

A Model to Select a Leadership Approach for a Diverse Team

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Abstract:

The modern day workforce is more likely to be diverse and it is imperative for managers to be aware of the influence diversity has on leadership in their organisations. An effective leadership approach should take the diversity of a work team in terms of culture, age, gender, ethnicity and other factors into account. Although there are studies on the effect of national cultures on leadership and decision-making, many modern organisations employ an international workforce.

This paper presents research on a methodology to build a decision model to support the selection of an appropriate leadership approach for a diverse team based on the composition of the team. The method to build such a decision model is based on Saaty's well-known Analytic Hierarchy Process (AHP) (Saaty J. , 1990) for solving multi-criteria decision problems. AHP allows an optimal trade-off among the criteria based on the judgments of experts in the problem area. In this paper, AHP is extended to incorporate a diversity profile of the team into the decision problem.

Although there are many studies on effective leadership styles, there is very limited research on the selection of an effective leadership style for a specific team. The focus of this research is on a methodology to construct a decision model for this problem and not on the social science of diversity and its influence on employees and leaders. An example is included to show how this model building methodology can be used in practice. The next phase of this research will be to populate and automate the model based on results from research on diversity and leadership.

1. Introduction

The increase in the number of international business collaborations and the mobility of the modern workforce are bringing people from distinct cultures and backgrounds together, resulting in a diverse workforce. This environment makes it challenging for leaders to implement the most effective leadership approach for a diverse group (Shrivastava & Hinkes, 2016) and hence the need to be more concerned about leading and managing diversity in organisations (Shaban, 2016). Organisations need leaders who understand the complexities of the rapidly changing global environment and how to lead a diverse group of people of different ages, genders, ethnicity, culture and nationalities (Nanjundeswaraswamy & Swamy, 2014). A long-term, multi-phase research project on leadership and organisational behaviour, the GLOBE (Global Leadership and Organization Behavior Effectiveness) Research Program, was launched in 1991 by Robert House of the Wharton School of Business; this program delivered comprehensive studies on the topic of culture, leadership and organizational behaviour in 2004, 2007 and 2013 (House, Dorfman, Javisan, Hanges, Sull e Luque, & Gupta, 2013) (House, Hanges, Javidan, Dorfman, & Gupta, 2004) (Chhokar, Brodbeck, & House, 2007)). Results of the GLOBE studies show that leader effectiveness is contextual; it is embedded in the norms, values and beliefs of the people being led. Given the unique composition of diverse teams, how does a manager know which leadership and decision-making approach will best suit his or her team?

Even though there is vast literature on leadership styles and diversity, there is very little research on creating mathematical support model in this field. This paper presents a methodology to build a model that will support a manager in aligning his leadership style with an approach that is best suited to his team. The model is based on the well-known multi-criteria decision making approach for complex decision problems, the Analytic Hierarchy Process (AHP) introduced by Saaty in the 1980s ((2008) (1994)). The AHP evaluates a number of alternative approaches in terms of a number of criteria. It relies on input data from experts or role players in the problem domain and is thus easy to obtain (Triantaphyllou & Mann, 1995). It is a Mixed Methods technique that contains both qualitative and quantitative aspects. AHP has been used in many applications such as information technology vendor and product evaluation (Saaty T. , 2003), manufacturing (Putrus, 1990), and financial decision-making (Boucher & McStravic, 1991).

In our proposed methodology, experts on leadership must delineate a number of appropriate different Leadership Approaches (LAs) based on a set of selected criteria (leadership style dimensions). AHP will be used to rank the importance of the described LAs in terms of the selected criteria, and we extend the classical AHP technique to incorporate a diversity profile of the specific team into the decision problem. The diversity profile of the team describes the team's composition in terms of diversity characteristics such as race, gender, age, culture, religion, etc. The descriptions of appropriate leadership approaches and the selection of appropriate criteria and diversity characteristics require additional research.

Section 1.1 provides an overview of leadership and diversity and Section 1.2 gives an overview of AHP. Section 2 presents the proposed methodology to construct a diversity-based decision model for selecting an appropriate LA for a specific work team. Section 3 illustrates the use of the model with an example, and the paper is concluded in Section 4.

1.1 Overview of Leadership and Diversity

A definition of workforce diversity is a complex phenomenon with various intricacies in interpretation. "Workplace diversity refers to the variety of differences among people in an organization. Diversity could be related to factors including: age, gender, culture, education, employee status, physical appearance, family status, regional origin, national origin, thinking style, religion, race, and more" (Agrawal, 2012) as cited in (Shaban, 2016), p.77). Lane and Beamish (1990) argue that many of the problems in the workplace are products of cultural and behavioural factors triggered by inadequate understanding of and training in cross-cultural cooperate behaviour. A diverse workforce can be both costly and beneficial to an organisation. The benefits of diversity are usually improved innovation, ideas and creativity that employees from distinct social backgrounds bring. On the other hand, if poorly managed, diversity in the workplace can effectively lead to conflicts, miscommunication and higher levels of employee turnover (Shaban, 2016). Research indicates that diverse teams are more prone to engage in conflicts due to their distinct perspectives; they have, however, also been found to perform better because they tend to challenge each other's perceptions which allows them to reach better justified decisions ((Wiersema & Bantel, 1992) as cited in (Shaban, 2016), (Williams & O'Reilly, 1998) as cited in (Kochan, 2003)). A diverse workforce may be more likely to improve performance when group members and leaders are trained to deal with group process issues involving communication and problem solving in diverse teams (Kochan, 2003).

Leadership is defined as a "social influence process in which the leader seeks the voluntary participation of subordinates in an effort to reach organisational goals" ((Omolayo, 2007) as cited in (Nanjundeswaraswamy & Swamy, 2014)). A team with dissimilar opinions and individuals require a leader who can guide the whole group in a productive and common direction and align the team member's efforts (Shaban, 2016). It is generally accepted that diverse teams perform better but according to Shrivastava and Hinkes (2016) it depends on the way the team is lead and whether the leadership style is appropriate. Visagie, Linde and Havenga (Visagie, Linde, & Havenga, 2011) suggest that the prevalent leader's style in the workplace may be a predictor of diversity management experience.

The Global Leadership and Organization Behavior Effectiveness (GLOBE) Research Program published comprehensive studies in 2004, 2007 and 2013 ((Chhokar, Brodbeck, & House, 2007), (House, Hanges, Javidan, Dorfman, & Gupta, 2004), (House, Dorfman, Javisan, Hanges, Sull e Luque, & Gupta, 2013)) which examined the interrelationships between societal culture, societal effectiveness and organisational leadership. One of their major findings of the 2004 GLOBE study (House, Hanges, Javidan, Dorfman, & Gupta, 2004) was that "leader effectiveness is contextual, that is, it is embedded in the societal and organizational norms, values, beliefs of the people being led. In other words, to be seen as effective, the time-tested adage continues to apply: '*When in Rome do as the Romans do*' " as summarised by Hoppe (2007). GLOBE established nine cultural dimensions to capture differences and similarities in the culture of societies: Power distance, uncertainty avoidance, humane orientation, institutional collectivism, in-group collectivism, assertiveness,

future orientation, performance orientation, and gender egalitarianism. These dimensions are based on the findings of earlier researchers such as Hofstede (1984), Schwartz (1994) and others. The GLOBE studies also identified 112 leadership characteristics and 21 leadership scales. The leadership scales were ranked from the “most universally desirable” to the “least universally desirable”. The 21 scales were reduced to six scales which resulted in six leadership styles: performance-oriented style, team-oriented style, participative style, humane style, autonomous style, and self-protective style (Hoppe, 2007).

The challenge for leaders in diverse environments is understanding which leadership style will work best for their unique diverse team. Although a national culture is of interest, many organisations have an international workforce; in such teams a leader will need more support to understand which approach will deliver the most effective results.

1.2 Overview of AHP

The Analytical Hierarchy Process (AHP) (Saaty J. , 1990) is a technique to resolve decision-making problems with multiple criteria by using hierarchical decomposition. The core of the method is to reduce decision-making problems to a series of pairwise comparisons from which ratio scales are derived which are then synthesised to evaluate alternatives. Bias in a decision making process is reduced and decision makers are allowed use both objective and subjective information.

The AHP method represents a problem as a hierarchical structure that depicts the relationships of the problem (goal), evaluation criteria, sub-objectives, and alternatives (Figure 1), and derives a ranking of the alternatives based on sets of pairwise comparisons that determines the weights of importance of the decision criteria.

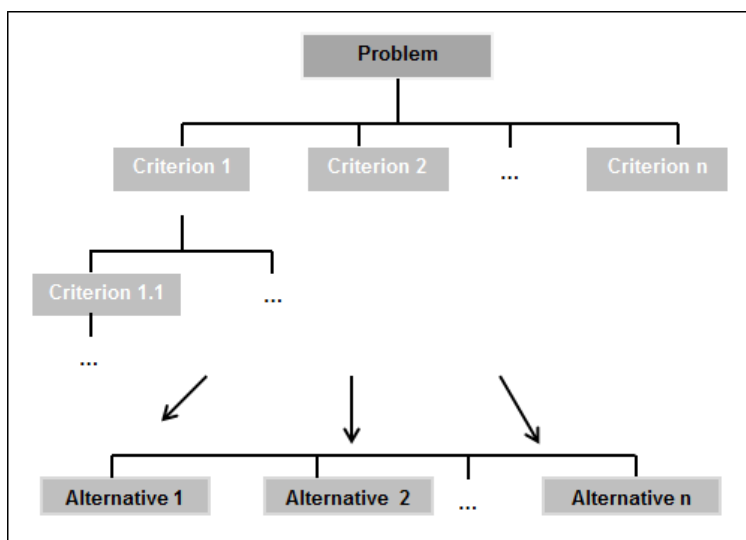


Figure 1: Decision Hierarchy

The criteria depict what the decision makers have to evaluate in order to reach a decision. The alternatives are the range of decisions or solutions for the problem. The sub-criteria allows finer specification of the criteria. AHP allows one to find an optimal trade-off among the criteria. A weight is generated for each of the criteria based on pairwise comparisons which results in a score for each of the alternative solutions to the decision problem, with respect to that particular criteria. The criteria weights and alternative scores are combined to give a global score or a ranking for each alternative. The benefit of the AHP is that an expert or group of experts’ judgements based on experience guide the computations to calculate the ranking for the alternative solutions.

Saaty (2008) developed the following steps for applying the AHP.

1. Define the problem and determine the goal.
2. Structure the decision hierarchy from the top with the goal of the decision, then the objectives from a broad perspective, through intermediate levels (criteria on which elements depend), to the lowest level (the set of alternatives).

3. The priorities of elements at each level are established by building a set of pair-wise comparison matrices of all the elements with respect to an element on the immediately higher level. The pair-wise comparisons are done in terms of which element dominates the other based on a relative scale of measurement introduced by Saaty (1980) as shown in Table 1. Saaty's scale ranges from 1 to 9 and the available values for pairwise comparisons are chosen from the set {9, 8, 7, 6, 5, 4, 3, 2, 1, 1/2, 1/3, 1/4, 1/5, 1/6, 1/, 1/9}.
4. Relative weights (eigenvectors) for the elements compared in the comparison matrices are calculated. This provides a ranking matrix for the elements on each level and is used to calculate the global priorities of the alternatives.

Table 1: The Scale of Relative Importance (1980)

Intensity of importance	Definition of comparing element <i>i</i> to element <i>j</i>
1	Equal importance of <i>i</i> and <i>j</i>
3	Slight importance of <i>i</i> above <i>j</i>
5	Strong importance of <i>i</i> above <i>j</i>
7	Very strong importance
9	Absolute importance of <i>i</i> above <i>j</i>
2,4,6,8	Intermediate values between the two adjacent judgments
Reciprocals	If <i>i</i> is deemed to be <i>k</i> times more important than <i>j</i> , then <i>j</i> is assigned 1/ <i>k</i> compared to <i>i</i>
Rationals	If consistency is forced, i.e. when measured values are available

The AHP methodology allows for slight non-consistent pairwise comparisons. A consistency ratio is calculated to monitor and should be less than 10% (1980).

2. Proposed Methodology to build a Diversity-based Leadership Model

This paper addresses the problem to select the most appropriate LA for a specific work team: It describes a methodology to build a model for selecting an appropriate leadership approach based on input provided by experts on leadership and diversity as well as input provided by the manager of a team. The experts have to describe a number of different LAs based on a set of selected criteria (leadership style dimensions). AHP is used to rank the importance of the described LAs in terms of the selected criteria. Our technique extends AHP to determine incorporate the diversity profile of the team in the ranking process. The manager describes his team by giving a team diversity profile that reflects the composition of the team on the basis of characteristics such as age, race, religion, gender, etc. This profile serves as input to the model and these characteristics will be mapped to the selected LA criteria.

The process of building a leadership decision model:

- Step 1: Experts on leadership and diversity *identify LA criteria* (e.g. power distance). Based on the selected criteria, the experts *describe a number of different LAs*.
- Step 2: The experts decide on suitable *characteristics to describe a team's diversity profile* (for example, race). The profile serves as input to the model and will be different for each team.
- Step 3: A pairwise comparison matrix is built for each of the criteria (by the expert group); in each matrix the *LAs are ranked in terms of importance based on the specific criterion* under consideration. Saaty's scale of relative importance is used to measure the comparisons.
- Step 4: This step and step 5 is an extension of AHP; a specific team's preferences are incorporated into the eventual ranking of the LAs:
 - The team manager provides the *profile of the team* under consideration.
 - A comparison matrix is built to *rank the different profile characteristics* (selected in step 2) in terms of importance.
- Step 5: A pairwise comparison matrix is built for each profile characteristic (by the expert group); the matrix *compares the importance of the different criteria based on the specific profile characteristic* under consideration. This step is performed for each of the characteristics.

- Step 6: Calculations are performed to determine *a ranking of the different LAs based on the team's profile*.

The output is a (the highest ranked) LA that best suits the client's team. Steps 1 to 3 and 5 are done once only by the expert group. This creates the model. Steps 4 and 6 are done for each team under consideration. These steps are performed to use the model to indicate which of the LAs are most suited for a specific team.

Each step is now described in greater detail below and Figure 2 illustrates the process.

Step 1: Formulating the Decision Making Hierarchy

A group of leadership and diversity experts decide on the most appropriate decision criteria on which to compare LAs. The diversity and leadership dimensions by the GLOBE studies' can be used (Hoppe, 2007) (House, Hanges, Javidan, Dorfman, & Gupta, 2004) (House, Dorfman, Javisan, Hanges, Sull e Luque, & Gupta, 2013)). Assume k criteria, C_1, C_2, \dots, C_k , are selected. Experts describe n LA approaches namely, LA_1, LA_2, \dots, LA_n ; these approaches are the alternatives in the AHP model. The LA descriptions are based on the knowledge of the experts and sources in the literature, and this step is only performed once. Each approach's description will be based on the selected criteria. A guidance document should be written to explain how each of the LAs explaining should be used.

Step 2: Identify the Profile Characteristics of a Team

The experts decide on s suitable characteristics, P_1, P_2, \dots, P_s , to describe a team's profile, for example, the team's composition in terms of race, gender, age, religion, etc. Each profile characteristic has different sub-categories, for example if $P_1 = \text{Race}$, its sub-categories can be African, White, Asian and Biracial (P_{1a}, P_{1b}, P_{1c} and P_{1d} , respectively). A characteristic i 's sub-categories (for $i=1, \dots, s$) will be called $P_{ia}, P_{ib}, \dots, P_{i-SUBi}$.

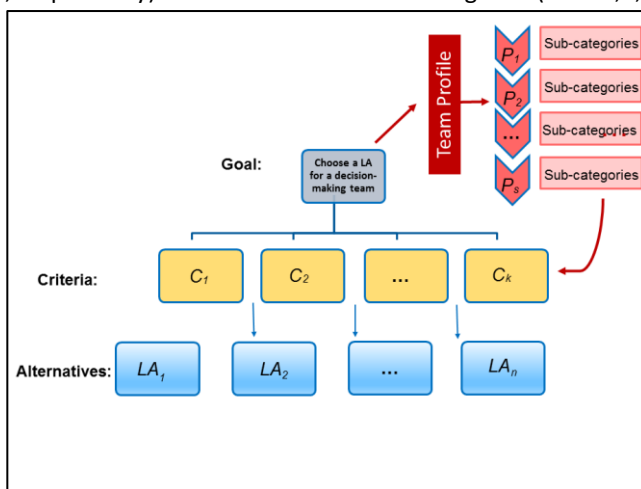


Figure 2: The Decision Hierarchy and Variable Names

Step 3: Comparison of LAs w.r.t. Criteria

A pairwise comparison matrix is built for each of the decision criteria; the matrix compares the different LAs in terms of importance based on the specific criterion under consideration. A ranking of the LAs in terms of each criterion will be calculated from the comparison matrix. The relative ranking of the LAs, LA_1, LA_2, \dots, LA_n , in terms of criterion C_j is called $R_{C_j_LA_1}, R_{C_j_LA_2}, \dots, R_{C_j_LA_n}$. Note that $R_{C_j_LA_j}$ represents the ranking of LA_j w.r.t. criteria C_i . For example, if $C_1 = \text{power distance (PD)}$, then $R_{C_1_LA_1}, R_{C_1_LA_2}, \dots, R_{C_1_LA_n}$ gives the relative ranking of the LA approaches in terms of the importance of a high PD value.

Step 4: Gather Team's Composition According to the Profile Characteristics and Rank the Characteristics

The manager provides a description of the team in terms of the profile characteristics identified in Step 2. For example, the composition of the team in terms of $P_1 = \text{Race}$ will be given as the percentage of team

members belonging to each of the sub-categories of Race. Similar information has to be supplied for all the profile characteristics and will be represented as the vectors: $Per_{P1}, Per_{P2}, \dots, Per_{Ps}$.

A comparison matrix will be built to determine the relative importance of the different profile characteristics for the team based on the judgment of the manager supported by the experts. These rankings are named $R_P = [R_{P1}, R_{P2}, \dots, R_{Ps}]$.

Step 5: Comparison of Criteria w.r.t. Profile Characteristics

Pairwise comparison matrices of the criteria w.r.t. each of the profile characteristics are done. This step is an enhancement of the AHP because we need to incorporate the influence the team's profile on the eventual LA ranking; for each sub-category of each profile characteristic, a comparison matrix is constructed w.r.t. the criteria; the different criteria will be ranked in terms of each of the different profile characteristics. The comparison matrices for the sub-categories of a profile characteristic are combined via a weighted formula to give a team ranking of the criteria for that particular characteristic.

Let $R_{P_j a C_i}$ represent the ranking of criterion C_i w.r.t profile characteristic j 's subcategory a . For example, if $P_1 = \text{Race}$ and has four sub-categories then four comparison matrices are constructed. To get a ranking of the criteria's importance w.r.t. the first sub-category of Race (sub-category a of P_1), construct one comparison matrix. Calculations produce the ranking vector: $R_{P_1 C} = [R_{P_{1a} C_1}, R_{P_{1a} C_2}, R_{P_{1a} C_3}, R_{P_{1a} C_4}]$. Similar calculations are performed for each sub-category of a characteristic. Now we combine the sub-category comparison matrices of a profile characteristic i in order to calculate the ranking of the criteria w.r.t. this characteristic (the vector **Weighted $R_{P_i C}$**). This is done through a weighted formula where the weights are the team composition percentages (see Step 4), Per_{P_i} . We thus use the composition of the team to rank the relative importance of the criteria for each of the profile characteristics.

$$\begin{aligned} \text{Weighted } R_{P_i C} & \text{ for } i = 1, \dots, s \\ & = Per_{P_i} * R_{P_i C} \end{aligned}$$

Step 6: Calculating the Global Ranking of LAs

Finally, we want to calculate the global (or overall) ranking of the LAs w.r.t the relative importance assigned to the criteria according to the team's profile (matrix with weighted rankings from step 5). To calculate the global ranking of the criteria, we multiply the matrix containing the ranking of the criteria w.r.t the team's profile with the vector containing the ranking of the profile characteristics (R_P) in order of importance for this team (from step 4). This gives a ranking of the criteria for the team under consideration, **Global R_C** . The next step is to calculate the global ranking of the LAs: the ranking of the LAs w.r.t. the criteria (done in step 3) has to be weighted according to the global ranking of the criteria (according to the team's profile). This vector gives the global ranking for the LAs.

$$\text{Global } R_{LA} = R_{C_{LA}} * \text{Global } R_{CT}$$

3. Example

The technique to build a model is illustrated by a trivial example.

Important note: The input data and assigned values in this example were chosen for the *purpose of illustration of the methodology only*. All pairwise comparisons, judgments, associations and rankings used in this example are made up for the purpose of illustration; the values bear no relation to reality or fact. Thorough research and interpretation of results on diversity, especially culture, is required in order to build and verify a model.

Step 1: Formulating the decision hierarchy

In this example, the following four of the nine cultural dimensions identified in the GLOBE study (Hoppe, 2007) are selected as the decision criteria ($k=4$):

$C_1 = \text{Power Distance (PD)}$

$C_2 = \text{Assertiveness (Ass)}$

C_3 = Uncertainty Avoidance (UA)

C_4 = Collectivism (Col).

These criteria represent an indication of a high score for that particular dimension. For example, if an alternative has a favourable pairwise comparison for PD over Col, then it can be interpreted that that alternative is aligned with a high PD score and a lower score for Col.

For this example, we give superficial descriptions for three LA styles as alternatives ($n=3$):

LA_1 = Inspirational Approach

LA_2 = Negotiated Approach

LA_3 = Casual Approach.

In the inspirational LA, a manager motivates the team by inspiring them, offering challenges, and encourages individuals. A collective purpose is assumed. In a negotiated LA, a manager motivates by offering benefits a team will receive if they accomplish agreed-upon outcomes, and he builds relationships with the team members. Casual leaders abdicate their responsibility and avoid making decisions; team members are expected to solve problems on their own. The LAs have to be mapped to the selected criteria. For the purpose of this example, the inspirational LA is associated with high levels of power distance and collectivism, and low levels of assertiveness and uncertainty avoidance; the negotiated LA with a lower level of power distance and individualism and assertiveness, and a low level uncertainty avoidance; and the casual LA with a low level of uncertainty avoidance and power distance and collectivism, and a low level of assertiveness.

Step 2: Identify the Profile Characteristics of a Team

The selected criteria are ($s=3$):

P_1 = Race with $sub1 = d$,

P_{1a} = African, P_{1b} = White, P_{1c} = Asian, and P_{1d} = Biracial;

P_2 = Age with $sub2 = d$,

P_{2a} = <25, P_{2b} = 25-34, P_{2c} = 35-49, P_{2d} = >= 50; and

P_3 = Gender with $sub3 = b$,

P_{3a} = Male and P_{3b} = Female.

Step 3: Comparison of LAs w.r.t. Criteria

Experts have to complete the pairwise comparison matrices of the three alternatives (LAs) for w.r.t. each of the four criteria. The matrix below shows the pair-wise comparison of the LAs in terms of a high score for Power Distance. In LA_1 a high level of PD is four times as important as in LA_2 and seven times as important as in LA_3 . In LA_2 a high level of PD is five times as important as it is in LA_3 .

Table 2. Comparison of LAs w.r.t. the PD Criterion

$C_1 = PD$	LA_1	LA_2	LA_3
LA_1	1	4	7
LA_2	1/4	1	5
LA_3	1/7	1/5	1

The next step is to calculate the relative ranking of the styles in terms of importance of a high PD in a LA. From the normalised eigenvector values shown in Table 3: LA_1 has a priority of 68.7% w.r.t a high PD value, LA_2 has a priority of 24.4% and in LA_3 , PD rates very low at 7%. Similar calculations are done for the remaining three criteria. Table 4 shows a summary of the ranking of the LAs w.r.t. the criteria.

Table 3. Ranking of LAs w.r.t. the Power Distance Criterion

$C_i = PD$	LA_1	LA_2	LA_3	Eigenvector	Normalised Eigenvector ($R_{C_i_{LA}}$)
LA_1	1	4	7	0.938	$R_{C_i_{LA_1}} = 0.687$
LA_2	1/4	1	5	0.333	$R_{C_i_{LA_2}} = 0.244$
LA_3	1/7	1/5	1	0.095	$R_{C_i_{LA_3}} = 0.070$

Table 4. Rankings of LAs w.r.t the Criteria

	$PD (R_{C_i_{LA}})$	$Ass (R_{C_i_{LA}})$	$UA (R_{C_i_{LA}})$	$Col (R_{C_i_{LA}})$
LA_1	0.678	0.089	0.167	0.785
LA_2	0.244	0.157	0.761	0.263
LA_3	0.070	0.767	0.073	0.659

Step 4: Gather Team's Composition and Rank the Characteristics

Table 5. Racial Composition of the Team

P_1	Percentage (Per_1)
P_{1a} (African)	$Per_{P1a} = 50\%$
P_{1b} (White)	$Per_{P1b} = 20\%$
P_{1c} (Asian)	$Per_{P1c} = 10\%$
P_{1d} (Biracial)	$Per_{P1d} = 20\%$

Table 6. Age composition of the Team

P_2	Percentage (Per_2)
P_{2a} (<25)	$Per_{P2a} = 20\%$
P_{2b} (25-34)	$Per_{P2b} = 40\%$
P_{2c} (35-49)	$Per_{P2c} = 30\%$
P_{2d} (>=50)	$Per_{P2d} = 10\%$

Table 7. Gender Composition of the Team

P_3	Percentage (Per_3)
P_{3a} (Male)	$Per_{P3a} = 55\%$
P_{3b} (Female)	$Per_{P3b} = 45\%$

A ranking of the profile characteristics in terms of their relative importance in the team is done. In our example, Race is regarded to have a much greater influence on the team under consideration than Age or Gender (Table 8).

Table 8. Ranking of Profile Characteristics w.r.t. the Team

Characteristics	P_1 (Race)	P_2 (Age)	P_3 (Gender)	Ranking (R_P)
P_1 (Race)	1	5	2	0.581

P₂ (Age)	1/5	1	1/3	0.109
P₃ (Gender)	½	3	1	0.309

Step 5: Comparison of Criteria w.r.t. Profile Characteristics

A pairwise criteria comparison matrix for each profile sub-characteristic is completed. The comparison matrix and ranking for the African sub-category of Race is shown in Table 9, and Table 10 shows the rankings for all the sub-categories of Race. Tables 11 and 12 shows the rankings of the criteria w.r.t. Age and Gender, respectively.

Table 9. Ranking of Criteria w.r.t. the African Sub-category of Race

African Race-P_{1a}	C₁ PD	C₂ Ass	C₃ UA	C₄ Col	Ranking R_{P_{1a}_C}
C₁ (PD)	1	6	9	9	$R_{P_{1a}C_1} = 0.705$
C₂ (Ass)	1/6	1	3	3	$R_{P_{1a}C_2} = 0.166$
C₃ (UA)	1/9	1/3	1	1	$R_{P_{1a}C_3} = 0.065$
C₄ (Col)	1/9	1/3	1	1	$R_{P_{1a}C_4} = 0.065$

Table 10. Rankings of Criteria w.r.t. the Sub-categories of Race

Race: R_{P₁_C}	African R_{P_{1a}_C}	White R_{P_{1b}_C}	Asian R_{P_{1c}_C}	Biracial R_{P_{1d}_C}
C₁ (PD)	0.705	0.300	0.280	0.400
C₂ (Ass)	0.166	0.250	0.270	0.200
C₃ (UA)	0.065	0.200	0.350	0.201
C₄ (Col)	0.065	0.250	0.100	0.199

Table 11. Rankings of Criteria w.r.t. the Sub-categories of Age

Age: R_{P₂_C}	<25 R_{P_{2a}_C}	25-34 R_{P_{2b}_C}	35-49 R_{P_{2c}_C}	>=50 R_{P_{2d}_C}
C₁ (PD)	0.044	0.100	0.200	0.230
C₂ (Ass)	0.101	0.220	0.140	0.220
C₃ (UA)	0.191	0.280	0.270	0.222
C₄ (Col)	0.664	0.400	0.390	0.328

Table 12. Rankings of Criteria w.r.t. the Sub-categories of Gender

Gender: R_{P₃_C}	Male R_{P_{3a}_C}	Female R_{P_{3b}_C}
C₁ (PD)	0.190	0.200
C₂ (Ass)	0.220	0.070
C₃ (UA)	0.290	0.380
C₄ (Col)	0.300	0.350

The weighted ranking (percentages are the weights) of the criteria w.r.t. each of the four team profile characteristics (**Weighted_R_P_C**) has to be calculated. The calculations for Race (**P₁**) is shown below.

Table 10 shows the rankings of the criteria w.r.t. each of the four sub-categories of Race. The results in this table is multiplied by weights that represents the percentage of members of each race (Per_{P1}), to get an overall ranking of the decision criteria for the team based on Race.

$$\text{Weighted_R_P}_1\text{C} = Per_{P1} * R_P_1\text{C} = [0.521 \ 0.200 \ 0.143 \ 0.133]$$

From the calculations PD outranks the other criteria by far according to Race. The second highest ranked criterion is Assertiveness. The results for all the characteristics (Race, Age and Gender) are summarised in Table 13.

Table 13. Team's Ranking of Each Criteria w.r.t. Team's Composition

Weighted_R_P_C	Race Weighted_R_P_1 C	Age Weighted_R_P_2 C	Gender Weighted_R_P_3 C
C ₁ (PD)	0.521	0.132	0.189
C ₂ (Ass)	0.200	0.180	0.153
C ₃ (UA)	0.143	0.253	0.331
C ₄ (Col)	0.133	0.443	0.323

Step 6: Calculating Global Ranking of LAs

The global ranking of the criteria w.r.t. to team profile is now calculated; the ranking of the criteria w.r.t. each of the profile characteristic based on the team's composition (matrix in Table 13) is multiplied with the ranking of the profile characteristics based on their relative importance for this team (vector in Table 8). For example, because Race outranks Age and Gender significantly, the rankings that the team gave to the decision criteria according to Race, is given a much larger weight.

$$\text{Global_R_C} = \text{Weighted_R_P_C} * R_P = \begin{bmatrix} 0.521 & 0.132 & 0.189 \\ 0.200 & 0.180 & 0.153 \\ 0.143 & 0.253 & 0.331 \\ 0.133 & 0.443 & 0.323 \end{bmatrix} * \begin{bmatrix} 0.581 \\ 0.109 \\ 0.309 \end{bmatrix} = \begin{bmatrix} 0.375 \\ 0.103 \\ 0.213 \\ 0.225 \end{bmatrix}$$

The results are summarised in Table 14. The team thus regards a high PD to be the most important criteria followed by a high level of Collectivism and then low Uncertainty avoidance and in the last place, Assertiveness.

Table 14. Team's Global Ranking of Criteria

Global_R_C	Ranking	Order of preference
C ₁ (PD)	0.375	1
C ₂ (Ass)	0.103	4
C ₃ (UA)	0.213	3
C ₄ (Col)	0.225	2

The final step is to calculate which of the LA approaches is a best match for team's preferences; the comparison matrices of the different LAs w.r.t. criteria (R_C_LA in Table 4) by the team's ranking for the criteria ($Global_R_C$ in Table 14):

$$\text{Global_R_LA} = R_C_LA * \text{Global_R_CT} = \begin{bmatrix} 0.678 & 0.089 & 0.167 & 0.785 \\ 0.244 & 0.157 & 0.761 & 0.263 \\ 0.070 & 0.767 & 0.073 & 0.659 \end{bmatrix} * \begin{bmatrix} 0.375 \\ 0.103 \\ 0.213 \\ 0.225 \end{bmatrix} = \begin{bmatrix} 0.476 \\ 0.329 \\ 0.269 \end{bmatrix}$$

LA₁ is thus the most appropriate approach for this team: a large power distance, low levels of assertiveness and uncertainty avoidance and a very high preference for collectivism.

Table 15. Global Ranking of LAs for Team

LA _s	Global_R_LA	Order of preference
LA ₁	0.476	1
LA ₂	0.329	2
LA ₃	0.269	3

4. Conclusion

It is difficult to measure how diversity affects a team in terms of its response to leadership style. In this paper, the authors show how a manager can be guided in selecting an appropriate leadership approach for a specific team by building a model based on an extension of AHP. In this technique, criteria for the selection of a LA is synthesised according to a diversity profile of the team under consideration.

The next phase in this research will focus on the application of this model on a South African instance. The population of South Africa is one of the most complex and diverse in the world; it is commonly known as the Rainbow Nation, a title that captures the country's cultural and ethnic diversity. This type of model should be useful to South African organisations to support effective leadership. Further research is required to populate and verify the model

5. Works Cited

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