Social Networking Applications: Their Use and Importance Priority Wise

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Abstract- **Today, social media is one of the best way of sharing knowledge, information, and data online Our study focus on several applications that helps in communication and data transfer. These are Whats App, Face book, twitter, LinkedIn, hangouts, etc. In this study, we are considering above mentioned social media applications and comparing their features, ease of use and popularity. After collecting data from the experts by the means of questionnaire (offline), Analytical Network Process (AHP) is applied on the data. The study shows the popularity of the social networking applications.**

Keywords:- **Social Media, Social Networking Platforms, Communication applications, Selection factors, Multi Criteria Decision Model approach (MCDM), Analytic Hierarchy Process (AHP).**

I. INTRODUCTION

In Our present generation Social networking platform and social media are fundamentally changing the way we communicate, collaborate, consume, and create. They represent one of the most transformative impacts of information technology on business, both within and outside firm boundaries. Once a day I went a beautiful photography exhibition I saw lovely photos then I captured so many beautiful photos. So that I want to share that all thing with my friends, family relatives. Without waste my time I shared all pictures, videos and also I chat with them and gave my opinion of photos. Suddenly i think today I communicate everything with photos and videos. We are living in a big social networking world we can use this social media by mobile phones tablets which is invented by Google (Smart- Phones), Windows (Windows phones) and IOS (iPhone). Since smart-phones and tablets found their way to consumers' lives, mobile communications become more and more popular and diffused into every day's life of people. It has affected all of us, from using basic mobile services, such as voice call and Short Messaging services (SMS) to more advanced and sophisticated services—like mobile email, mobile web, and location based services and mobile monitoring of Radio Frequency Identification (RFID) information. Now a day's smart – phones and tablets found their right way to human beings' lives mobile communications become more and more (much better) from last 15 years popular and useful into everyday's life of public sector. All social networking apps as a social media affected all of people from using basic given mobile services like as Short messaging (SMS), voice call and voice messages to give more advanced and easy to use services like – mobile google functions (email, web, locations etc.) those are using by internet.

II. DEFINITION OF APPLICATIONS

Whats App Messenger is a cross-platform mobile messaging app which allows you to exchange messages without having to pay for SMS. Whats App Messenger is available for iPhone, BlackBerry, Android, Windows Phone and Nokia and yes, those phones can all message each other! Because Whats App Messenger uses the same internet data plan that you use for email and web browsing, there is no cost to message and stay in touch with your friends.

Face book is a free-access social networking website that is operated and privately owned by Face book, Inc.[1] Users can join networks organized by city, workplace, school, and region to connect and interact with other people. People can also add friends and send them messages, and update their personal profiles to notify friends about themselves.

Twitter is an online social networking service that enables users to send and read short 140-character messages called "tweets". Registered users can read and post tweets, but those who are unregistered can only read them. Users access Twitter through the website interface, SMS or mobile device app. Twitter Inc. is based in San Francisco and has more than 25 offices around the world.

LinkedIn is an online directory of individual professionals and organizations. Individuals and companies use LinkedIn for professional networking. LinkedIn has millions of members in more than 200 countries, including executives from all Fortune 500 companies.

Google **Hangouts** is a communication platform developed by Google which includes instant messaging, video chat, SMS and VOIP features.

III. RESEARCH METHODOLOGY

Proposed methodology has following steps: in step 1, AHP. By using theory in AHP method the qualitative judgment can be qualified to make comparison more intuitionists and reduce or eliminate assessment bias in pair wise comparison process. In step 2, obtained results have been used as input weights in AHP algorithm.

However, the rapid development of the social media apps business also brings many problems, such as rising selection of good social media apps etc. The judgment of the social media apps is quite complex and problematic. Selection of the most preferred social media apps from the number of available appsare so confusing for the customer. So, to find out the most preferred social media apps by the customers, Analytical Hierarchy Process (AHP) is used that is a multi-criteria decision model.

IV. MULTICRITERIA DECISION MODEL

Multiple Criteria Decision Analysis (MCDA) is generally used to support planning and decision making processes, but the sharing of information is often limited by two main factors. First, many users have difficulty reading output data, especially tables, matrixes or databases. Second, the presence of many actors introduces different disciplines, knowledge, interests and languages. The steps of MCDA are as follows:

1) Establish the decision objectives (goals) and identify the decision maker(s).

2) Identify the alternatives.

3) Identify the criteria (attributes) that are relevant to the decision problem.

4) For each of the criteria assign scores to measure the performance of the alternatives against each of these and construct an evaluation (decision) matrix.

5) Standardize the raw scores of decision matrix.

6) Determine a weight for each criterion to reflect how important it is to the overall   decision.

7) Compute an overall assessment measure for each decision alternative.

8) Perform a sensitivity analysis to assess the robustness of the preference ranking.

Calculation of weights between criterions by AHP:

The pair-wise comparison method and the hierarchical model were developed in 1980 by T.L.Saaty in the context of the Analytical Hierarchy Process (AHP) [19, 20]. AHP is an approach for decision making that involvesstructuring multiple choice criteria into a hierarchy, assessing the relative importance of these criteria, comparing alternatives for each criterion and determining an overall ranking of the alternatives [21]. AHP helps to capture both subjective and objective evaluation measures, providing a useful mechanism for checking the consistency of the evaluation measures and alternatives suggested by the team thus reducing bias in decision making [22]. Some of its applications include technology Choice [24] and vendor selection of a telecommunications system [23]. The steps for implementing the AHP process for weighting the criterion are as follows: Step 1: Perform Pair-wise Comparison (Saaty nine-point preference scale is adopted for constructing the pair-wise comparison matrix).

V. ANALYTICAL HIERARCHY PROCESS (AHP)

AHP is a multiple criteria decision-making method originally developed by Prof. Thomas L. Saaty (1977)[i] provides measures of judgement consistency derives priorities among criteria and alternatives simplifies preference ratings among decision criteria using pair wise comparisons. This study uses AHP to identify the most preferred social media apps and the most important criteria influencing the adoption of social media apps based on consumer's preferences. Using the relationships of the criteria, alternatives, objectives and overall priority, it is also helpful for practitioners to create the hierarchical structure of a complex problem. The final outcome is a ranking of the decision alternatives.

AHP has been done in four main steps: (1) to decompose the problem into sub-problems; (2) to do pair

wise comparison of the elements; (3) evaluate and (4) to synthesize results and obtain a final ranking. In the decomposition step, organisation of the components of the problem has been done in a hierarchical structure. To create the hierarchy, method allows dependencies only among elements in the same cluster and the direction of impact is only towards the top of the constructed structure. Generally speaking, an AHP model and its hierarchy tree can have as many levels as a designer of the model wants.

Table 1: Saaty's nine-point preference scale

Compare factor of i and j	Scale
Equally importance	1
Weakly Important	3
Strongly importance	5
Very Strongly importance	7
Extremely importance	9
Intermediate value between adjacent	2,4,6,8

Let A represents $n \times n$ pair-wise comparison matrix:

$$A = \begin{bmatrix} 1 & a_{12} & ... & a_{1n} \\ a_{21} & 1 & ... & a_{2n} \\ ... & ... & ... & ... \\ a_{n1} & a_{n2} & ... & 1 \end{bmatrix} \qquad (4)$$

Step 2: Normalize the raw score by Geometric Mean as given below:

$$w_i = \frac{\left(\prod_{j=1}^{n} a_{ij}\right)^{1/n}}{\sum_{i=1}^{n}\left(\prod_{j=1}^{n} a_{ij}\right)^{1/n}} \qquad i,j = 1,2,...n \qquad (5)$$

Step 3: Perform Consistency check.
Step 3a: Let C denotes a n-dimensional column vector describing the sum of the weighted values for the importance degrees of the attributes, then

$$C = \left[C_i\right]_{n \times 1} = AW^T, \qquad i = 1,2,...,n \qquad (6),$$

where

$$AW = \begin{bmatrix} 1 & a_{12} & \cdots & a_{1n} \\ a_{21} & 1 & \cdots & a_{2n} \\ \cdots & \cdots & \cdots & \cdots \\ a_{n1} & a_{n2} & \cdots & 1 \end{bmatrix} \begin{bmatrix} w_1, & w_2, & \cdots, & w_n \end{bmatrix} = \begin{bmatrix} c_1 \\ c_2 \\ \cdots \\ c_n \end{bmatrix} \quad (7)$$

Step 3b: To avoid inconsistency in the pair-wise comparison matrix, Saaty [19] suggested the use of the maximum eigen value λ_{max} to calculate the effectiveness of judgment. The maximum eigen value λ_{max} can be determined as follows:

$$\lambda_{max} = \frac{\sum_{i=1}^{n} c.v_i}{n}, \qquad i = 1, 2, ..., n \quad (8)$$

Step 3c: With λ_{max} value, a consistency index (CI) can then be estimated by

$$CI = \frac{\lambda_{max} - n}{n - 1} \quad (9)$$

Step 3d: Consistency ratio (CR) can be used as a guide to check the consistency

$$CR = \frac{CI}{RI} \quad (10)$$

, where RI denotes the average random index with the value obtained by different orders of the pair-wise comparison matrices are shown in table 2. For consistent the value of $CR \le 0.10$.

N	3	4	5	6	7	8	9	10	11
RI	0.52	0.89	1.11	1.25	1.35	1.40	1.45	1.49	1.52

Table 3.2: Typical values of RI for a given n criteria elements

Generally, the value of CR is greater than 0.10 or 10%, indicates inconsistency in pair-wise judgments, whereas below this value is considered reasonable, and can continue for next stage. Otherwise revision of judgment is required.
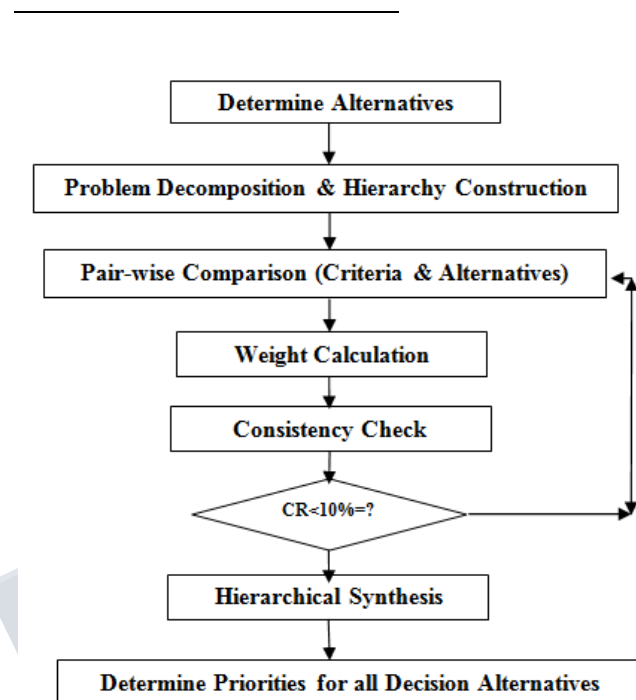

Fig 3.2: Flowchart of the AHP model

VI. RESULT

According to this research Whats App is the best preferred social media application by AHP.

VII. CONCLUSION

The Analytic Hierarchy process (AHP) model is used to rank different Social media apps. It reveals that most preferred social media apps by AHP is social media application. The present study confirms that analytic Hierarchy Process (AHP) approach in social media apps selection domain is an applicable method to enhance the common knowledge with regard to consumer's intention towards social media application and continuous usage.

VIII. SCOPE FOR THE FURTHER STUDY

Many previous studies on the social media apps selection carried on a single country or on a few countries over rely short. Not surprisingly, the result on a country-by-country basis is ambiguous and depends on country- specific circumstances. For the further study we apply the "ANP" that obtain more accurate estimation, which are substantial in the academic literature.

REFERENCES

1) Saaty, T.L.(1977).As calling method for priorities in hierarchical structures. Journal of Mathematical Psychology, 15(3), 234–281.

2) Dey, P. K., Ghosh, D. N., & Mondal, A. C. (2011). A MCDM approach for evaluating bowlers performance in IPL. *Journal of Emerging Trends in Computing and Information Sciences*, 2(11), 563-73.

3) Social media websites and Wikipedia

4) Damodaran, U (2006). "Stochastic Dominance and Analysis of ODI Batting Performance: The Indian Cricket Team, 1989-2005," Journal of Sports Science and Medicine, 5, 503 – 508.

5) Elderton, W P (1945). "Cricket scores and some skew correlation distribution," Journal of Royal Statistical Society (Series A), 108, 1 – 11.

6) Wood, G H (1945). "Cricket scores and geometric progression," Journal of Royal Statistical Society, Series A (Statistics in Society) 108, 12 – 22.

7) Norman, J and Clarke, S R (2004). "Dynamic programming in cricket: Batting on sticky wicket," Proceedings of the 7th Australasian Conference on Mathematics and Computers in Sport, 226 – 232.

8) Ovens, M and Bukeit, B (2006). "A mathematical modeling approach to one day cricket batting orders," Journal of Sports Science and Medicine, 5, 495-502.

9) Gurram, M and Narayanan, S (2004). "Comparison of the methods to reset targets for interrupted One-Day Cricket Matches," Proceedings of 7th Australasian Conference on Mathematics and Computers in Sport, 165 – 171.

10) Jayadevan, V (2002). "A new method for the computation of targets scores in interrupted, limited over cricket matches," Current Science, 83, 577 – 586.