: 362).

Furthermore, an agile and adaptive culture extends beyond software development and IT departments, permeating the entire organization. It influences how leadership approaches decision-making and empowers employees at all levels to contribute to the transformation journey (Gibbons, 2015).

The authors contend that an agile and adaptive culture is more than just a methodology; it represents a fundamental shift in mindset and approach. As organizations embark on the digital transformation journey, fostering a culture that values agility, collaboration, and continuous improvement is paramount. This cultural foundation equips organizations to navigate the complexities of the digital landscape with resilience, responsiveness, and a capacity for sustained innovation. Ultimately, an agile and adaptive culture becomes a strategic advantage, propelling organizations forward in the ever-evolving digital ecosystem.

#### d) Data-Driven Decision-Making

The foundation of digital transformation strategies rests on data-driven decision-making, fundamentally altering the operational landscape and decision-making processes of organizations. In today's rapidly evolving digital era, harnessing the power of data has become essential for businesses aiming to gain a competitive advantage.

decision-making processes of organizations (Olaniyi et al., 2023: 11). In today's rapidly evolving digital era, harnessing the power of data has become essential for businesses aiming to gain a competitive advantage (Liu et al., 2024: 254). This approach involves leveraging data analytics, artificial intelligence, and other technological advancements to extract insights that inform strategic decisions (Colombari, 2023).

In the realm of digital transformation, data-driven decision-making emerges as a catalyst for innovation and efficiency (Misaii et al., 2024: 473). Organizations accumulate extensive data from diverse sources, including customer interactions, market trends, and internal processes (Botvin, 2023: 490). Analyzing this data enables businesses to recognize patterns, anticipate future trends, and acquire a deeper understanding of their operations. This abundance of information empowers leaders to make more informed and accurate decisions, reducing reliance on intuition or traditional trial-and-error methods (Teng et al., 2023).

A crucial aspect of data-driven decision-making is the ability to swiftly adapt to changing circumstances (Bousdekis et al., 2021). In a dynamic business environment, real-time data analytics offer up-to-the-minute insights, allowing organizations to respond promptly to market shifts, customer preferences, and emerging opportunities. This agility is indispensable in the digital age, where the pace of change is unprecedented, and businesses must stay ahead of the curve to remain relevant (Coston et al., 2023). Furthermore, data-driven decision-making cultivates a culture of accountability within organizations. By basing decisions on empirical evidence rather than intuition, leaders can transparently communicate the rationale behind their choices (Sarker, 2021). This transparency not only fosters trust among stakeholders but also facilitates continuous improvement through the analysis of outcomes and adjustments based on data feedback (Polenghi et al., 2023: 1334).



Figure 5: Data-Driven Decision-Making



The implementation of data-driven decision-making necessitates a robust infrastructure for data collection, storage, and analysis (Ojha et al., 2023: 4). Organizations must invest in cutting-edge technologies and skilled personnel to extract meaningful insights from the vast datasets available to them. Additionally, a commitment to data privacy and security is paramount to ensure the responsible and ethical handling of sensitive information (Gul et al., 2023).

The authors contend that data-driven decision-making is a pivotal element in the digital transformation journey of organizations. It empowers businesses to unlock the full potential of their data, fostering innovation, agility, and accountability. As the digital landscape continues to evolve, adopting a data-driven mindset is not merely a strategy; it is a necessity for organizations aspiring to thrive in the modern business environment. By leveraging data as a strategic asset, businesses can navigate uncertainties with confidence and chart a course toward sustained success.

#### e) *Technology Infrastructure*

In the ever-changing landscape of the digital age, businesses are increasingly acknowledging the pivotal role of technology infrastructure as a fundamental driver of successful digital transformation (Naumova et al., 2020). As organizations endeavor to remain competitive and relevant in today's dynamic markets, a robust and agile technology infrastructure emerges as a cornerstone, empowering them to adapt, innovate, and thrive in the digital era (Manny et al., 2021: 944).

At its essence, technology infrastructure encompasses the hardware, software, networks, and data storage that constitute the backbone of an organization's IT ecosystem (Kolodynskyi et al., 2018: 166). Investing in a state-of-the-art technology infrastructure is not a mere choice; it is a strategic imperative for enterprises navigating the complexities of the digital landscape. This infrastructure serves as the foundation upon which various digital transformation initiatives can be built, facilitating seamless integration and scalability (Schwertner, 2017: 389).

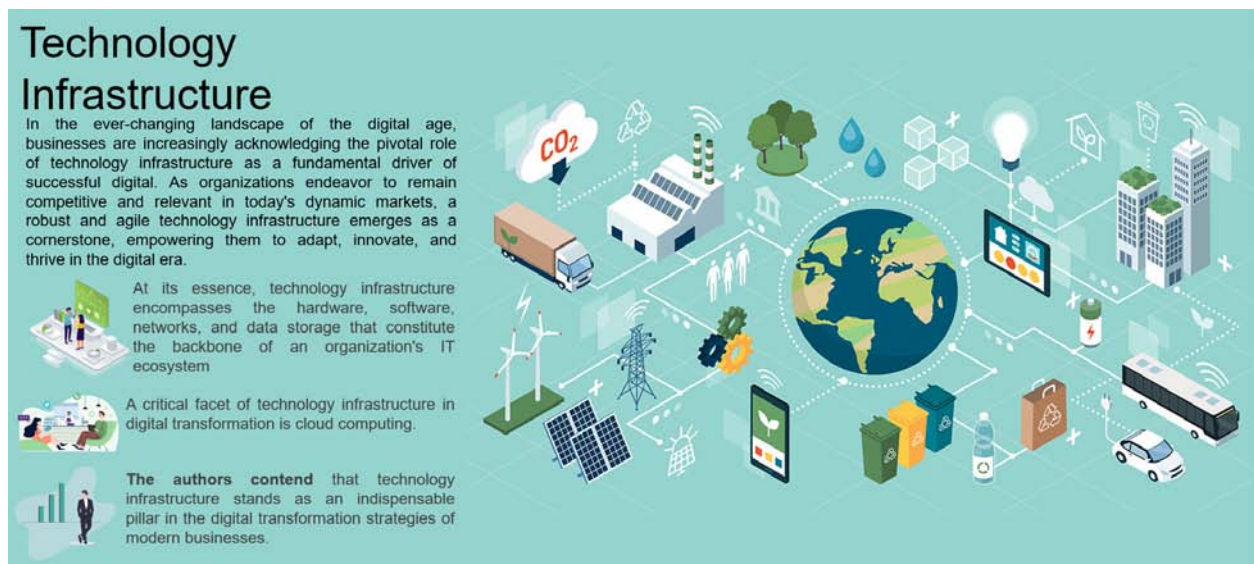


Figure 6: Technology Infrastructure

A critical facet of technology infrastructure in digital transformation is cloud computing. Cloud technologies offer unparalleled flexibility, scalability, and cost-effectiveness, allowing organizations to leverage computing resources on-demand (Albukhitan, 2020: 665). Cloud platforms empower businesses to streamline operations, enhance collaboration, and swiftly deploy new applications and services. This agility is crucial for responding to market changes and customer demands in real-time, a necessity in today's fast-paced business environment (Brunetti et al., 2020: 698).

Additionally, the significance of robust cybersecurity measures cannot be overstated in the context of technology infrastructure. As businesses

increasingly rely on interconnected systems and digital data, the risk of cyber threats escalates (Tsou & Chen, 2023: 1115). A sound technology infrastructure incorporates robust security protocols, safeguarding sensitive information and ensuring the integrity of digital assets. This proactive approach not only protects against potential cyber-attacks but also fosters trust among customers and stakeholders (Nekrasov & Sinityna, 2020).

In the realm of digital transformation, data analytics is another pivotal component that heavily relies on a sound technology infrastructure. The ability to collect, process, and derive insights from vast amounts of data is a competitive advantage (Lafioune et al., 2023). A well-designed technology infrastructure

provides the computational power and storage capacity necessary for sophisticated analytics, enabling data-driven decision-making that can propel an organization ahead of its competitors (Chanas et al., 2019: 18).

Furthermore, technology infrastructure acts as an enabler for emerging technologies such as the Internet of Things (IoT), artificial intelligence (AI), and machine learning (ML) (Li, 2020: 811). These technologies, when seamlessly integrated into an organization's infrastructure, open up new possibilities for automation, efficiency, and innovation (Ismail et al., 2017: 3).

The authors contend that technology infrastructure stands as an indispensable pillar in the digital transformation strategies of modern businesses. It forms the bedrock upon which organizations can build their digital capabilities, adapt to change, and innovate for sustained success. As the digital landscape

continues to evolve, investing in a resilient and scalable technology infrastructure is not just a strategy; it is a prerequisite for thriving in the digital era.

#### IV. DIGITAL CUSTOMER SATISFACTION

The notion of digital transformation has emerged as a pivotal force in enhancing customer satisfaction (Gelbrich et al., 2021: 178). It entails the integration of digital technologies across all facets of a business, fundamentally altering its operations and the value it delivers to customers (Zouari & Abdelhedi, 2021: 2). When strategically applied, this paradigm shift has the potential to revolutionize customer satisfaction by streamlining processes, personalizing experiences, and fostering a more agile and responsive approach to customer needs (Wisnu, 2020).



Figure 7: Digital Customer Satisfaction

A primary driver for digital transformation in customer satisfaction is the unprecedented rise in consumer expectations (Sudirjo et al., 2024: 9). Today's customers seek seamless and personalized interactions with brands across various touchpoints (Wang et al., 2001: 91). From online shopping to customer support, the modern consumer expects a cohesive and tailored experience that goes beyond traditional boundaries. Digital transformation equips businesses with the necessary tools and technologies to meet and surpass these expectations, creating a more satisfying and engaging customer journey (Demirel, 2022: 509).

Furthermore, the proliferation of data has become a cornerstone of digital transformation,

providing organizations with valuable insights into customer behavior and preferences (Donio' et al., 2006: 445). Through advanced analytics and artificial intelligence, businesses can leverage data to anticipate customer needs, predict trends, and offer personalized recommendations. This data-driven approach not only enhances the overall customer experience but also allows companies to proactively address issues, resulting in increased customer satisfaction and loyalty (Eckert et al., 2022: 569).

Digital transformation also enables businesses to streamline processes and eliminate friction points in the customer journey (Gimpel et al., 2016). Automation of routine tasks, such as order processing and customer

inquiries, reduces turnaround times and minimizes errors, leading to improved efficiency and satisfaction (Lazirkha et al., 2022: 157). Additionally, cloud-based technologies facilitate real-time collaboration and information sharing, allowing organizations to respond promptly to customer feedback and adapt swiftly to changing market dynamics (Ruiz-Alba et al., 2022: 2471).

The integration of digital channels, such as social media, mobile apps, and online platforms, allows businesses to connect with customers on their preferred platforms (Brill et al., 2022: 38). This multichannel approach not only enhances accessibility but also provides opportunities for meaningful engagement (Kitsios et al., 2021). By fostering a robust online presence and leveraging social listening tools, businesses can actively participate in conversations, address concerns, and build lasting relationships, ultimately boosting customer satisfaction (Wijaya et al., 2020).

The authors assert that digital transformation in customer satisfaction represents a paradigm shift that empowers businesses to adapt and thrive in the digital age. Through the embrace of cutting-edge technologies, leveraging data insights, and creating seamless and personalized experiences, organizations can exceed customer expectations and build enduring relationships. In an era where customer satisfaction is a key differentiator, digital transformation emerges as a

strategic imperative for businesses seeking sustained success and growth.

## V. THE ROLE OF TECHNOLOGY IN CUSTOMER SATISFACTION

Rephrased: Technology plays a crucial role in shaping the satisfaction of customers. As consumers increasingly turn to digital channels to interact with businesses, integrating technology has become a strategic necessity for organizations aiming to improve customer experiences (Meuter et al., 2000: 52). This evolution is not just a passing trend but a fundamental change in how companies engage with their clientele, impacting everything from communication to service delivery (Krishnan, 1999: 1195).

One significant aspect of technology's impact on customer satisfaction is its role in facilitating seamless communication. The emergence of various communication tools, such as live chat, chatbots, and social media platforms, allows businesses to connect with customers in real-time (Yusuf et al., 2024: 559). This immediate communication fosters responsiveness, addressing customer queries and concerns promptly. The efficiency of such interactions significantly contributes to customer satisfaction, as individuals value timely and effective responses (Froehle et al., 2006: 5-38).

## THE ROLE OF TECHNOLOGY IN CUSTOMER SATISFACTION



Figure 8: The Role of Technology in Customer Satisfaction

Moreover, technology has transformed the customer service landscape through automation. Chatbots, powered by artificial intelligence, can handle routine queries, provide instant assistance, and guide

customers through troubleshooting processes. This not only enhances operational efficiency for businesses but also ensures that customers receive immediate support, positively impacting their overall satisfaction. Automation



allows human resources to focus on more complex and personalized customer interactions, further elevating the customer experience (Imran et al., 2019: 63).

E-commerce platforms and mobile applications have also become essential components of the customer journey (Lee MinWoo & Baker, 2017: 83). The convenience of online shopping, coupled with personalized recommendations driven by data analytics, significantly contributes to customer satisfaction (Jan & Abdullah, 2014: 430). Technology enables businesses to understand their customers better, tailoring products and services to meet individual preferences (Iqbal, 2018). The ease of navigation and secure transactions in digital platforms contribute to a positive customer experience, fostering loyalty and repeat business (Johnson et al., 2008: 416).

Furthermore, technology enables businesses to systematically gather and analyze customer feedback (Lepistö et al., 2024: 76). Surveys, reviews, and social media monitoring tools provide valuable insights into customer sentiments and preferences (Mainardes et al., 2023: 379). This data-driven approach empowers organizations to make informed decisions, refine their offerings, and effectively address pain points. By leveraging technology for continuous improvement, companies can create a customer-centric culture that aligns with the evolving needs of their clientele (Nazir et al., 2023).

The authors assert the authors assert that the role of technology in customer satisfaction is

multifaceted and transformative. From streamlining communication to automating processes and personalizing interactions, technology has become an indispensable tool for businesses striving to meet and exceed customer expectations. Embracing technological advancements not only enhances operational efficiency but also fosters a positive and enduring relationship between businesses and their customers in the digital age.

## VI. PERSONALIZATION IN DIGITAL CUSTOMER EXPERIENCES

Customization in digital customer experiences has become a fundamental element in the modern realm of consumer interactions. As businesses seek to stand out in a crowded market, tailoring their offerings to individual preferences and needs has emerged as a potent strategy for engaging and retaining customers (Rane et al., 2023).

At its essence, personalization involves adapting the online experience for each user, utilizing data and technology to provide content, recommendations, and interactions that resonate personally (Jain et al., 2021: 13). An influential driving force behind this trend is the wealth of data generated by users' online activities. Businesses can analyze a plethora of data, including browsing history, purchase behavior, and demographic information, to gain insights into individual preferences and habits (Shen, 2014: 415).



Figure 9: Personalization in Digital Customer Experiences

A fundamental aspect of personalization is the capacity to deliver relevant and timely content. By comprehending a user's preferences and behaviors, businesses can curate content aligned with their interests (Rekettye & Rekettye Jr, 2019: 340). This not only enhances the user experience but also boosts the likelihood of conversion. For instance, e-commerce

platforms can suggest products based on past purchases or browsing history, creating a more seamless and enjoyable shopping journey (Gogua & Smirnova, 2020).

In addition to content customization, personalization extends to various touchpoints in the customer journey (Parise et al., 2016: 413). Email

marketing, for example, can be significantly improved through personalized communication. Tailoring messages to suit a user's preferences, location, or past interactions can notably increase open rates and engagement. This high level of customization signals to customers that their individual needs are valued, fostering a sense of loyalty and connection to the brand (Tyrväinen et al., 2020).

Moreover, personalization is closely tied to the concept of predictive analytics. Through leveraging machine learning algorithms, businesses can anticipate customer preferences and behaviors, proactively offering personalized experiences (Mendia & Flores-Cuautle, 2022). This predictive approach not only streamlines the customer journey but also positions businesses as forward-thinking and attentive to their customers' needs (Lindecrantz & Zerbi, 2020).

Nevertheless, it is imperative for businesses to find a balance between personalization and privacy. As concerns about data security and privacy increase, customers are becoming more cautious about sharing their personal information (Fokina & Barinov, 2019). Respecting and safeguarding user data are crucial for maintaining trust and ensuring the long-term success of personalized digital experiences (Arifin, 2022).

The authors contend that personalization in digital customer experiences is a dynamic and evolving strategy that leverages data and technology to create tailored interactions. From personalized content to predictive analytics, businesses can enhance their customer engagement by understanding and responding to individual preferences. Striking the right balance between customization and privacy is key to fostering lasting relationships and staying ahead in the competitive digital landscape.

## VII. OMNI-CHANNEL CUSTOMER SUPPORT

Omni-channel customer support has become a crucial strategy in the modern business landscape, transforming the way companies interact with their customers (Xu & Jackson, 2019:435). This approach seamlessly integrates various communication channels, offering a unified experience across all touchpoints. Essentially, omni-channel support recognizes and accommodates diverse customer engagement preferences, whether through traditional avenues like phone calls and emails or contemporary platforms like social media and chat applications (Yrjölä et al., 2018: 259).

A key benefit of omni-channel customer support lies in its ability to enhance the overall customer experience. By allowing individuals to switch between channels without losing context, businesses can deliver a more personalized and efficient service (Sorkun et al., 2020: 631). For example, a customer might initiate a support inquiry via email and then seamlessly transition to a live chat for real-time assistance. This flexibility caters to varied customer preferences while ensuring timely and effective resolution of their needs (Mosquera et al., 2017).

Moreover, omni-channel support promotes consistency across interactions, contributing to a cohesive brand identity (Hosseini et al., 2018: 75). Regardless of whether a customer engages with a company through its website, social media, or a traditional customer service hotline, they should encounter a consistent level of service and information. This not only builds trust but also reinforces the brand's reliability and professionalism in the eyes of the customer (Wollenburg et al., 2018: 540).



Figure 10: Omni-Channel Customer Support

Furthermore, the data collected through omni-channel interactions can be harnessed to gain valuable insights into customer behavior and preferences. Analyzing interactions across various channels provides a comprehensive understanding of the customer journey and pain points (Hajdas et al., 2022). This data-driven approach empowers businesses to make informed decisions, refine their strategies, and continuously enhance the overall customer experience (Cai & Lo, 2020).

However, successful implementation of an omni-channel customer support system requires a robust technological infrastructure and a well-coordinated strategy (Saghiri & Mirzabeiki, 2021: 1662). Integrating different communication channels, ensuring real-time data synchronization, and training staff to handle interactions seamlessly are essential components of a successful omni-channel approach (Bennett & El Azhari, 2015).

The authors assert omni-channel customer support signifies a paradigm shift in how businesses engage with their clientele. By embracing a strategy that caters to diverse communication preferences, companies can elevate the customer experience, foster brand consistency, and gain valuable insights for continuous improvement. In an era where customer satisfaction is a critical differentiator, omni-channel

support is not just a strategy but a necessity for forward-thinking and customer-centric organizations.

### VIII. REAL-TIME CUSTOMER FEEDBACK

In the modern business landscape, real-time customer feedback has emerged as a crucial factor, transforming the way companies interact with their customer base (Tanpure, 2013). Unlike traditional feedback methods reliant on periodic surveys or reviews, real-time feedback offers immediate insights into customer sentiments, preferences, and experiences. This dynamic approach empowers businesses to quickly adapt to changing customer expectations, ultimately enhancing overall satisfaction (Bar & Chaudhuri, 2023).

A key advantage of real-time customer feedback is its capacity to capture genuine emotions and reactions. By providing customers with platforms to express their opinions in the moment, businesses gain access to unfiltered insights that genuinely reflect the customer's experience (Fabijan et al., 2015: 141). This immediacy enables companies to address issues promptly, preventing potential negative impacts on their brand reputation. Whether positive reinforcement or constructive criticism, real-time feedback establishes a direct line of communication between the business and its customers (Macdonald et al., 2012).

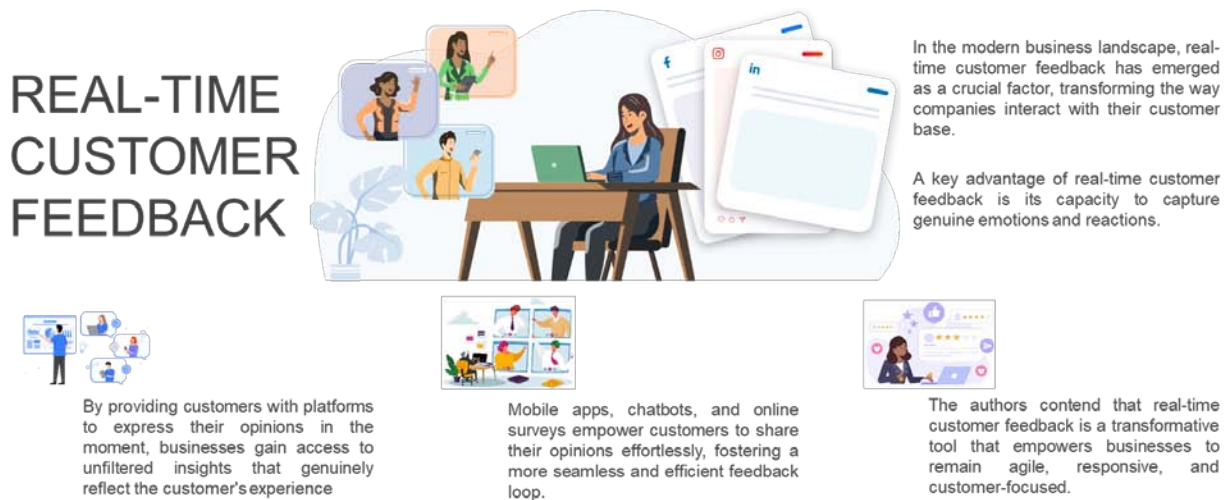


Figure 11: Real-Time Customer Feedback

The integration of technology plays a pivotal role in facilitating real-time customer feedback. Mobile apps, chatbots, and online surveys empower customers to share their opinions effortlessly, fostering a more seamless and efficient feedback loop (Shen et al., 2022). This not only enhances the customer experience but also showcases a commitment to customer-centricity, a crucial differentiator in today's competitive market (Song & Kang, 2016: 28).

Furthermore, real-time feedback instills a sense of empowerment among customers (Wolak, 2015).

Knowing that their opinions are valued and can influence business decisions, customers feel a stronger connection to the brand. This engagement can lead to increased loyalty and advocacy as customers appreciate being part of a company that actively seeks and values their input (Bhatia et al., 2013: 1148).

For businesses, the real-time data generated through customer feedback serves as a valuable resource for strategic decision-making. Identifying trends, understanding pain points, and recognizing areas of excellence become more achievable when



armed with up-to-the-minute information. This data-driven approach enables companies to pivot quickly in response to market dynamics and stay ahead of the competition (Ranjan, 2018: 167).

Despite its numerous benefits, implementing an effective real-time feedback system requires careful consideration of privacy, data security, and the design of user-friendly interfaces. Striking the right balance between gathering meaningful insights and respecting customer boundaries is crucial to building trust and maintaining a positive customer relationship (Samsudin et al., 2011: 187).

The authors contend that real-time customer feedback is a transformative tool that empowers businesses to remain agile, responsive, and customer-focused. Through the seamless integration of technology and a commitment to customer engagement, companies can leverage the immediate insights provided by real-time feedback to drive continuous improvement and foster lasting customer loyalty.

### IX. ENHANCED COMMUNICATION THROUGH DIGITAL PLATFORMS

Revamping communication with customers via digital platforms has become essential for achieving success. The advent of the digital era has brought unprecedented opportunities for businesses to engage with their customer base, establishing connections and facilitating seamless information exchange (Khasawneh, 2024: 213). This transition to digital communication has not only revolutionized business operations but has also bestowed customers with greater control over their interactions (Le et al., 2023: 1550).

A pivotal advantage of utilizing digital platforms for communication is the capacity to reach a global audience in real-time. Businesses can now transcend

geographical boundaries, dismantling traditional communication barriers and connecting with customers worldwide (Truong & McLachlan, 2022). Through social media, email campaigns, and other online channels, organizations can deliver targeted messages tailored to specific demographics, thereby enhancing customer engagement, and cultivating a sense of connection and loyalty (Light et al., 2019: 3).

Furthermore, digital platforms empower businesses to deliver instant and efficient customer support. Chatbots and AI-powered systems can handle customer queries around the clock, ensuring prompt responses and resolutions (Bor, 2014: 1196). This not only elevates customer satisfaction but also allows human resources to concentrate on more complex issues. The speed and accessibility of digital communication contribute to a positive customer experience, fostering trust and loyalty over time (Derave et al., 2020).

The data-driven nature of digital communication enables businesses to glean valuable insights into customer behavior (Derave et al., 2024). Through analytics, organizations can monitor customer interactions, preferences, and feedback, refining their communication strategies accordingly. This data-driven approach facilitates targeted marketing efforts, ensuring businesses deliver content and promotions that resonate with their audience (Alqayed et al., 2022).

Moreover, digital platforms provide diverse channels for businesses to showcase their products and services (Spagnoletti et al., 2015: 365). From visually engaging websites to interactive social media campaigns, organizations can create compelling content that captures the attention of their target audience. This multimedia approach enhances the overall communication experience, making it more memorable and impactful (Collins et al., 2003: 484).

### ENHANCED COMMUNICATION THROUGH DIGITAL PLATFORMS

Revamping communication with customers via digital platforms has become essential for achieving success.

- The advent of the digital era has brought unprecedented opportunities for businesses to engage with their customer base.**
- A pivotal advantage of utilizing digital platforms for communication is the capacity to reach a global audience in real-time.**
- Digital platforms empower businesses to deliver instant and efficient customer support.**
- The authors assert that enhancing communication with customers through digital platforms is a multifaceted strategy extending beyond mere convenience.**



Figure 12: Enhanced Communication through Digital Platforms

However, businesses must prioritize data security and privacy when engaging with customers through digital platforms. Implementing robust security measures helps build trust and confidence among customers, assuring them that their information is handled with care (Collazos et al., 2021).

The authors assert, the authors assert that enhancing communication with customers through digital platforms is a multifaceted strategy extending beyond mere convenience. It involves creating personalized experiences, providing instant support, leveraging data for insights, and maintaining a strong focus on security. By embracing the opportunities presented by the digital landscape, businesses can not only meet but exceed customer expectations, ultimately fostering long-term relationships and sustainable success.

## X. DATA SECURITY AND CUSTOMER TRUST

In the era of digitization, where businesses heavily depend on data to improve customer experiences and streamline operations, ensuring data security has become a critical priority. Safeguarding sensitive information is not only a legal obligation but also a fundamental aspect in nurturing and preserving customer trust (Aldboush & Ferdous, 2023).

The repercussions of data breaches can be severe, ranging from financial losses to irreparable harm to a company's reputation (Morey et al., 2015: 72). When customers entrust an organization with their personal information, they expect responsible and secure handling. A single breach can undermine this trust, resulting in customer dissatisfaction, loss of loyalty, and potential legal consequences (Benta & Astuti, 2024: 350).



Figure 13: Data Security and Customer Trust

To establish and uphold customer trust, businesses must implement robust data security measures (Flavián & Guinalú, 2006:603). This involves not only protecting customer data from external threats but also ensuring the resilience of internal processes and systems against potential breaches. Components such as encryption, firewalls, secure authentication methods, and regular security audits are integral to a comprehensive data security strategy (Zhang et al., 2023).

Transparency is another crucial factor in building customer trust. Companies that openly communicate their data security practices and policies demonstrate a commitment to protecting customer information (Suh & Han, 2003: 137). Clear and concise privacy statements, user-friendly terms of service, and easily understandable data usage policies contribute to transparency, enabling customers to make informed decisions about sharing their data (Themistocleous, 2018: 169).

Moreover, organizations must prioritize compliance with data protection regulations like GDPR, HIPAA, or CCPA. Adhering to these standards not only mitigates legal risks but also assures customers that their data is being handled according to established guidelines (Nilashi et al., 2015: 57). Demonstrating compliance reinforces a company's commitment to ethical data practices, strengthening the foundation of trust with its customer base (Zhang et al., 2020).

In the event of a data breach, prompt and transparent communication is crucial. Acknowledging the incident, taking responsibility, and outlining the steps being taken to rectify the situation can help rebuild trust (Twum & Ahenkora, 2012). Proactive measures, such as offering credit monitoring services or enhanced security features, demonstrate to customers that their well-being is a priority for the company (Özgülven, 2011).

The authors contend that the symbiotic relationship between data security and customer trust is undeniable. Businesses that invest in robust data protection measures not only comply with legal

requirements but also cultivate a strong foundation of trust with their customers. In the ever-evolving digital landscape, as customer expectations rise, so must the commitment to safeguarding their sensitive information. By prioritizing data security, businesses can protect themselves from potential risks and foster a loyal customer base built on a foundation of trust.

## XI. CHALLENGES AND ETHICAL CONSIDERATIONS

In today's rapidly changing business landscape, the imperative for organizations to pursue digital

transformation is undeniable. This pursuit is crucial for staying competitive and meeting the evolving needs of customers. However, this journey is not without challenges and ethical considerations. As businesses navigate the complex terrain of integrating technology and utilizing data, addressing these challenges while upholding ethical standards becomes essential to ensuring optimal customer satisfaction (Rogers, 2016).

### CHALLENGES AND ETHICAL CONSIDERATIONS

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#### Digital Transformation Strategies

Crafting effective digital transformation strategies poses one of the primary challenges, particularly in the intricate process of migrating from traditional systems to advanced digital platforms.

#### Enhanced Customer Satisfaction

In the pursuit of enhanced customer satisfaction, organizations must grapple with the ethical implications of artificial intelligence (AI) and automation.

#### The authors believe

The authors believe, the journey toward crafting effective digital transformation strategies for optimal customer satisfaction is challenging and laden with ethical considerations.

Figure 14: challenges and ethical considerations

Crafting effective digital transformation strategies poses one of the primary challenges, particularly in the intricate process of migrating from traditional systems to advanced digital platforms. This transition requires significant financial investments and a robust infrastructure, with small and medium-sized enterprises often facing resource constraints (Ismail et al., 2023). Balancing cost-effectiveness with technological innovation demands careful planning and strategic decision-making (Andriole et al., 2017).

Ethical considerations play a central role as organizations leverage data to drive their digital initiatives (Braun & Garriga, 2017: 663). The collection and analysis of customer data raise concerns about privacy and security. Stringent measures must be implemented to safeguard sensitive information and ensure compliance with data protection regulations like GDPR. Ethical imperatives include transparency in data usage and obtaining informed consent, fostering trust in the customer-business relationship (Nair, 2020: 8).

Furthermore, the shift to digital channels may unintentionally exclude segments of the population with

limited access to technology or digital literacy (Aldboush & Ferdous, 2023). Crafting inclusive digital transformation strategies requires a conscious effort to bridge the digital divide, providing accessible interfaces, offering digital literacy programs, and considering alternative channels to cater to diverse demographics (Kardi et al., 2023: 13).

In the pursuit of enhanced customer satisfaction, organizations must grapple with the ethical implications of artificial intelligence (AI) and automation (Dwivedi et al., 2021). Deploying these technologies raises concerns about job displacement and biased decision-making algorithms. Balancing efficiency gains with social responsibility necessitates ethical AI practices, ongoing training programs, and a commitment to mitigating negative societal impacts (Du & Xie, 2021: 961).

The authors believe, the journey toward crafting effective digital transformation strategies for optimal customer satisfaction is challenging and laden with ethical considerations. Successful implementation requires a holistic approach addressing financial

constraints, prioritizing ethical data practices, promoting inclusivity, and navigating the ethical complexities of AI and automation. By overcoming these challenges and upholding ethical standards, organizations can unlock the full potential of digital transformation, delivering superior customer experiences while safeguarding the trust and confidence of their clientele.

## XII. CONCLUSION

The examination of "Beyond Screens: Crafting Effective Digital Transformation Strategies for Optimal Customer Satisfaction" delves into the theoretical domain of digital transformation, placing significant emphasis on the paramount importance of customer satisfaction. The study establishes a theoretical framework that underscores the imperative for businesses to surpass mere technological adoption and instead concentrate on comprehensive strategies that encompass the entire customer journey.

A crucial insight derived from this theoretical exploration is the acknowledgment that digital transformation goes beyond the mere implementation of cutting-edge technologies. It necessitates a strategic overhaul that takes into account the evolving needs and expectations of customers. The study highlights the pivotal role of customer satisfaction as the ultimate benchmark for the success of any digital transformation initiative. This underscores the importance of aligning technological investments with customer-centric objectives, ensuring that the digital transformation journey resonates with and enhances the overall customer experience.

Moreover, the theoretical framework presented in this study accentuates the interconnectedness of various elements within a digital ecosystem. It underscores the significance of a holistic approach that integrates technology, processes, and people to create a seamless and satisfying customer experience. This perspective challenges businesses to view digital transformation not as a series of isolated initiatives but as a cohesive strategy that permeates every facet of the organization.

The study also underscores the dynamic nature of digital transformation, emphasizing the continuous need for businesses to adapt to technological advancements and shifting customer expectations. This theoretical exploration serves as a guiding principle for businesses, urging them to remain agile and responsive in their digital strategies to uphold and enhance customer satisfaction over time.

Furthermore, the theoretical insights presented in this study highlight the necessity for a customer-centric mindset at every organizational level. From leadership to front-line employees, embracing a customer-focused culture becomes imperative for the success of digital transformation initiatives. It is not

merely about adopting technology but fostering a customer-centric ethos that becomes ingrained in the organizational DNA.

In essence, "Beyond Screens" functions as a theoretical compass guiding businesses toward the formulation of effective digital transformation strategies. By prioritizing customer satisfaction, adopting a holistic approach, remaining adaptable, and fostering a customer-centric culture, organizations can navigate the intricate landscape of digital transformation with confidence, ensuring that the theoretical foundations translate into practical success in the evolving digital landscape.

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# Understanding the Decline in Work Motivation among Hong Kong's Gen Z

By Zion Lee

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*Structure-* The first phase of the study involved a systematic and comprehensive literature review. Relevant literature was identified through searches in reputable academic databases. Keywords related to Gen Z motivation, workplace motivation, and related concepts were used to conduct the searches. The literature review identified several key factors that motivate Gen Z employees, including meaningful work, opportunities for growth and development, a positive work environment, flexible work arrangements, and competitive compensation and benefits.

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# Understanding the Decline in Work Motivation among Hong Kong's Gen Z

Zion Lee

## I. METHODOLOGY

This study employed a mixed methods research design to explore the factors that influence Gen Z employees' motivation in the workplace. The study involved a literature review, an analysis of news and trends, and an exploration of potential impacts and solutions

## II. STRUCTURE

The first phase of the study involved a systematic and comprehensive literature review. Relevant literature was identified through searches in reputable academic databases. Keywords related to Gen Z motivation, workplace motivation, and related concepts were used to conduct the searches. The literature review identified several key factors that motivate Gen Z employees, including meaningful work, opportunities for growth and development, a positive work environment, flexible work arrangements, and competitive compensation and benefits.

In the second phase of the study, an analysis of news and trends related to Gen Z motivation in the workplace was conducted. This involved examining articles from reputable news sources, industry reports, and social media platforms to identify emerging trends and issues. The analysis revealed that organizations face a number of challenges in motivating Gen Z employees, including their high expectations, short attention spans, desire for immediate feedback, and need for constant stimulation.

## III. INTRODUCTION

### a) Background

There has been an increasing interest in studying Generation Z, which refers to people born from the late 1990s to the mid-2000s (Prensky, 2001). Understanding the motives and opinions of this cohort is essential as they continue to represent a growing proportion of the workforce. However, there is a lack of comprehensive study that examines these perspectives within the specific setting of Hong Kong's highly competitive environment.

Hong Kong is widely recognized for its highly competitive educational system (Tsang & Lian, 2021). However, the changing influences of different

generations require a new analysis. A poll conducted by CTgoodjobs (2022) examined the work perspectives of Hong Kong's Generation Z. The survey revealed that 60% of respondents would choose unemployment over being unhappy in their job. The sentiment was most pronounced among individuals aged 18-24, with 62% choosing unemployment rather than settling for unsatisfying occupations.

Gen Z's prioritization of work-life balance and flexibility is highlighted by this desire. Entering the job market with the widespread adoption of remote work due to COVID-19, this group prioritizes personalizing their lifestyle above adhering to inflexible timetables that limit socializing and pursuing hobbies (McKinsey, 2022). The survey indicated that the Gen Z workforce in Hong Kong aspires to achieve their career goals while also seeking personal fulfillment outside their formal responsibilities. They desire autonomy and the opportunity to prioritize their family, travel, and personal interests alongside their professional commitments.

Failure to address these needs runs the risk of alienating Hong Kong's expanding young workforce. However, there is a lack of in-depth analysis that investigates the various motivational factors that inhabitants have, which influence the development of strategies. Given the guidance of stakeholders, it is advisable to have a more thorough understanding of the factors that influence motivation in the context of educational reforms (Kirschner & van Merriënboer, 2013).

Therefore, understanding the factors that motivate Generation Z at a local level is quite important. The findings may assist educators, parents, and policymakers in acquiring behavioral insights (Dabbagh & Kitsantas, 2012). This involves recognizing the decrease in job motivation indicated in the survey in order to develop specific and effective solutions that address their needs. While there is existing study on motivation, there are few studies that specifically analyze this particular age segment from the perspective of Hong Kong. Therefore, doing a thorough examination of the specific motives of Generation Z is worthwhile.

Motivation varies in different environments due to biological and socio-emotional influences (Deci & Ryan, 2000). The scholastic atmosphere in Hong Kong, which is very competitive, adds to the complexity and requires personalized investigation. This study aims to gain a complete understanding of the key factors that

influence local Generation Z students, in order to inform activities aimed at preparing them for the workforce.

#### b) Purpose of the Study

Extrinsic factors, influenced by external factors and associated with the work environment, including aspects such as compensation, supervision, working conditions, interpersonal interactions, and job stability (Robbins & Judge, 2019; Spector, 1997). On the other hand, intrinsic factors originate from the job itself and include elements such as accomplishment, acknowledgement, the characteristics of the task, accountability, chances for progress, and personal development (Robbins & Judge, 2019; Hackman & Oldham, 1976).

Prior studies have demonstrated that job satisfaction can have an effect on both personal well-being and physical symptoms (Judge et al., 2001; Wright & Bonett, 2002). It is valuable to examine the varying levels of satisfaction experienced by different groups of younger knowledge workers, such as Gen X and Gen Y or baby boomers, as documented by Ng et al. (2012) and Lyons et al. (2009). In a global organization, the presence of several cultures can result in varied expectations and views on work, which can lead to different levels of satisfaction among employees (Hofstede, 1980; Triandis, 1995).

The results of this study could aid HR managers in implementing a strategic method to efficiently inspire employees, evaluate job contentment, and establish career development plans (Locke & Latham, 2002; Hackman & Oldham, 1980). Through diligent monitoring and thorough research, firms can ensure the stability and exceptional performance of their personnel, leading to long-term productivity growth (Pfeffer, 1998; Delery & Doty, 1996).

The researcher anticipates that this research will yield valuable insights into several aspects, including years of service, satisfaction with one's company or sense of belonging, work-life balance across different generations, and the key factors that influence individuals' levels of job satisfaction (Judge et al., 2001; Hackman & Oldham, 1976).

This study has the capacity to broaden and enhance the existing scarce literature on job satisfaction in Hong Kong and serve as a point of reference for future research in management disciplines (Lam, 2002; Farh et al., 1997). Moreover, it provides tangible advantages to professionals when using the idea in practical situations, namely in the realm of strategic human resource management (Purcell et al., 2003; Boxall & Macky, 2009).

#### c) Research Questions

The objective of this study is to comprehend the primary factors that influence motivation among Generation Z individuals in Hong Kong. The primary research question is:

*RQ1: What are the determinants of motivation levels among Generation Z persons in Hong Kong?*

Prior research has not examined this specific setting, highlighting the importance of identifying the fundamental factors that influence the motivation of Generation Z at a local level.

Another research inquiry concerns the impact of technology on the motivation of Generation Z:

*RQ2: What is the influence of technology on the motivation of Generation Z in Hong Kong?*

Despite the widespread presence of technology in everyday life, Jeffery and Adele (2010) contend that there is a lack of study on the connection between technology usage and the motivation of young individuals. It is necessary to provide further explanation about this relationship.

Finally, an examination will be conducted on changes in motivation across different generations.

*RQ3: What disparities exist in the motivational elements between Generation Z and previous cohorts in Hong Kong?*

It is worth investigating if theories formulated in Western contexts are applicable to the motivation of Gen Z individuals in multicultural and quickly evolving Hong Kong. An analysis of generational drives could provide unique social understanding.

The primary objective of this study is to enhance the current limited knowledge on the motivation of Generation Z in Hong Kong. This will be achieved through qualitative investigation of the main significant factors.

## IV. LITERATURE REVIEW

### a) Definition of Motivation

Motivation is a multifaceted and intricate concept that encompasses the driving force behind human behavior (Cohen, 1992). In the context of student motivation, individuals may be propelled by the fulfillment derived from pursuing goals, such as achieving a promotion or receiving high grades (Locke & Latham, 2002). Conversely, the fear of negative consequences, such as the fear of appearing foolish, can also act as a motivator (Judge et al., 2001). When we refer to motivation as the driving force behind behavior, we imply that it serves as the primary reason for people's actions (Pfeffer, 1998). However, behavioral psychology posits that certain actions can be performed spontaneously, irrespective of the underlying motives, akin to a physiological response (Robbins & Judge, 2019). In contrast, motivational theories contend that innate inclinations do not constitute individual motives in themselves, but rather encompass vast clusters of motives (e.g., the desire for sustenance) (Boxall & Macky, 2009). Despite the advent of the internet and personal computers, motivation remains a topic of extensive study within academic psychology, as it is

intricately intertwined with human emotions and behaviors (Podsakoff et al., 2003). It is worth noting that despite the advancements of modern society, humans continue to exhibit a wide range of moods and emotions, reminiscent of our ancestors (Spector, 1997). Furthermore, societal norms act as a deterrent, preventing individuals from acting upon irrational urges or engaging in behaviors that undermine their civility (Delery & Doty, 1996). Consequently, the study of motivation poses ethical challenges, particularly concerning attempts to alter an individual's motivations (Triandis, 1995). Nevertheless, ongoing research is essential, given the ever-increasing complexity and popularity of the subject (Wright & Bonett, 2002).

When a particular behavior is repeatedly performed, yielding consistent outcomes, regardless of the underlying motive, a habit may develop (Lam, 2002). For instance, an individual habitually entering a cold room may associate the room with the desire for warmth, thereby transforming the initial motive into a habitual action (Lyons et al., 2009). Researchers in this field often emphasize an evolutionary perspective of human nature, particularly in areas such as mating and group dynamics (Farh et al., 1997). Sigmund Freud, in the late 19th century, posited that basic bodily functions served as the foundation for human drives, a notion that continues to influence contemporary research (Hofstede, 1980). Moreover, Darwin's contributions, such as his concept of "three levels of natural selection," remain relevant references in the field (Everitt et al., 2011). The Latin root of motivation, "movere," meaning "to move," underscores the diverse range of actions that can be initiated by a single motive, as well as the potential accumulation of multiple motives underlying a specific action (Hair et al., 1995). It is crucial to recognize that motivation encompasses both conscious and unconscious motives, as well as the initiation and sustenance of activities, as highlighted by early 20th-century psychologist William McDougall (Judge et al., 2001). Building upon McDougall's work, Abraham Maslow introduced the concept of the "hierarchy of needs," wherein the satisfaction of specific needs leads to a desired state of equilibrium, known as "homeostasis" (Wright & Bonett, 2002).

#### b) *Motivation Theories*

Motivation is a complex subject that has been explored through various theories. These theories can be categorized into four main groups: instinct theories, arousal theories, humanistic theories, and social motivation theories.

Instinct theories, which propose that people are primarily driven by genetically determined instincts, have lost favor in recent times (Deci & Ryan, 1985). Advances in medical science have shown that genetic determinism is not as influential as once believed. Furthermore, empirical evidence supporting instinct theories is lacking

(Vroom, 1964). This is particularly true when considering the motivation of individuals in the Gen Z demographic, as they are influenced by a multitude of factors beyond genetics (Twenge, 2017).

Arousal theories suggest that motivation begins with a need (Hull, 1943). An ordinary physiological imbalance commences this process, leading to behavior aimed at achieving a set goal and re-establishing the balance of need fulfillment. Take the curiosity stimulation theory as an example, it is claimed that people who possess higher curiosity and lower stimulation need are highly motivated to seek out activities that can augment their physiological arousal level (Berlyne, 1960). This type of motivation is greatly influenced by the environment, and as per recent research, altering an employee's surroundings can significantly enhance their motivation and productivity (Grant & Parker, 2009). This theory proves particularly interesting in the context of Gen Z, as numerous studies indicate that the environmental factors surrounding individuals in this demographic have a substantial impact on their motivation levels and output (Elphinston & Noller, 2011). Arousal theories emphasize the importance of healthy psychological growth and self-development (Maslow, 1943). Based on Maslow's hierarchy of needs, this theory proposes a five-stage model wherein the needs at each level must be fulfilled before individuals can progress to higher levels of personal growth. This theory is widely accepted and easily comprehensible, making it commonly applied to modern life and the understanding of Gen Z's motivation (Deci & Ryan, 2000). However, critics argue that the real empirical validity of this theory is limited and may not accurately capture the complex nature of human motivation in its entirety (Kasser & Ryan, 1996).

Social motivation theories highlight the role that others play in influencing human motivation (Locke & Latham, 1990). For instance, the work on goals has been central to the study of social motivation. Recent research has demonstrated that different types of goals can predict distinct outcomes, further emphasizing the impact of social factors on motivation (Grant, 2012). It is crucial to acknowledge that all types of motivation theories offer a diverse range of tools that researchers can utilize, enhancing the scientist's repertoire and guaranteeing continuous progression in motivation studies (Grant & Dweck, 2003). These theories ultimately expand the inferential power of the field. Therefore, it is recommended to utilize all these types of theories to comprehensively understand the various elements that drive human motivation, given the inherent differences among individuals (Amabile, 1993). One single theory cannot fully explain the intricate and multifaceted nature of motivation experienced by all people (Deci & Ryan, 1985).



### c) *Previous Studies on Gen Z Motivation*

Generation Z students, as originally defined by Prensky (2001), are highly adept and proficient in utilizing technology due to their upbringing in the digital age. They possess extensive knowledge and expertise in various technological tools and are most successful and fulfilled in learning environments that offer unrestricted access to state-of-the-art technology. These exceptional learners truly excel in interactive and dynamic learning experiences that are tailored to their specific interests, enabling them to actively collaborate with their peers and engage in productive knowledge creation. As discovered by Kirschner & van Merriënboer (2013), self-directed learning significantly motivates and empowers Generation Z students, granting them a strong sense of autonomy and control over their own education. Moreover, Dabbagh & Kitsantas (2012) have comprehensively examined the positive impact of technology on the motivation of these learners, emphasizing the crucial need to seamlessly and innovatively integrate technology into teaching practices. These extensive research studies unmistakably highlight the urgent demand to create captivating and highly personalized learning experiences that effectively incorporate technology, whilst simultaneously considering the unique preferences and aptitudes of each individual student. By thoroughly investigating and comprehending motivation theories and acquiring deep insight into the distinctive characteristics of Generation Z, educators can masterfully craft and implement highly effective teaching strategies that expertly address any potential issues of demotivation that may impede these students' educational progress and achievements.

## V. FACTORS INFLUENCING GEN Z MOTIVATION

### a) *Impact of Family Background*

According to SEEK Employer in 2022, the younger generation in Hong Kong like Gen Z, have had a significant increase in wealth compared to previous generations. As a result, many individuals belonging to the middle class no longer face significant financial pressures to sustain their livelihoods. Nevertheless, individuals hailing from more affluent households have diminished levels of motivation in comparison to their counterparts from less prosperous upbringings (Munir et al., 2023). The variation can be elucidated by examining aspects such as the cultivation of self-efficacy, the satisfaction of fundamental needs, and the influence of generational values in relation to the socioeconomic condition of the family.

Self-efficacy necessitates the development of expertise by successfully surmounting challenges (Bandura, 1997). Nevertheless, students hailing from privileged backgrounds frequently benefit from extensive parental assistance, which enables them to effortlessly

overcome challenges, hence restricting their chances to enhance their self-efficacy through autonomous problem-solving (Bandura, 1997; SEEK Employer, 2022).

Additionally, these children exhibit a higher level of contentment with their fundamental physiological and security demands, as stated by Deci and Ryan (1985). According to the self-determination theory, this can diminish the incentive that arises from showcasing expertise and establishing connections with others (Deci & Ryan, 1985).

Research on different generations also suggests that the younger generation of today values direct cash compensation more than earlier generations. This is attributed to their upbringing in a time of material abundance (SEEK Employer, 2022). Students from higher socioeconomic backgrounds who are used to having access to stable resources may naturally have their drive diminished by needs that go beyond basic subsistence.

Overall, variations in the methods of developing self-confidence, levels of meeting fundamental needs, and evolving generational beliefs across different socioeconomic groups can impact the levels of motivation among students. Specific interventions may be necessary to facilitate success among individuals from diverse backgrounds.

### b) *Education in Hong Kong cannot Equip with the Skills of Real-World Job*

Critics have pointed out that the current education system in Hong Kong, which focuses heavily on exams, fails to effectively equip students with the necessary skills for real-world professions (Yung, 2021; Grant, 2012). While the focus is often on academic accomplishments, other skills that are important for future employment may be overlooked (Chankseliani & McCowan, 2021; Tsui et al., 2019). Students in Hong Kong experience significant pressure as they prepare for high-stakes public examinations, with a focus on prioritizing exam outcomes rather than discovering particular interests and abilities (Yung, 2021). This results in disparities in educational achievement as pupils from disadvantaged socioeconomic situations often struggle academically in tests due to limited access to resources and insufficient academic assistance at home (Grant, 2012). Consequently, a significant number of individuals complete their education without a clear understanding of their suitability for a particular vocation and the relevant abilities they possess (Yung, 2021; Chankseliani & McCowan, 2021).

An integrated framework that combines classroom learning with work exposure has the potential to effectively develop the unique talents of Generation Z (Chankseliani & McCowan, 2021; Tsui et al., 2019). Although academics remain important, Hong Kong's



education system might be improved by striking a balance between assessment and promoting self-directed skill development and exploration of personal interests through curriculum reform (Chankseliani & McCowan, 2021; Tsui et al., 2019). This initiative aims to enhance students' understanding of the practical applications of their school education in relation to their future career choices. It also seeks to tackle the issue of skills not aligning with the demands of the job market and, as a result, improve the opportunities for social advancement after graduation.

#### c) *Social Media and Peer Influence, Comparison*

The popularity of social media has grown significantly over the years. According to a report by Kwong (2022), almost 90% of the youth in Hong Kong possess a social media account. The advent of social media platforms has brought about a significant shift in the manner in which individuals engage in comparison and how technology shapes motivation. Prior to the emergence of social media, individuals were primarily comparing themselves to their immediate peers, such as classmates, which occasionally led to increased motivation. Nevertheless, social media has expanded the pool of possible individuals who can serve as points of reference. The prevalence of extensive social connections on social media platforms can potentially result in diminished motivation among individuals in our present era (Leung & Lee, 2005; Vogel et al., 2014; Stefanone et al., 2011). When users upload attractive photographs on Instagram, positive status updates on Facebook, and uplifting posts on Twitter, it is common for individuals to perceive that everyone else is living a more fulfilling and pleasant existence (Gardiner-McGregor, 2019).

This occurrence is sufficiently widespread that it has been assigned a label, "Fear of Missing Out" (FOMO). FOMO, or the fear of missing out, is the strong desire to not miss out on an opportunity, trend, or event that is popular on social media, even if the individual doesn't have a specific interest in it (Alutaybi et al., 2020). Due to the presence of social media platforms, which facilitate the identification of appropriate subjects for comparison. According to the idea indicated above (Deci & Ryan, 1985), an individual's motivation is more likely to be negatively influenced and reduced due to the extensive scope and ease of comparison in the online realm. Furthermore, the impact of peer influence on social media might also contribute to decreased motivation within the specific demographic, Generation Z (Król et al., 2021). The majority of social media users consist of young individuals, who often show interest in following Key Opinion Leaders (KOLs) and popular trends shared by others. The motivation for following others may stem from the fact that the content being shared is either intriguing coming from Key Opinion Leaders (KOLs) or trendsetters (He and Pedraza

(2015)). Followers aim to demonstrate genuine interest in the issues that are popular among many people.

In summary, the proliferation of social media and its role in shaping comparisons online demands further study regarding its technology's impact on motivation levels, particularly for younger generations immersed in digital landscapes.

#### d) *Low upward Mobility Chances in Hong Kong*

There are various factors that restrict the chances of achieving higher social status in Hong Kong. The exorbitant surge in housing prices has rendered homeownership unattainable for a significant number of individuals, hence impeding the ability to transition from overcrowded public housing across generations (Sun, 2022). The scarcity of affordable private housing exacerbates socioeconomic disparities. Moreover, the absence of well-paying employment opportunities hinders upward social mobility (CUHK, 2023). The majority of newly generated employment opportunities are concentrated in the service sector, particularly in industries such as food and retail. However, these jobs typically offer little remuneration and minimal opportunities for professional advancement, as reported by McKinsey in 2022.

Merely having an education does not ensure upward social mobility, as the prevalence of degrees is increasing while the number of graduates who are underemployed is also on the rise (O'Sullivan and Tsang, 2015). The competition for high-quality public sector positions is extremely fierce. Collectively, these underlying causes contribute to a sense of pessimism among young people regarding their ability to achieve higher living standards in comparison to their parents (Li, 2022). In order to overcome the barriers that hinder equal access to social and economic possibilities in Hong Kong, it is necessary to implement affordable housing, living wage laws, and create more high-quality job prospects.

## VI. IMPLICATIONS AND RECOMMENDATIONS

### a) *Implications for Education and Parenting*

Future societal and economic success is greatly determined by the behaviors and work attitudes held by youths (Pool et al., 2016). Due to the perpetual decline in motivation for working seen in the Hong Kong youth, it appears that the current workforce is destined for failure (CUHK, 2023). Expected job characteristics change with generational values. Gen Y values extrinsic motivation, Gen X values both extrinsic and intrinsic motivation, while Gen Z values intrinsic motivation more (Luscombe et al., 2013). The change going from valuing extrinsic to intrinsic motivation is detrimental to the Hong Kong workforce since there is a lack of employees with the right motivation for today's workforce (Dennis et al., 2009).

Thus, it is important to realize what has caused this decline in motivation in order to rectify the situation and avoid future recurrence. Social media and easy social comparison has led to a higher level of "fear of missing out" and lower self-esteem in youths, reducing their intrinsic motivation (Kwong, 2023; Vogel et al., 2014; Leung & Lee, 2005). With this understanding, both educators and parents are in a better position to prepare their children for the future work challenges. Schools can incorporate career guidance to help youths discover their strengths and interests, while parents can avoid excessive social media use and promote a growth mindset (Dweck, 2006).

By identifying the factors which influence motivation for working in the youths of today, we can then elaborate and suggest ways in which a positive work motivation can be instilled. Educators should focus less on academic performance and more on developing intrinsic interests, self-efficacy and social-emotional skills. Parents can lead by example through pursuing meaningful work themselves. With concerted efforts, the next generation's workplace motivation can be strengthened.

#### b) *Strategies to Enhance Gen Z Motivation*

Enhancing the level of happiness and motivation among Gen Z workers can be achieved by implementing effective strategies, resulting in major benefits. This may be achieved via several methods, and one of the most direct ways to implement it in the workplace is by involving younger team members in the decision-making process. Research has shown that this approach enhances an individual's intrinsic motivation by fulfilling their basic psychological needs for autonomy, competence, and relatedness (Deci & Ryan, 1985).

Another direct method is to elucidate the goals. Locke and Latham (2006) suggest that enhancing self-efficacy and motivation can be achieved by establishing work goals that are clearly defined and realistically achievable. Regularly doing feedback sessions is an excellent approach for boosting motivation. Hattie and Timperley (2007) argue that feedback should be constructive in order to sustain motivation over a prolonged duration. Dries et al. (2008) suggest that an effective approach is to identify specific leadership and career paths. As stated by Krasman (2010), this generates a sense of purpose and growth, which are very influential factors in motivating individuals.

#### c) *Future Research Directions*

It is crucial to comprehend the influence of societal, familial, and peer expectations on volunteers engaged in community activities out of their own volition. It is essential to devise strategies to customize community programs to meet the diverse needs and desires of all individuals.

Subsequent investigations might also conduct empirical studies on tangible incentive systems to determine their efficacy and identify any shortcomings. It can examine whether providing monetary compensation for community work actually diminishes the benefits obtained from internal motivation. This can potentially offer valuable insights for government and non-profit organizations (NPOs) who are contemplating providing financial compensation to volunteers for their services. Additionally, it has the capability to compare diverse types of concrete incentives, such as monetary compensation, subsidized transportation, and food, with variable levels of frequency.

Considering the worldwide scope of the economic context, it would be beneficial to compare the data obtained from this study with data from other samples in diverse cultural or economic contexts. This research provides a solid foundation for comparison as it is among the initial studies to examine the factors influencing teenagers' engagement in community activity from an economic standpoint. Meaningful conclusions can be derived by comparing and contrasting cross-country or cross-cultural data, in order to determine the most effective methods of motivating diverse groups to contribute to their community.

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# Management Modelsvis-À-Vis the Challenge of a VUCA Environment and Wicked Problems

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**Abstract-** A reductionist approach assumes the existence of a stable, simple and clear environment, characterized by certainty. Under this approach, the forward-looking social and technological changes need to be planned as progressive and incremental, since they can then be anticipated sufficiently ahead in time to understand them and include them in the agenda, so as to prevent their impacts and correct any deviations. But the current environment where companies manage their businesses is quite far from this reality. Instead, the environment is volatile, uncertain, complex and ambiguous (the four words that characterize a VUCA environment), giving rise to wicked problems which are difficult to manage. This context will force companies to change their structures, practices and beliefs and, consequently, their management style. The purpose of this paper is to describe such changes and offer a proposal to better deal with the environment.

**Keywords:** *complexity, chaos, VUCA environments, wicked problems.*

**GJMBR-A Classification:** *JEL Code: L100, O310, O330*



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Alberto Néstor Terlato

**Abstract-** A reductionist approach assumes the existence of a stable, simple and clear environment, characterized by certainty. Under this approach, the forward-looking social and technological changes need to be planned as progressive and incremental, since they can then be anticipated sufficiently ahead in time to understand them and include them in the agenda, so as to prevent their impacts and correct any deviations. But the current environment where companies manage their businesses is quite far from this reality. Instead, the environment is volatile, uncertain, complex and ambiguous (the four words that characterize a VUCA environment), giving rise to wicked problems which are difficult to manage. This context will force companies to change their structures, practices and beliefs and, consequently, their management style. The purpose of this paper is to describe such changes and offer a proposal to better deal with the environment.

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## I. INTRODUCTION: ENVIRONMENTS AND THEIR DISTINCTIVE FEATURES

An environment includes a set of factors that impact companies, either directly or indirectly. This is the reason why the environment is relevant and needs to be considered, since it encompasses social changes, new technologies, resource availability, regulatory frameworks and dynamics.

## II. SIMPLE ENVIRONMENTS: EVIDENT, OBVIOUS, IMAGINABLE

In this type of environment, the causes behind effects are visible. They are evident and imaginable, and are easily discernible. They are just a few and well known, and emerge after a retrospective analysis based on academic knowledge or previous personal or professional experience. Organizations know what the cause is, what may happen, and what has already happened; they are also aware of its consequences and how to resolve such cause and prevent its recurrence. The cause-effect relationship in simple environments is evident, repeated and predictable (Snowden & Boone, 1999).

The potential measures to adopt respond to a context close to certainty or to measurable risk. Results

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will be as expected. This type of environment is defined by repetitive patterns. If there are changes, there will also be a way of identifying them quite ahead and take them into account to correct the action. The Strategy may be designed as a formal, mechanistic and deliberate act that will not take the company by surprise in terms of strategic control.

A simple environment (as a real or an assumed scenario) is based on the search for efficiency and incremental innovation, using technology, as well as existing products, services and business models. The purpose will be to introduce improvements to reduce failures and to make products and/or services cheaper, customized to the client's value requirement and more environmentally-friendly. If products and/or services experience a drop of demand or a declining lifecycle, the actions may consist in a revamping process.

Simple environments tend to narrow the cognitive frameworks shaped over time and in the recent or past history. Leaders usually screen their analyses based on these frameworks, and this may distort the decisions to be made in order to face a future that may eventually be different. A deep-rooted bias, a certain path-dependency, may lead to decisions that follow the players' line of thought rather than a useful answer to true requirements.

The perspective of a simple environment (self-built or assumed on many occasions) may curb the need of facing relevant changes that emerge from technological and/or social disruptions. Managers tend to follow the same path and repeat practices, processes, products, competitive advantages, business models, brands, targeting and marketing strategies and, sometimes, when there is an effective reaction, it may be too late. A VUCA environment requires a quicker reaction. The new disruptive entrants might settle in a market without being detected by the radar of established companies. Kodak could be a case in point because, despite being the company that discovered digital photography by the mid-70s, it could never become a digital photography enterprise. It lost its market share to new players and it filed for bankruptcy on January 20, 2012 (Scott, 2016).

## III. COMPLICATED ENVIRONMENTS: MORE DIFFICULTIES, NOT SO EVIDENT

According to Asthana (2018), in complicated environments, the cause-effect relationship is not so

evident. However, if the proper questions are made and there is sufficient experience and knowledge, the causes may come to the surface.

In complicated environments, as stated by Snowden & Boone (1999), the identification of causes tends to be relatively difficult and requires measurement, consultation to experts and action-taking, appealing to academic or corporate experience. The mechanisms of analysis and measurement will require useful tools and, sometimes, causes and their effects may be detached in terms of time and space, and a linkage between them may be needed for the analysis.

#### IV. COMPLEX ENVIRONMENTS: UNKNOWN CAUSE-EFFECT RELATIONSHIPS. COMPLEX SYSTEMS

In this type of environment, the cause-effect relationship may only be known in retrospect. The questions whose answers might help identify the linkage are unknown. There is basic knowledge but experimentation is required (Asthana, 2018).

As stated by Cocho Gil (2017), the analysis of complexity focuses on the study of systems made up by a broad range of interacting components that give rise to interdependent behaviors.

Living systems - including social systems - tend to operate in complex environments. This is why most of the problems faced by organizations and involving people (employees, shareholders, clients, suppliers and the society at large) are present in this type of context (Snowden & Boone, 1999).

In complex environments, the cause-effect relationship is not easy to determine, not only because the relationship is difficult to find but also because it is not always the same. Social agents learn, modify their behavior, and show a variety of possible behaviors; in addition, there may be situations unseen in the past.

Complex systems have the capacity to learn, to adjust. In complex environments, experience (either academic or professional) may be insufficient to assess and understand the future. This turns strategy into a highly difficult exercise. For example, a company cannot be sure that any new product will be demanded and valued by clients in the near future. And it will also be impossible to assure that prospective competitors will be the same as the present competitors and that their competitive position will be the same as the current position.

Snowden & Boone (1999) relate complicated systems with machines. They argue that, if there were appropriate experience, there would be no difficulties to operate them. Instead, they relate a complex system with a rainforest, a system in constant flux. And, in this case, complex systems can only be managed by resorting to some degrees of freedom that may lead to learning, self-management, self-control and self-

regulation. Some authors, such as Byrne & Callaghan (2013), argue that many social theories are being reinterpreted through the lens of complexity.

The rules of strategy conceived for simple and complicated environments leave little room for managing emergency as a quick reaction to changes in the environment. This reaction consists in collecting information, understanding it (from the client's paradigm) and turning it into actions. Montoya Restrepo & Montoya Restrepo (2015) define emergency as the appearance of new business attributes at the highest levels of the hierarchical structure that come from its lowest levels. For the authors, this approach is strongly related to the contributions made by biology and the systems theory. From this perspective, emergency and the ensuing complexity result from adaptations.

Another approach provided by these authors makes reference to Kauffman (2003, 1993, 1995), who suggests that the problem of emergency is related to a special quality of the organization, its system and components. From this standpoint, emergency comes from the interaction and connection of the components with reality.

#### V. CHAOTIC ENVIRONMENTS: SMALL CHANGES, BIG ALTERATIONS

Many ancient civilizations believed that life was a constant and unstable tension between chaos and order. For instance, in Chinese cosmology, there are two complementary principles: Yin is negative, dark and feminine, while Yang is positive, bright and masculine. Life was for them a constant search of equilibrium between Yin and Yang (Werner, 2017).

It is widely considered that the French mathematician Jules Henri Poincaré has laid the foundations of the modern Chaos Theory. He wrote a paper on celestial mechanics in 1890, where he states that a slight change in the initial conditions of a system may have a strong impact on a phenomenon. More recently, in the mid-20th century, the study of chaos may be found in places such as the Center for Nonlinear Studies, at Los Alamos National Laboratory.<sup>1</sup> Nevertheless, its formal approach started in 1961 with Edward Lorenz at the MIT in the field of mathematics and meteorology.<sup>2</sup> This scientist observed the phenomenon anticipated by Poincaré as part of a process that, from the sphere of meteorological sciences, is known as the butterfly effect (Gleick, 1987).

<sup>1</sup> The place in the United States where, in the 1940s, the first atomic bomb launched against Hiroshima and Nagasaki was developed and made.

<sup>2</sup> He discovered, almost by chance, that a small roundup difference in the third decimal place of the oceans temperature in the input of his model led to important changes in the outcome. Consequently, he started to study how science understood flows in all types of fluids.

The Chaos Theory has gone beyond the so-called hard sciences, like physics and mathematics, and is also found today in the so-called soft sciences, such as sociology, business, economics and management, among others. It seeks to understand the behavior of nonlinear dynamical systems, i.e. the systems where the internal parameters (the state variables) follow temporary rules that may change over time. They are the opposite of stable, linear and predictable systems. The Chaos Theory has replaced the reductionism and predictability of determinism which have characterized many business administration practices.<sup>3</sup>

Simple and complicated systems may be interpreted by means of linear equations, since they allow for analyzing and modeling systems where the consequences are proportional to the causes (proportionality), and when, there is more than one cause, the consequences are the result of their combinations (overlapping). The results can be seen in the initial conditions. Instead, chaotic and complex systems can only be analyzed or modeled on the basis of nonlinear systems. In this case, the results are not proportional to the causes; a slight change in the initial conditions results in a sizable modification in the output. In addition, the principle of overlapping does not apply either, and the combination of causes may trigger consequences not found in the sum of the initial conditions (Carrillo Trueba, 2012).

When environments are ruled by complexity and chaos, there may be unexpected structures and events, the attributes of which may be very different from the underlying attributes, resulting in abrupt changes, multiple states or an evolution towards unpredictable formats (Byrne & Callahan, 2013).

According to Asthana (2018), the cause-effect relationship of chaotic environments not only is unknown but also changes all the time. In turn, Gleick (1987) states that, in a chaotic behavior, the performance of the system is irregular, unstable and unpredictable, and it is usually associated with randomness (against the regular, stable and predictable performance that characterizes simple and complicated systems). The author admits that there are orderly systems that may tend to chaos, as there are also chaotic systems that may tend to order as from the so-called "triggering effects". In chaotic environments, managers cannot focus on the control of results (as is the case in simple and complicated systems) but only prevent any negative impacts or mitigate the consequences.

In unpredictable and a periodic situations of chaos, it is hard to find patterns to follow since, on many occasions, experiences emerge for the first time and

known actions do not work. Actions should be focused on establishing some kind of order that may lead from a chaotic system to a complex system where it may be reasonably possible to control diversity and emergency. Chaotic contexts make it possible to develop a higher degree of innovation, driven at the beginning by the crisis itself and by the omission of some rules that would be undoubtedly respected in a simple or complicated context. One part of management should act to stop or mitigate the consequences while another part, less stressed by the context, should create an innovative situation (Snowden & Boone, 1999).

In chaotic environments (and also in complex contexts, a subclass of the former), reductionist, mechanistic and deterministic reactions are not efficient. Knowing the initial conditions does not allow to calculate an approximate behavior. The system lacks order and its internal parameters (state variables) follow temporary rules that change over time. Social agents learn and modify their behavior. There must be an organic nonlinear response. Strategy, as a formal and deliberate act, exhibits limitations. Testing in the market, collecting information and then reacting would seem to be an essential part of the process (Gleick, 1987).

## VI. VUCA ENVIRONMENTS: A NEW PARADIGM FOR STRATEGY

The acronym VUCA (which stands for Volatile, Uncertain, Complex and Ambiguous) has become a metaphor of modern times.

Its origins date back to 1986 at the Army War College of the United States. Nevertheless, the public use of the acronym started with Herbert Barber, in 1991, who, while working for such institution and building on the work of Warren Bennis and Burton Naus, was seeking to develop leaders that may be able to operate in a different global context.<sup>4</sup> Barber presented his ideas in a conference held in February 1991, where professionals and scholars were convened to discuss about leadership in complex environments. By then, the participants of the event had already identified important turbulences and uncertainties derived from politics as well as social and technological changes (Baran, 2017). However, other sources attribute the origin of the acronym to General Maxwell R. Thurman, Vice Chief of Staff of the US Army and former Commander of the United States Army Training and Doctrine Command. Since then, many publications of the U.S. Army Heritage & Education Center at Carlisle Barracks have adopted the concept.<sup>5</sup>

Referring to this concept, authors such as Bennett & Lemoine (2014), argue that, in VUCA

<sup>3</sup> According to the dictionary of philosophy, determinism is the theory that serves to assess the necessary connection of all events and phenomena and their causal conditioning. <http://www.filosofia.org/enc/ros/det.htm>

<sup>4</sup> Bennis, W. & Naus, B. (1985). *Leaders: The Strategies for Taking Charge*. New York: Harpers & Row.

<sup>5</sup> In <http://usawc.libanswers.com/faq/84869>



environments, management is a difficult task since it is hard to understand the future. However, they recognize that volatility, uncertainty, complexity and ambiguity are features found in various environments with different degrees of intensity.

In turn, Berinato (2014) considers that, even in this type of environment, management requires a systemic assessment of the environment's features in order to make efficient decisions.

On the other hand, George (2017) states that traditional management methods are no longer sufficient to address the current volume of change. Business is no longer as usual. Leaders must deal with a different context where the classic techniques of management systems for decision-making and control (based on prospective criteria) are not enabling companies to handle the huge information flow created by the environment.

Johansen (2017) underlines that volatility makes vision statements ineffective; uncertainty blurs understanding; complexity prevents a sharp eyesight and ambiguity is an obstacle for agility. He promotes the VUCA concept as a framework for decision-making, and suggests enlarging corporate vision to prevent the consequences of volatility, i.e. to be clear about where to go and have enough skills to scan the future, broaden the understanding of the context so as not to fall into uncertainty, improve insightfulness to combat complexity by avoiding unnecessary and confusing information, and develop agile reactions in the face of changing circumstances.

Other authors like Nandram & Blindish (2017) consider that VUCA environments are challenging and this may help companies find new opportunities. They underline the need to attain a distributed leadership and instill a collective (and collaborative) awareness in managers. Likewise, the authors state that it is necessary to incorporate a systemic perspective in order to capture the opportunities emerging from this type of environment.

In turn, Taleb (2013) argues that some situations benefit from crises and even thrive when exposed to volatility, randomness and disorder. They seem to be comfortable when facing risks or uncertainty. According to Taleb, this is not resilience since, if it were, the system would return to the initial condition after the impact. In this case, there is an evolution, an improvement against the original status.

On the other hand, Chawla & Lenka (2018) consider that being prepared to face these environments is the role of leaders. They believe that this is not an easy task since it requires a management style defined as "resonant" by Goleman, Boyatzis & McKee (2015), to which they attribute some features such as self-knowledge and self-confidence, as well as genuineness, empathy and relationship management.

There are also authors such as Magellan Horth (2018) who propose to replace VUCA with the acronym RUPT (which stands for Rapid, Unpredictable, Paradoxical, and Tangled). Rapid because changes overlap and occur at an extremely accelerated pace. Unpredictable because strategies can only be analyzed and designed by introducing assumptions about the future, even though there may be unexpected events that force organizations to reframe thinking. Paradoxical because, sometimes, the emerging proposals may seem contradictory. And Tangled because of the multiple internal and external connections of the phenomena being tackled and analyzed.<sup>6</sup>

Cascio (2020), from the Institute For The Future (IFTF), Palo Alto (California), proposes a framework to analyze the environment under a context that he has defined using the acronym TUNA (Turbulent-Uncertain-Novel-Ambiguous).

In addition, research by Horst Rittel & Melvin Webber (1973), among others, quoted in Moore (2012), introduced the concept of wicked problems to refer to situations where intelligence is insufficient to quickly find a solution due to the fact that information is incomplete, contradictory and changing.

According to Wahl (2006), wicked problems are unique and their morphology is characterized by an unclear definition of boundaries and perimeters. They are multi-causal, multi-scalar and interdependent and respond to multiple stakeholders with conflicting agendas among them; and the options to approach them are blurred and ramified. The solution to this type of problem may demand a long time. Even worse, sometimes they are never completely solved or are solved in the realm of the best possible solution rather than the correct one.

A volatile environment is unstable, i.e. it can change suddenly and turn into a different environment at people, social, political and technological levels. When there is volatility, changes are violent, significant and sudden and it is impossible to determine when they may jump into a new condition (Barber, 1992).

Baran (2017) states that the speed of change is impacted by disruptive technologies and by globalization. In his opinion, volatility is a sudden and violent change of condition. As a result, companies need to adapt in order to respond to such volatility.

Wright and Snell (1998), as quoted in García-Tenorio Ronda, Sánchez Quirós & Pérez Rodríguez (2014), consider that, in a stable and predictable environment, the company's adjustment to the environment (either real or assumed) can be solved easily by using human resources with a limited range of skills and behaviors. Instead, in a dynamic and

<sup>6</sup> This research paper has not delved into the RUPT metaphor because it has been considered that its description is covered by the description of the acronym VUCA.

unpredictable environment, flexibility becomes more relevant and people with a wider and more varied range of skills and behaviors will be required.

When there is volatility, change is likely to occur but its magnitude and time of occurrence are unknown (Lemoine & Bennett, 2014).

George (2017) argues that, in volatile environments, companies need in-depth understanding of their capabilities and strategies to take advantage of rapidly changing circumstances in an extremely changing environment by playing to their strengths while minimizing their weaknesses. According to George, flexible tactics will be required for rapid adaptation to changing external circumstances without altering the strategic course.

In turn, Lemoine & Bennett (2014) consider that, in volatile environments, the information is available and the situation may be understandable and, certainly expected, but given their unpredictable nature, companies need to develop an agile reaction and count on flexible resources.

For authors such as Ferrari, Sparrer & von Kibed (2018), a company cannot reduce the environment's 'degree' of VUCA but it can increase its capabilities to deal with it. In this regard, Thomas & Ambrosini (2015) state that, in volatile contexts, strategies must include formal aspects, which are typical of management control, but also embrace a comprehensive and thorough vision that may contribute to capture the emergency.

In quantum mechanics, the uncertainty or indeterminacy principle was formulated by Werner K. Heisenberg and is related to the incapacity to simultaneously measure the position and linear movement of a subatomic particle. In social sciences, the uncertainty is determined by the conviction that "reality is not predictable" and that (...) "consequently (...) there will only be assumptions" and approximations (López Meléndez, 2013).

When there is uncertainty, boundaries are blurry and behaviors are unknown or unpredictable. There is neither certainty nor likelihood. There is no probability distribution on which companies can work. Christensen (2015) states that disruptive products and services are not those that emerge as continuity or evolution of an already existing product or service offered by the market but rather something new, inexistent or focused on a new and underserved segment of consumers. Amid uncertainty, it is difficult to create new- and particularly, disruptive- businesses and services since, at the time of assessing them, it is not possible to determine the value requirement of the demand (clients ignore the potential use of the new product or service), as well as the price and the amount (there is no market to be explored).

Liduená (2015) argues that, in an uncertain environment, some things are known- for example, that automobiles will be self-sufficient in terms of energy- but

others are unknown- such as how this innovation will add value to consumers. The articulation between car manufacturers and Information and Communications Technology (ICT) companies to respond to this innovation is also unknown. For the author, borders among markets will be blurred and the barriers to entry will disappear over time. It is important to take into account that communication companies are already moving into the automobile market.

Lemoine & Bennett (2014) suggest that information is critical to reducing uncertainty, and firms will need to consider information from new perspectives. It has already been seen that social systems occur within complex environments, covering most of the issues being faced by organizations and their various stakeholders- employees, shareholders, clients, vendors and society at large.

In complex environments, the cause-effect relationship is difficult to predetermine. Social agents exhibit a broad range of possible behaviors and, additionally, they can learn because they have the capacity to adapt to new situations. Lemoine & Bennett (2014) argue that, in complex environments, there are many interconnected parts forming an elaborate network of information and procedures. Consequently, the analysis must be systemic rather than linear.

In terms of the complexity of the environment, George (2017) states that today's business leaders need the ability to see through chaos in order to have a clear and open-minded perspective of their companies. The proposals based on order and control and emerging from the theories and practices of Business Administration- designed for the mechanistic systems conceived after the Industrial Revolution- are not efficient enough to address the complexity of the environment and solve wicked problems. A useful approach requires organic responses and an in-depth understanding of the operation of sociotechnical systems.

Ambiguous environments create confusion and may involve different interpretations, which can all, some or none be correct. Kail (2011) emphasizes two emerging factors in ambiguous environments: firstly, the inability to accurately conceptualize threats and opportunities ahead and, secondly, the feeling of frustration. Kail proposes to develop a capacity to listen attentively and to be determined to act on the basis of incremental results so as to move forward and find the way.

Lemoine & Bennett (2014) state that, in ambiguous environments, the basic rules of the game are unknown; the cause and effect relationship is not understood and there is no precedent for making predictions as to what to expect. Rules have changed; they are no longer the same.

Ambiguity has led to an increasing use of innovation methods based on prototyping such as



design thinking, Ux Ui Design, or agile methodologies like scrum. The lack of information and/or the failure to understand it -typical of ambiguous environments- may lead to symptoms of management paralysis, i.e. not knowing how to deal with decisions or trying to avoid or delay decision-making (Moses & Lyness, 1990).

Dima (2015) proposes some practices to work in ambiguous environments: (1) Accept fewer amount of data to prevent paralysis or avoidance, since it is not possible to work in ambiguous contexts as if they were environments of certainty; (2) Understand the objective before making a decision since elections must be clearer in ambiguous environments; (3) Avoid making questions whose answers do not contribute to the decision because data in excess increases ambiguity rather than reducing it.

## VII. SPECIFIC CHARACTERISTICS OF ORGANIZATIONS

Hierarchical (also known as vertical) organizations are built on the principle that power may and should be divided unequally among their members. Power asymmetry is a special feature of these organizations. Power is delegated by the administrators to the governance bodies (owners, management boards, boards of directors) and, in turn, they vest this power in their subordinates. In general, power is scarcely delegated to workers (Terlato, 2022).

When Burn & Stalker (1950)- quoted in Solórzano García & Navío Marco (2016)- were developing some studies about companies, they observed that organizations needed various types of structures in line with the environments where they operated. Within the paradigm of the so-called Contingency Theory, they found two types of organizations: mechanistic and organic. Companies with a mechanistic structure tend to operate adequately in simple and moderately stable environments, while those with an organic structure fit well with unstable and changing environments, characterized by some degree of uncertainty. The higher the mechanistic structure, the more predetermined and focused the answer on the application of practices, with a limited degree of freedom and endeavor.

In hierarchical, mechanistic, procedure-dependent and bureaucratic organizations, reaction tends to be slow, so slow in fact that companies cannot react in the face of social and technological changes. On the other hand, these companies operate on the basis of the information available to make plans and models and, eventually, take on risk positions. These firms do not feel at ease with incomplete and ambiguous information and are not prepared to deal with wicked problems. They hardly use collective intelligence and do not develop multidisciplinary high-performing work teams (Terlato, 2020).

Collective intelligence is not a new concept since it was defined by Wechsler a long time ago. While studying adults, he stated that it was “the global ability of an individual to act purposeful, to think reasonably and to effectively deal with its environment” (Wechsler, 1964). In turn, Szoniecky & Bouhaï (2017) consider that it is a process that leverages the capacities of a group aligned behind a shared reflection principle to adopt a course of action that cannot be resolved by only one person. According to the authors, this process requires to relinquish selfish interests in search of the common good. On the other hand, Malone & Bernstein (2015) compare collective intelligence with market mechanisms that may help make decisions in times of crisis, while Engelbart (2004) considers that a community’s collective intelligence represents its capability for dealing with complex and urgent problems.

On the other hand, universities and business schools have been largely engaged in training managers on the basis of previous and known situations and, on these premises, then imagine the future ahead. But this may lead to difficulties whenever action is needed in a constantly changing context (Luksha et al, 2017).

The change and innovation mechanics created by VUCA environments forces organizations to ensure and accelerate the collection of bottom-up vertical information. For this purpose, frontline employees should be willing to identify new value requirements and be interested in proposing changes to their superiors. This will not be possible, of course, in highly vertical hierarchical companies with many lines of authority and in disempowering management systems (Terlato, 2020).

## VIII. CONCLUSIONS

In a context of simplicity (either real or self-built), mechanistic companies- subject to stringent rules and regulations- tend to work in excess on the pillar of efficiency and incremental innovation. They commonly use technology as well as existing products, services and business models; their purpose is to introduce improvements to reduce failures and to make products and/or services cheaper, customized to the client’s value requirement and more environmentally-friendly. Social and technological changes may be anticipated (or companies will believe that they have anticipated them). Consequently, there is time to understand them, take them into account, make corrections and prevent deviations. Strategy may be designed as a formal, mechanistic and deliberate act that will neither take the company by surprise in the strategic control nor entail implementation difficulties.

In the current context, mechanistic companies organized under the paradigm of simplicity may lose flexibility and capability for innovation. Simple environments tend to narrow the cognitive frameworks.

Managers may feel tempted to continue following the same path and repeat practices, processes, products, competitive advantages, business models, targeting and marketing strategies, and their reaction may be delayed or nonexistent. The new disruptive entrants might settle in a market without being detected by the radar of established companies and lead enterprises and businesses to their demise.

But, as mentioned above, the characteristics of the environment where business is developed at present are far away from a simple environment. Consequently, some competitive models are becoming obsolete, and new tools, concepts and reference frameworks are now required.

Organic companies seem to adjust better to a VUCA environment. Their structures are mainly based on shared interests. They develop a higher sense of belongingness, and have fewer regulations and flatter hierarchical structures. For this reason, they are quicker to react and collect more bottom-up vertical information. Complex systems and sociotechnical structures need to be managed with a higher degree of freedom to enable learning, self-management, self-control and self-regulation. They will require empowered people with a wider range of skills and behaviors.

In a volatile environment, the magnitude of change and the time when it will occur are unknown. Companies need to develop in-depth understanding of their capabilities (by playing on their strengths while minimizing their weaknesses) and comprehend their strategies in order to benefit from the conditions provided by this environment. Firms will also need to develop flexible tactics for a rapid adaptation to new circumstances, without altering the strategic course. The degree of volatility is impossible to change but the company may improve its skills to handle it.

Companies will need to understand that uncertainty means that reality is nearly unpredictable and, therefore, only assumptions and approximations can be offered. Boundaries are blurry and behaviors are unknown. Information is critical to reducing uncertainty, and firms will need to consider it from new perspectives, even though sometimes it may be more efficient to go to market, measure, improve insightfulness and make adjustments as the company moves forward.

When there is ambiguity, the rules of the game are unknown. Therefore, it is impossible to adequately conceptualize the threats and opportunities ahead. For some authors, facing ambiguity requires to develop a capacity to listen attentively and to be determined to act on the basis of incremental results so as to move forward and find the way. They suggest reducing the amount of data, so as not to fall into paralysis or avoidance, and also to have a clear strategic course. When there is ambiguity, elections must be clearer and making questions whose answers do not contribute to

the decision should be avoided. Data in excess increases ambiguity rather than reducing it.

Leadership will be critical to face this type of environment and will require self-knowledge and self-confidence, genuineness, empathy in relationship management as well as the capacity to instill a collective (and collaborative) awareness.

High-performing multidisciplinary teams whose members engage in collective intelligence and are reciprocally empathetic will have reached the condition of evolutionary learning communities and will be better prepared to face wicked problems, since they can contribute an increasingly systemic perspective.

Companies and universities alike will need to work to develop prospective capabilities since looking back is hardly useful in a VUCA environment.

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# Challenges for the Implementation of the Integrated Management System Under the Quality Principles and the ISO 9001:2015, ISO 14001:2015 and ISO 45001:2018 Standards<sup>1</sup>

By Cielo Collazos-Garzón & Martha Isabel García

*National Open and Distance University UNAD*

**Abstract-** Quality is a fundamental criterion for business competitiveness that, currently, is not limited to verifying the lack or minimal occurrence of error in the products offered, since its spectrum has expanded towards more transcendental perspectives that contemplate sustainable development., as well as the health and safety of workers. For this reason, this research is formulated in two phases, namely: preparation of a participatory diagnosis based on the analysis of the requirements of the ISO 9001: 2015, ISO 14001 of 2015, and ISO 45001: 2018 standards and their degree of implementation. in a company in the mining sector in the Southwestern region of Colombia, whose result showed a low level in the adoption of standards in organizational processes.

Based on the findings, the second phase is developed, consisting of the definition of the axes that should guide the implementation plan based on transversal axes based on quality standards and quality principles, with a view to increasing quality and improvement. keep going.

**Keywords:** *quality, innovation, productivity, integrated management system.*

**GJMBR-A Classification:** *LCC Code: HD62.15*



CHALLENGES FOR THE IMPLEMENTATION OF THE INTEGRATED MANAGEMENT SYSTEM UNDER THE QUALITY PRINCIPLES AND THE ISO 9001:2015, ISO 14001:2015 AND ISO 45001:2018 STANDARDS 1

*Strictly as per the compliance and regulations of:*



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Cielo Collazos-Garzón<sup>α</sup> & Martha Isabel García<sup>ο</sup>

**Abstract-** Quality is a fundamental criterion for business competitiveness that, currently, is not limited to verifying the lack or minimal occurrence of error in the products offered, since its spectrum has expanded towards more transcendental perspectives that contemplate sustainable development, as well as the health and safety of workers. For this reason, this research is formulated in two phases, namely: preparation of a participatory diagnosis based on the analysis of the requirements of the ISO 9001: 2015, ISO 14001 of 2015, and ISO 45001: 2018 standards and their degree of implementation. in a company in the mining sector in the Southwestern region of Colombia, whose result showed a low level in the adoption of standards in organizational processes.

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## I. INTRODUCTION

Globalization has led to, beyond being economic entities, organizations also being responsible and sensitive to the circumstances of consumers, based on competitiveness, environmental impact and comprehensive care of collaborators.

To this extent, the Mining and Construction company seeks to implement a model based on the international standards defined by the International Organization for Standardization (ISO), in particular ISO 9001:2015, of quality management systems; ISO 14001:2015, environmental management system; ISO 45001:2018, occupational health and safety system (OSH) (International Organization for Standardization [ISO], 2015a; 2015b; 2018). This in order to strengthen business management, that is, the development and positioning of the company from respect for the client, environmental preservation and the well-being of both

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<sup>1</sup> This article is a product of the project, started in 2020 and completed in 2022.

the community and its collaborators. In this sense, the diagnosis of the company and the definition of the axes of the implementation plan aligned with the quality principles and standards of the integrated management system mentioned above are proposed as research results.

### a) Description of Mining and construction

The Mining and Construction company is part of the stone material extraction sector, whose economic growth has been significant due to the development of various construction and road infrastructure projects in the southwestern region of Colombia. However, after analyzing its competitive environment, it was found that there are companies dedicated to similar activities, which is why it is necessary to implement improvements that meet the needs of both internal and external clients, with a view to creating lasting competitive advantages.

Therefore, it is considered essential to standardize your processes with a focus on planning, implementation, verification and decision-making, with the guidance of the aforementioned standards. Sustainable development, the health and safety of employees, as well as the optimal quality of its products, are primary criteria, since the company's primary activity affects the environment, the surrounding communities and the workers. Thus, the high occupational risk that this implies requires strengthening prevention, comprehensive safety and quality programs.

## II. THEORETICAL FOUNDATION

The National Competitiveness Report 2018-2019 (Private Competitiveness Council, 2018) highlights the need to strengthen the development of science, innovation and technology to increase productivity, an effort that must come from private and public companies. To achieve this, strategic plans based on integrated quality management systems are required, in particular, the ISO 9001:2015, ISO 14001:2015 and ISO 45001:2015 standards already mentioned.

### a) Brief history of ISO standards

The International Organization for Standardization (ISO) is the product of the alliance of two associations dedicated to developing standards: the International Federation of National Standards Associations (ISA) and the newly created United Nations Standards Coordinating Committee. The first had been



closed in 1939, due to the Second World War, as international communication was interrupted. Although the ISO was created in 1946, with delegates from twenty-five countries, the official date for the start of its activities is February 27 of the following year. Currently, the ISO is made up of 167 countries.

b) *Principles for using ISO standards*

The principles described in the ISO 9000 and ISO 9001 standards present a framework of reference that guides companies to improve their performance; These in turn will be taken into account for the design of actions in the business implementation plan.

1. *Customer focus:* Companies depend directly on customers, so they must meet their needs and requirements, as well as exceed their expectations, thus achieving their loyalty and loyalty.
2. *Leadership:* Which requires senior management to encourage the participation of everyone and the alignment of efforts with a view to achieving institutional goals in addition to recognizing performance at the individual and team level.
3. *Commitment of people:* This aspect aims to facilitate the participation of all members of the work teams, promoting motivation and commitment; Therefore, employees use their skills to achieve the organization's objectives, in this way, resources, staff performance and time will be optimized.
4. *Process-based approach:* It involves relating the different processes, in order to achieve efficiency, effectiveness and, consequently, greater productivity under standardized procedures that are continually subject to monitoring and evaluation.
5. *Improvement:* This principle promotes organizational learning with a view to business sustainability and satisfaction of the needs and expectations of interested parties, preparing to face changes, quickly and flexibly.
6. *Decision-making based on evidence:* Refers to the need to capture and process the necessary information to carry out an objective analysis of it and proceed to execute actions based on the results obtained in order to comply with the strategic direction.
7. *Relationship Management:* Stakeholders and companies are interdependent; Therefore, a link that benefits both adds value and can even contribute to optimizing resources and costs.

c) *Key concepts*

*System:* It is a set of elements that fulfills a specific mission or purpose and that functions as a whole, thanks to the interaction of its components.

*Integrated Management System:* A system that contains quality, environmental, and occupational health and

safety management whose elements are interrelated to meet customer requirements, with minimal environmental impact and the lowest risk for workers. It brings together compliance with ISO 9001, 14001 and 45001 standards in a single model, and replaces any other quality, environmental and SST system (ESG Innova Group, 2017).

*ISO 9001:2015 Standard:* Is an international standard that aims to ensure that a company improves its performance, based on the "plan-do-control-act" principle and continuous improvement (Betlloch-Mas et al., 2019).

*ISO 14001:2015 Standard:* Establishes the requirements for the adequate implementation of an environmental management system to improve the performance of a company in that area (European School of Excellence, 2015).

*ISO 45001:2018 Standard:* Defines the OSH management system as one that is used to comply with OSH policies aimed both at preventing injuries and deterioration in the health of workers, and at providing safe and healthy work environments (European School of Excellence, 2018).

d) *Quality management: periods of evolution*

1. *Industrialization:* Corresponds to the 19th century, particularly the Industrial Revolution. Then, manual labor was gradually replaced by mechanical work. Already in the First World War, because the complexity of the production chain increased, the role of the inspector became necessary to supervise the effectiveness of the operator's performance (ESG Innova Group, 2016).
2. *Statistical quality control (1930-1949):* This period, in which the Second World War permeated all spheres of social relations, focused on proving that statistics could control production scenarios, with a view to raising the productivity and reduce errors (Shewhart, 1997). Furthermore, Shewhart, one of the most important theorists of the time in that field, designed the PHVA cycle: plan, do, check, act, which is the basis of current quality management systems.
3. *Quality assurance (1950-1979). First systems:* Characterized by the requirement to identify needs and expectations, in order to produce quality goods and services. Programs and systems for the quality areas of companies emerged from Shewhart's proposals and, in addition to measurement, quality planning was incorporated, from the postulate: "Quality is built from within" (Cubillos Rodríguez and Roza Rodríguez, 2009, p. Here it is no longer enough to carry out statistical control, since the processes must be carried out in stages, susceptible to correction in case of failure (ESG Innova Group, 2016).



4. *Strategy*: From the early 1980s to the mid-1990s, quality was seen as a strategic process, that is, subject to continuous improvement that can represent a competitive advantage. Now, the focus is on the client's needs, management systems are consolidated and staff are involved with greater intensity (ESG Innova Group, 2016).
5. *Total quality*: It began in the mid-1990s and is still in force. There is no longer a distinction between service and product, nor between the article and its manufacturing stages, since the process as a whole is now taken into account. Quality control even extends to after-sales (ESG Innova Group, 2016).

Competition is strengthened, markets are globalized and the hegemony of Western industry is broken. Cost reduction is a constant purpose; Likewise, companies recognize the relevance of producing their own knowledge, systematically (Cubillos Rodríguez and Roza Rodríguez, 2009).

Thus, quality went from identifying defective products to being the common thread of organizations that, within the framework of the GIS led by senior management, institute tools aimed at general improvement.

### III. METHOD

#### a) Design

The type of study was descriptive since the information was collected without altering the

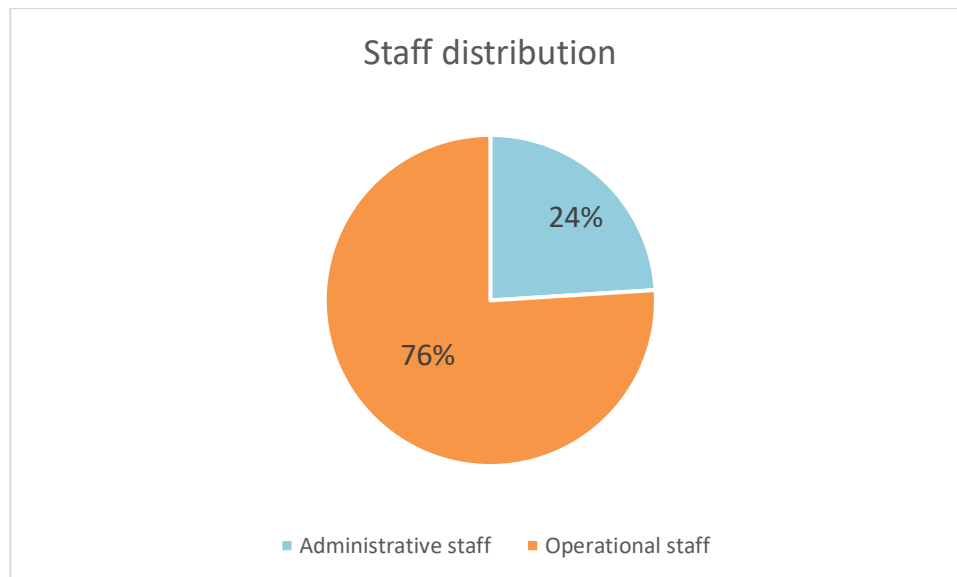
environment, in order to find the correlation between the situations and their context. To that extent, data were collected through observation, interview, and record review.

Furthermore, this research applied a quantitative approach that allowed, after applying an instrument called a checklist, to capture, process the information and obtain a diagnosis of the degree of implementation of the three standards mentioned above.

The documentary review was also carried out, because the purpose of the research is to propose the axes of the implementation plan under the quality principles and the ISO 9001:2015, ISO 14001:2015 and ISO 45001 of 2018 standards.

#### b) Participants

Of the company's 42 employees, 24% (10 employees) correspond to administrative personnel and 76% (32 employees) to operational positions that perform tasks in the quarry and crushing plant.



Source: own elaboration (2023)

Figure 1: Staff distribution

Taking into account the objective of the investigation and the knowledge of the operation of the organizational processes, it was defined that the personnel to be interviewed during the first phase of the investigation should be focused on eight (8) leaders of administrative and missional processes.

#### c) Instruments

The research techniques applied to collect information included a face-to-face interview, which was carried out with the defined leaders, in which the strategic planning in the short and medium term was investigated, as well as the strengths and opportunities for improvement of the company.

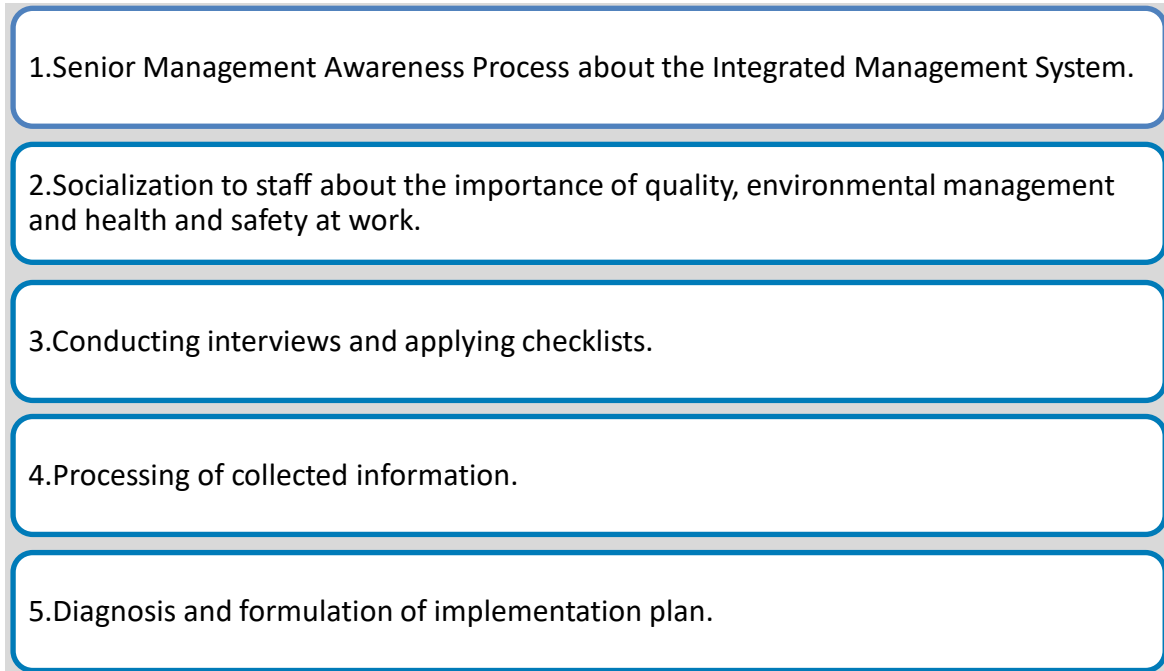
Likewise, taking into account the need to verify the degree of implementation of the requirements of the three standards mentioned above, the checklist was prepared which contains fifty (50) items, based on the standards.

This instrument made it possible to collect quantitative and qualitative information provided by the process leaders, as well as the review of existing documentation and field visits to the company's operating facilities where the extraction and

transformation of the stone material is carried out, facilitating this process. verification and provide the tools to obtain a diagnosis adjusted to business reality.

d) *Procedures*

The activities aimed at determining the current status of the company in relation to the Integrated Management System require the execution of activities in group and individual sessions described below:



Source: own elaboration (2023)

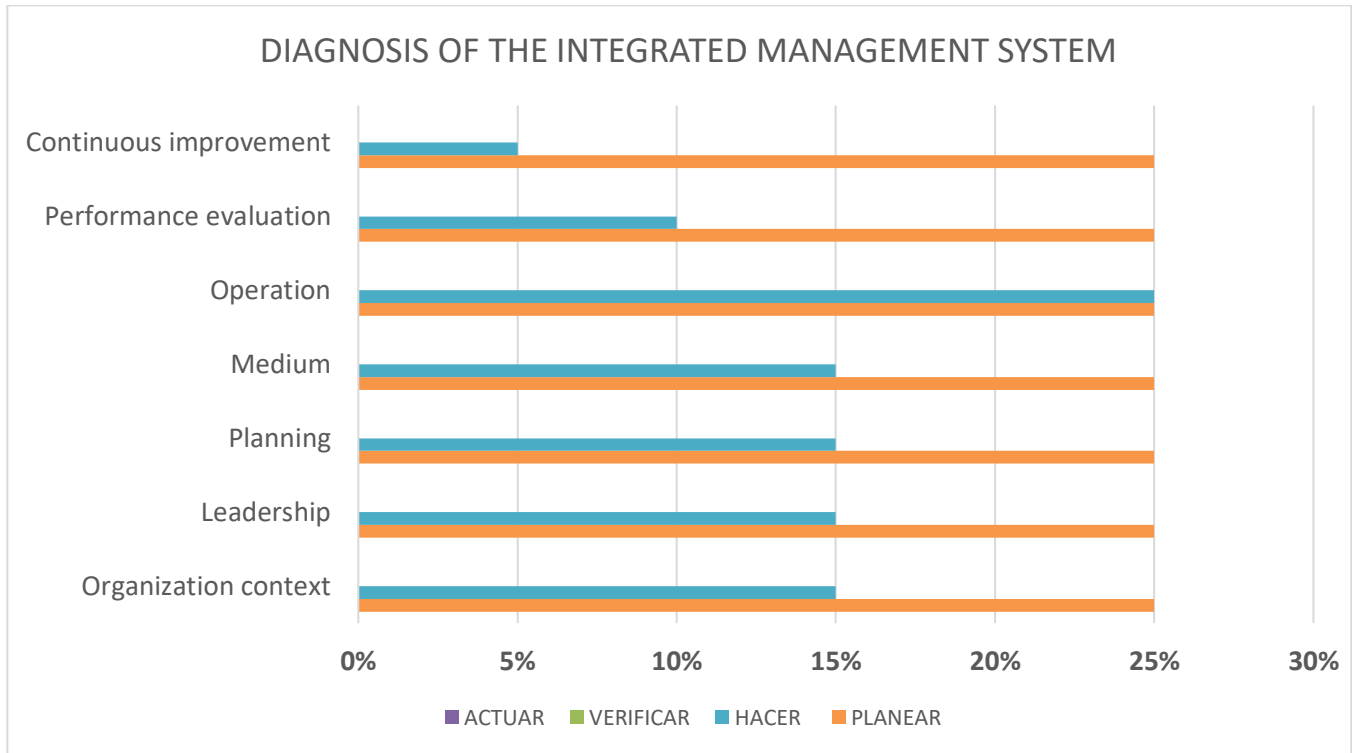
Figure 2: Summary of research stages

#### IV. RESULTS

After reviewing the standards that were taken as the axis for this investigative process and considering the nature of the company, the instruments were applied to the staff and during field visits based on the requirements of the standards and under the concept of improvement cycle Plan – Do – Check – Act (PHVA).



The obtained results are showed next:



Source: own elaboration (2023)

Figure 3: Integrated Management System Diagnosis

Carrying out the analysis, it is observed that although procedures and formats have been established that respond to the ISO 9001:2015, ISO 14001:2015 and ISO 45001:2018 standards, the application of these is not frequent in the different institutional processes, therefore The improvement cycle and decision making based on real information are interrupted, this explains why a high degree of compliance is observed in the planning phase, a percentage that is significantly affected when the implementation, verification and taking of actions are investigated. against the detected deviations.

a) *Company context*

Mining and Construction does not have a standardized process to identify the needs and expectations of all interested parties in a systematic manner, however, during customer service and to generate the necessary input for production processes, the needs are recorded and consolidated in a contract which is monitored by some leaders.

Also due to the nature of the company, it must abide and comply with regulations applicable to the mining sector, this also includes carrying out responsibility actions in which actions to benefit the community are carried out according to the needs raised in the meetings held in set, but in addition to the mechanisms for detecting the parties' requirements, the monitoring method to evaluate the satisfaction of all interested parties must necessarily be established.

b) *Leadership*

The project was presented and endorsed by Senior Management due to the relevance of adopting integrated quality management systems, however, the limited availability of resources necessary for the implementation of the three standards is a prevailing factor in the implementation. of the proposed plan.

In addition to the aforementioned, the lack of knowledge of the members of the Board about the challenges of this type of companies in this regional context and the importance of standardizing processes to promote continuous improvement within the framework of an integrated management system is an aspect which must be addressed through a process of continuous training and active participation.

c) *Management of planning, support and operation processes*

Evaluated this aspect, although it is true that the implementation shows a high percentage in relation to the operation of the processes, it is a priority to ensure that the company institutes an organizational dynamic based on well-structured processes that meet the needs of its clients and other parties. interested.

These also require improving the resource planning process in the financial, technological and human talent fields with a view to increasing business productivity and competitiveness.

The aforementioned requires executing measurable daily activities, as well as setting objectives



for each process that allow it to achieve its strategic goals.

The nonexistence of these processes and objectives prevents traceability, statistical control and the detection of deficient services and products, which is why it is necessary to standardize effective communication models and documentation of procedures.

d) *Performance evaluation and improvement*

Regarding performance evaluation, audits and accountability, only those carried out by Occupational Health and Safety and those attended to at the request of external actors (National Mining Agency, Autonomous Corporation and ARL Occupational Risk Administrator) are recorded.

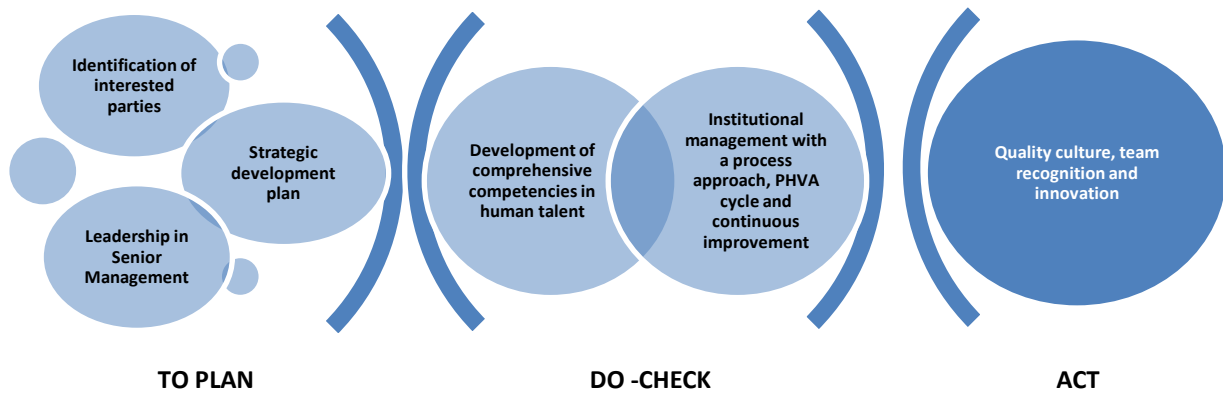
These activities focused on a few processes, but did not take into account the strengths and opportunities for improvement around customer satisfaction and compliance of all processes.

The improvement component is touched upon only tangentially when answering for the results of the audits.

All of the above demonstrates the imperative need for Senior Management to become aware of the relevance of instituting a strategic plan—short, medium and long term—based on the integrated policy of the quality management system aimed at guaranteeing organizational sustainability.

*Challenges in the implementation of the integrated management system based on ISO 9001:2015, ISO 14001:2015 and ISO 45001:2018 standards and quality principles*

The adoption of the integrated management system in companies independent of the sector requires that the principles of quality be the foundation of this and therefore must be the basis for developing the tracing themes of the implementation plan, which are set out below:



Source: own elaboration 2023

Figure 3: Axes of the implementation plan

The figure shows the axes on which the implementation of the standards in the company under study must be based, whose implementation becomes an institutional retrofit since extremely important actions that are described below must be executed:

e) *Commitment and leadership of Senior Management*

Being clear that productivity, competitiveness and sustainability are necessary in companies independent of the sector, it is mandatory that those who manage be continuously trained in this case in integrated quality management systems, disruptive thinking and coaching since they are responsible for convening and combining everyone's efforts to build the strategic platform.

They must lead by example to motivate everyone to fulfill the promise of value established within the framework of the principles and values that underpin the organization and constitute the business DNA, in this way the principle of leadership becomes palpable in the process of implementation.

f) *Identification and systematic management of the needs and expectations of interested parties*

In companies, it is essential to adequately identify interested parties which can positively or negatively affect their operations; this justifies the inclusion of "Relationship Management" as a principle of the integrated quality system.

Therefore, it is necessary to establish a systematic methodology to detect its needs and expectations because this is the fundamental input information for strategic planning in the short, medium and long term. It is worth highlighting the importance of carrying out a continuous evaluation of the satisfaction of interested parties to proceed with taking the relevant actions in case of deviations.

g) *Systematic and participatory strategic planning*

Taking into account the challenges of the global economy, it is necessary to anticipate the scenarios and prepare to respond effectively to them, which requires promoting the active participation of all collaborators to establish objectives and goals in different horizons.

Once this stage has been completed, it is necessary to define the operational plans in which the activities are cited to carry out adequate resource management and be able to respond to clients, collaborators and other interested parties. This process must be in charge of Strategic Management (principle of "Leadership") and focused on the satisfaction of internal and external customers (principle of "Customer Focus").

The fundamental complement to this planning process is related to the establishment of tracer indicators to measure progress from financial perspectives, customer focus, internal processes, and learning and growth.

*h) Development of comprehensive competencies in human talent*

Once the management, mission, support and evaluation processes have been established, the specific and differentiating competencies necessary in the personnel must be established. This step is essential to carry out the recruitment, selection and continuous training processes.

The competencies must be strengthened during the life cycle of the collaborator, the aforementioned will allow the evaluation and improvement of organizational and individual performance, in this way the principle "commitment of people" will be a reality since human talent will be motivated and trained, becoming a main actor that generates added value to the company and also contributes to creating an environment of respect and trust.

*i) Institutional management with a process approach, PHVA cycle and continuous improvement*

Undoubtedly, quality based on ISO standards requires a focus on processes as established in their principles; this implies the standardization of processes and document management under the Plan-Do- Check-Act (PHVA) structure.

In this sense, objectives must be established for each process in coherence with the strategic ones and the resources necessary for the effective operation of the processes must be defined.

It is also necessary to identify and prioritize risks to carry out proactive management focused on eliminating, transferring or minimizing them; This activity must be executed by the process leader and the work team who have in-depth knowledge of the process operations.

As previously stated, during strategic planning, tracer indicators must be established that allow the effectiveness of the processes through a comprehensive control panel. This implies that each process must measure its operation through metrics whose monitoring allows for the traceability of this process. and carry out statistical control regarding the conformity of the products/services delivered to internal/ external clients.

*j) Quality culture, team recognition and innovation*

The quality principles related to "Improvement" and "Evidence-based decision making" constitute a fundamental pillar in the creation of a quality culture based on continuous progress.

This new cultural conception also requires establishing an assertive and effective communication plan that facilitates the process of feedback and recognition of work; It is also expected that through this it will be possible to socialize the lessons learned and promote innovation to solve the gaps, opportunities for improvement and/or deviations detected during the monitoring stage.

It is important to highlight the importance of training staff to develop internal audits and prepare to receive external audits carried out by control and/or certifying entities, in this way the quality culture will promote accountability, self-management and heteroevaluation in organizational processes.

## V. CONCLUSIONS

Organizations that have permanence in the market and enjoy a certain "stability" consider the adoption of integrated management systems is not a mandatory decision, however after carrying out a self-assessment process against their requirements they realize the need to adopt international standards that, through activity planning processes, execution of operational plans, process monitoring and promotion of continuous improvement, prepare an accurate path for the company's competitiveness.

In this way, in the participating company, a diagnosis was obtained in which the prevailing need to engage Senior Management in the organizational strategic direction under the principles of quality under a process approach within the framework of the Plan-Do-Check cycle was evident. -Act, structuring processes that meet the requirements of the ISO 9001:2015, ISO 14001:2015 and ISO 45001:2018 standards in order to comprehensively respond to the needs and expectations of the various interested parties.

Although this company has managed to remain in the market and can choose to maintain its basic operation if it wants to remain in the market, retain customers and be more productive and competitive, I detect the need to execute actions based on the principles of quality, that is, leading a quality culture with a focus on internal and external customers, promoting people's commitment through efficient processes that continually improve by making decisions based on facts and data.

In this sense, the axes of the implementation plan aim to build a competitive, safe and sustainable strategy, supported by the PHVA cycle, through a set of actions that are based on the three ISO standards already mentioned, which seek to empower collaborators under a transformative leadership; reduce



rework; optimize organizational processes; provide compliance, satisfaction and attention to customer requirements and expectations; stimulate sustainable and environmentally friendly development, and act against all types of risks—including labor risks—to maintain the health of all its collaborators and thus guarantee a successful path for the company with the purpose of fulfilling the strategic plan. which must be focused on improving competitiveness, productivity and business sustainability.

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# GLOBAL JOURNALS GUIDELINES HANDBOOK 2024

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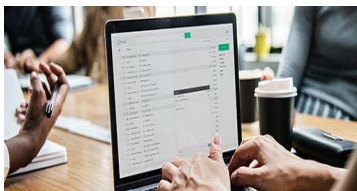
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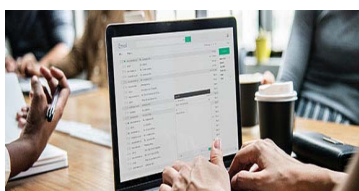
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**7. Revise what you wrote:** When you write anything, always read it, summarize it, and then finalize it.

**8. Make every effort:** Make every effort to mention what you are going to write in your paper. That means always have a good start. Try to mention everything in the introduction—what is the need for a particular research paper. Polish your work with good writing skills and always give an evaluator what he wants. Make backups: When you are going to do any important thing like making a research paper, you should always have backup copies of it either on your computer or on paper. This protects you from losing any portion of your important data.

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**11. Pick a good study spot:** Always try to pick a spot for your research which is quiet. Not every spot is good for studying.

**12. Know what you know:** Always try to know what you know by making objectives, otherwise you will be confused and unable to achieve your target.

**13. Use good grammar:** Always use good grammar and words that will have a positive impact on the evaluator; use of good vocabulary does not mean using tough words which the evaluator has to find in a dictionary. Do not fragment sentences. Eliminate one-word sentences. Do not ever use a big word when a smaller one would suffice. Verbs have to be in agreement with their subjects. In a research paper, do not start sentences with conjunctions or finish them with prepositions. When writing formally, it is advisable to never split an infinitive because someone will (wrongly) complain. Avoid clichés like a disease. Always shun irritating alliteration. Use language which is simple and straightforward. Put together a neat summary.

**14. Arrangement of information:** Each section of the main body should start with an opening sentence, and there should be a changeover at the end of the section. Give only valid and powerful arguments for your topic. You may also maintain your arguments with records.

**15. Never start at the last minute:** Always allow enough time for research work. Leaving everything to the last minute will degrade your paper and spoil your work.

**16. Multitasking in research is not good:** Doing several things at the same time is a bad habit in the case of research activity. Research is an area where everything has a particular time slot. Divide your research work into parts, and do a particular part in a particular time slot.

**17. Never copy others' work:** Never copy others' work and give it your name because if the evaluator has seen it anywhere, you will be in trouble. Take proper rest and food: No matter how many hours you spend on your research activity, if you are not taking care of your health, then all your efforts will have been in vain. For quality research, take proper rest and food.

**18. Go to seminars:** Attend seminars if the topic is relevant to your research area. Utilize all your resources.

**19. Refresh your mind after intervals:** Try to give your mind a rest by listening to soft music or sleeping in intervals. This will also improve your memory. Acquire colleagues: Always try to acquire colleagues. No matter how sharp you are, if you acquire colleagues, they can give you ideas which will be helpful to your research.

**20. Think technically:** Always think technically. If anything happens, search for its reasons, benefits, and demerits. Think and then print: When you go to print your paper, check that tables are not split, headings are not detached from their descriptions, and page sequence is maintained.



**21. Adding unnecessary information:** Do not add unnecessary information like "I have used MS Excel to draw graphs." Irrelevant and inappropriate material is superfluous. Foreign terminology and phrases are not apropos. One should never take a broad view. Analogy is like feathers on a snake. Use words properly, regardless of how others use them. Remove quotations. Puns are for kids, not grunt readers. Never oversimplify: When adding material to your research paper, never go for oversimplification; this will definitely irritate the evaluator. Be specific. Never use rhythmic redundancies. Contractions shouldn't be used in a research paper. Comparisons are as terrible as clichés. Give up ampersands, abbreviations, and so on. Remove commas that are not necessary. Parenthetical words should be between brackets or commas. Understatement is always the best way to put forward earth-shaking thoughts. Give a detailed literary review.

**22. Report concluded results:** Use concluded results. From raw data, filter the results, and then conclude your studies based on measurements and observations taken. An appropriate number of decimal places should be used. Parenthetical remarks are prohibited here. Proofread carefully at the final stage. At the end, give an outline to your arguments. Spot perspectives of further study of the subject. Justify your conclusion at the bottom sufficiently, which will probably include examples.

**23. Upon conclusion:** Once you have concluded your research, the next most important step is to present your findings. Presentation is extremely important as it is the definite medium through which your research is going to be in print for the rest of the crowd. Care should be taken to categorize your thoughts well and present them in a logical and neat manner. A good quality research paper format is essential because it serves to highlight your research paper and bring to light all necessary aspects of your research.

## INFORMAL GUIDELINES OF RESEARCH PAPER WRITING

### **Key points to remember:**

- Submit all work in its final form.
- Write your paper in the form which is presented in the guidelines using the template.
- Please note the criteria peer reviewers will use for grading the final paper.

### **Final points:**

One purpose of organizing a research paper is to let people interpret your efforts selectively. The journal requires the following sections, submitted in the order listed, with each section starting on a new page:

*The introduction:* This will be compiled from reference matter and reflect the design processes or outline of basis that directed you to make a study. As you carry out the process of study, the method and process section will be constructed like that. The results segment will show related statistics in nearly sequential order and direct reviewers to similar intellectual paths throughout the data that you gathered to carry out your study.

### **The discussion section:**

This will provide understanding of the data and projections as to the implications of the results. The use of good quality references throughout the paper will give the effort trustworthiness by representing an alertness to prior workings.

Writing a research paper is not an easy job, no matter how trouble-free the actual research or concept. Practice, excellent preparation, and controlled record-keeping are the only means to make straightforward progression.

### **General style:**

Specific editorial column necessities for compliance of a manuscript will always take over from directions in these general guidelines.

**To make a paper clear:** Adhere to recommended page limits.

### *Mistakes to avoid:*

- Insertion of a title at the foot of a page with subsequent text on the next page.
- Separating a table, chart, or figure—confine each to a single page.
- Submitting a manuscript with pages out of sequence.
- In every section of your document, use standard writing style, including articles ("a" and "the").
- Keep paying attention to the topic of the paper.



- Use paragraphs to split each significant point (excluding the abstract).
- Align the primary line of each section.
- Present your points in sound order.
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- Use past tense to describe specific results.
- Do not use familiar wording; don't address the reviewer directly. Don't use slang or superlatives.
- Avoid use of extra pictures—include only those figures essential to presenting results.

#### **Title page:**

Choose a revealing title. It should be short and include the name(s) and address(es) of all authors. It should not have acronyms or abbreviations or exceed two printed lines.

**Abstract:** This summary should be two hundred words or less. It should clearly and briefly explain the key findings reported in the manuscript and must have precise statistics. It should not have acronyms or abbreviations. It should be logical in itself. Do not cite references at this point.

An abstract is a brief, distinct paragraph summary of finished work or work in development. In a minute or less, a reviewer can be taught the foundation behind the study, common approaches to the problem, relevant results, and significant conclusions or new questions.

Write your summary when your paper is completed because how can you write the summary of anything which is not yet written? Wealth of terminology is very essential in abstract. Use comprehensive sentences, and do not sacrifice readability for brevity; you can maintain it succinctly by phrasing sentences so that they provide more than a lone rationale. The author can at this moment go straight to shortening the outcome. Sum up the study with the subsequent elements in any summary. Try to limit the initial two items to no more than one line each.

*Reason for writing the article—theory, overall issue, purpose.*

- Fundamental goal.
- To-the-point depiction of the research.
- Consequences, including definite statistics—if the consequences are quantitative in nature, account for this; results of any numerical analysis should be reported. Significant conclusions or questions that emerge from the research.

#### **Approach:**

- Single section and succinct.
- An outline of the job done is always written in past tense.
- Concentrate on shortening results—limit background information to a verdict or two.
- Exact spelling, clarity of sentences and phrases, and appropriate reporting of quantities (proper units, important statistics) are just as significant in an abstract as they are anywhere else.

#### **Introduction:**

The introduction should "introduce" the manuscript. The reviewer should be presented with sufficient background information to be capable of comprehending and calculating the purpose of your study without having to refer to other works. The basis for the study should be offered. Give the most important references, but avoid making a comprehensive appraisal of the topic. Describe the problem visibly. If the problem is not acknowledged in a logical, reasonable way, the reviewer will give no attention to your results. Speak in common terms about techniques used to explain the problem, if needed, but do not present any particulars about the protocols here.

*The following approach can create a valuable beginning:*

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- Present a justification. State your particular theory(-ies) or aim(s), and describe the logic that led you to choose them.
- Briefly explain the study's tentative purpose and how it meets the declared objectives.



**Approach:**

Use past tense except for when referring to recognized facts. After all, the manuscript will be submitted after the entire job is done. Sort out your thoughts; manufacture one key point for every section. If you make the four points listed above, you will need at least four paragraphs. Present surrounding information only when it is necessary to support a situation. The reviewer does not desire to read everything you know about a topic. Shape the theory specifically—do not take a broad view.

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**Procedures (methods and materials):**

This part is supposed to be the easiest to carve if you have good skills. A soundly written procedures segment allows a capable scientist to replicate your results. Present precise information about your supplies. The suppliers and clarity of reagents can be helpful bits of information. Present methods in sequential order, but linked methodologies can be grouped as a segment. Be concise when relating the protocols. Attempt to give the least amount of information that would permit another capable scientist to replicate your outcome, but be cautious that vital information is integrated. The use of subheadings is suggested and ought to be synchronized with the results section.

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**Materials:**

*Materials may be reported in part of a section or else they may be recognized along with your measures.*

**Methods:**

- Report the method and not the particulars of each process that engaged the same methodology.
- Describe the method entirely.
- To be succinct, present methods under headings dedicated to specific dealings or groups of measures.
- Simplify—detail how procedures were completed, not how they were performed on a particular day.
- If well-known procedures were used, account for the procedure by name, possibly with a reference, and that's all.

**Approach:**

It is embarrassing to use vigorous voice when documenting methods without using first person, which would focus the reviewer's interest on the researcher rather than the job. As a result, when writing up the methods, most authors use third person passive voice.

Use standard style in this and every other part of the paper—avoid familiar lists, and use full sentences.

**What to keep away from:**

- Resources and methods are not a set of information.
- Skip all descriptive information and surroundings—save it for the argument.
- Leave out information that is immaterial to a third party.

**Results:**

The principle of a results segment is to present and demonstrate your conclusion. Create this part as entirely objective details of the outcome, and save all understanding for the discussion.

The page length of this segment is set by the sum and types of data to be reported. Use statistics and tables, if suitable, to present consequences most efficiently.

You must clearly differentiate material which would usually be incorporated in a study editorial from any unprocessed data or additional appendix matter that would not be available. In fact, such matters should not be submitted at all except if requested by the instructor.





**Content:**

- Sum up your conclusions in text and demonstrate them, if suitable, with figures and tables.
- In the manuscript, explain each of your consequences, and point the reader to remarks that are most appropriate.
- Present a background, such as by describing the question that was addressed by creation of an exacting study.
- Explain results of control experiments and give remarks that are not accessible in a prescribed figure or table, if appropriate.
- Examine your data, then prepare the analyzed (transformed) data in the form of a figure (graph), table, or manuscript.

**What to stay away from:**

- Do not discuss or infer your outcome, report surrounding information, or try to explain anything.
- Do not include raw data or intermediate calculations in a research manuscript.
- Do not present similar data more than once.
- A manuscript should complement any figures or tables, not duplicate information.
- Never confuse figures with tables—there is a difference.

**Approach:**

As always, use past tense when you submit your results, and put the whole thing in a reasonable order.

Put figures and tables, appropriately numbered, in order at the end of the report.

If you desire, you may place your figures and tables properly within the text of your results section.

**Figures and tables:**

If you put figures and tables at the end of some details, make certain that they are visibly distinguished from any attached appendix materials, such as raw facts. Whatever the position, each table must be titled, numbered one after the other, and include a heading. All figures and tables must be divided from the text.

**Discussion:**

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Position your understanding of the outcome visibly to lead the reviewer through your conclusions, and then finish the paper with a summing up of the implications of the study. The purpose here is to offer an understanding of your results and support all of your conclusions, using facts from your research and generally accepted information, if suitable. The implication of results should be fully described.

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Research papers are not acknowledged if the work is imperfect. Draw what conclusions you can based upon the results that you have, and take care of the study as a finished work.

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- Give details of all of your remarks as much as possible, focusing on mechanisms.
- Make a decision as to whether the tentative design sufficiently addressed the theory and whether or not it was correctly restricted. Try to present substitute explanations if they are sensible alternatives.
- One piece of research will not counter an overall question, so maintain the large picture in mind. Where do you go next? The best studies unlock new avenues of study. What questions remain?
- Recommendations for detailed papers will offer supplementary suggestions.



**Approach:**

When you refer to information, differentiate data generated by your own studies from other available information. Present work done by specific persons (including you) in past tense.

Describe generally acknowledged facts and main beliefs in present tense.

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<i>Methods and Procedures</i>	Clear and to the point with well arranged paragraph, precision and accuracy of facts and figures, well organized subheads	Difficult to comprehend with embarrassed text, too much explanation but completed	Incorrect and unorganized structure with hazy meaning
<i>Result</i>	Well organized, Clear and specific, Correct units with precision, correct data, well structuring of paragraph, no grammar and spelling mistake	Complete and embarrassed text, difficult to comprehend	Irregular format with wrong facts and figures
<i>Discussion</i>	Well organized, meaningful specification, sound conclusion, logical and concise explanation, highly structured paragraph reference cited	Wordy, unclear conclusion, spurious	Conclusion is not cited, unorganized, difficult to comprehend
<i>References</i>	Complete and correct format, well organized	Beside the point, Incomplete	Wrong format and structuring



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