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THE EXPLORATION OF SOCIAL MEDIA PLATFORMS USING MULTICRITERIA ASSESSMENT METHOD (AHP) TO IMPROVE ORGANIZATIONAL PERFORMANCE

Fesseha Gebremikael
Fort Valley State University
Joseph G. Szmerekovsky
North Dakota State University
Chris Enyinda
Ajman University, UAE
Khalid Bachkar
California State University Maritime Academy

ABSTRACT: The use of social media platform (SMPs) is a rapidly growing and having the biggest impact on organizational performance. Even though, SMPs has been recognized as a powerful marketing platform, there is lack of understanding of how SMPs improve organizational performance. This study uses Multicriteria assessment method to evaluate the main decision criteria. Therefore, the objective of this paper is to determine the most preferred SMPs among LinkedIn, Facebook, twitter, YouTube, and Instagram by organizations with Analytic Hierarchy Process (AHP) model. This study also aims to determine the priority of decision criteria in the assessment of the organizational performance with AHP model. The decision criteria employed in this study are quality, delivery, assurance of supply, flexibility, and cost. The result of this study shows that LinkedIn the most preferred alternative policy option followed by Facebook and Twitter, based on AHP model. Quality, Assurance of Supply and Delivery are ranked as the top three influential factors in this study. The result showed that LinkedIn significantly influence social media usage, and the social media usage has a significant effect on organizational performance. The result also showed that quality variable between social media usage and organizational performance. This study is significant because it helps to determine the most preferred alternative policy options as well as the most influential decision criteria impacting organizational performance with AHP model. The result shows that organizational performance depends significantly on social media platform usages

Keywords: Social media, Performance measurement, (AHP, Multi-criteria decision making (MCDM).

INTRODUCTION

Social media platforms (SMPs) have gained prominence over the past several years. And as a result of this popularity, traditional media are undergoing a cascading decline in importance both in commerce and quality. Organizations are spending more money on SMPs, with little understanding of how it influences consumers to favor their brands or buy their products (Roxane, Edelman, & Sarrazin, 2012). The rapid growth of SMPs in recent years has had a considerable influence on consumer attitude, and organizations have embarked to take notice (Papasolomou & Melanthiou, 2012). SMPS is referred as a wide combination of two or more idea application field such as recognizing a new marketing mix and enlarging customer loyalty, there by improving product-service quality, delivery, flexibility and acquiring latest stream of business intelligence) (Madison, 2012). The influence of social media like Twitter, Facebook, Linkedln, Instagram and others is rapidly growing and cannot be ignored in serving as an avenue of promoting and preserving connections. It can be concluded that, Best Buy and Dell have achieved success utilizing SMPS to mitigate costs, and provide goal-oriented in stimulating their employees, improve internal communications, and encourage idea that has been transformed into practical reality. (Shipilov, 2012). However, not much literature is found on exploring empirically how social media affects the communication and coordination among organizations (Aral, Dellarocas, & Godes, 2013; Dou, Niculescu, & Wu, 2013; Miller & Tucker, 2013; Madison, 2012). SMPS provides organizations an opportunity to monitor and analyze the way how consumer exchange news and ideas and derive insights from that information to improve their performance. And The purpose of this study is to analyze the application of (AHP) approach to evaluate the main question of this study "To explore, how social media usage influences organizational performance in deriving intelligence ‘‘.The contribution of this study is significant because there exists the lack of study on how intelligence from SMPs is associated to supply chain performance. The authors have considered 5 important factors for evaluation of the performance of the supply chain. The model is constructed based on the benchmarked evaluated criteria. We proceed to propose AHP based methodology to associate the organization ‘s performance measurement to the evaluation of the SMPs. And this helps. the organizations understand which measurement metrics are of prime importance to their organization business strategy, goals and ensure the performance measurement is aligned with their marketing strategy. And the aim of this study is to analyze the influence of SMPs in a business context, illustrating how SMPs can assist organizations improve their performance. With this end view, this study proposes the analytical hierarchy process framework to evaluate how, the influence of SMPs usage can improve organizational performance in acquiring intelligence. The rest of the paper is organized as follows. Section 2 we review relevant literature on the influence of social media on organizational performance. We then introduce the study area of supply chain organizations. Then draws concluding remarks.

THE ANAYLETICAL HIERARCH PROCESS (AHP)

AHP is a commonly used tool for multi-criteria decision making problems developed by Saaty(1980). The advantage of this technique is the relative ease with which it handles multiple criteria. AHP is easy to comprehend, and it can effectively accommodate qualitative and quantitative data. AHP involves the principles of decomposition, pairwise comparisons, and priority vector generation and synthesis. The AHP provides a framework to deal with multiple criteria scenarios that includes tangible and intangible, qualitative and quantitative features. It encompasses 3 steps: I. Decomposing the complex problem into a hierarchy of different levels of elements. II. Using a measurement methodology to develop priorities between the elements. III. Synthesizing the priorities of elements to establish the final decision. To have a clear understanding the above process is discussed as follows. A complex problem is divided into sub problems in hierarchical levels, with a set of criteria relative to each sub problem. The top level is the governing goal and consists of only one element – the overall objective. With reference to this study, the primary goal is simply the performance measurement of a supply chain to select the best possible supply chain measurement. At the subsequent levels, all the performance measures are listed. We have selected five important factors. These are all the decision factors necessary to achieve the goal.

RESEARCH OBJECTIVE

The purpose of this study was to illustrate how AHP can be used to evaluate SMPs for acquiring information to improve supply chain performance. This contribution of this study is significant because of the lack of sufficient body of knowledge on how information from SMPs links to supply chain performance. This requires evaluating performance measures, a variety of which have been suggested in the literature. Hence, it is necessary to consider the usefulness of information from SMPs for a variety of supply chain performance measures. In the next section, we review relevant literature on intelligence (I), and SMPs.

LITERATURE REVIEW

In this section, we review the literature on social media platforms and their influence on organizational performance, in obtaining intelligence. Hence, the literature review provides the theoretical background for this study. With the advancement of new technology and rapid change taking place globally, organizations are compelled to focus on their supply chain than their internal operations. Hence supply chain performance measurement plays a significant role in supply chain performance improvement. SMPs have significantly altered the relationships between customers and organization by creating and providing a two-way communication (Hoyer and MacInnis, 2010). Social media websites provide organizations with the capacity to interrelate with a prospect and present customers, to foster the sense of the closeness of the customer relationship (Mersey et al., 2010). Social media has not only

transformed the way organizations and their brands interact with customers but in several ways, it has changed the way business is conducted (Leeflang et al., 2014; Patino et al., 2012; Schulz and Peltier, 2013). Organizations are authorized to exchange information with clients at whatever time from any place were using an electronic communication (Chen et al., 2011). According to Kaplan and Haenlein (2010) social media is defined as "a group of Internet-based applications that build on the ideological and technological foundations of Web 2.0, and that allow the creation and exchange, of user-generated content". (P. 63). (SMPs encompasses a collection of internet- based work on web technology and ideological background that assists individual users to create content and share it with other potential users (Kaplan and Haenlein, 2010). SMPs have several types such as blogs, microblogs, social networks, media-sharing sites, social bookmarking and voting sites, evaluation sites, forums, and virtual worlds (Zarella, 2010). SMPs are described by user generated content, which has been found to be effective than traditional marketing communications in influencing the attitudes of other users (Thackeray et al., 2008).Therefore, organizations must know how to make use of social media sites to force traffic to their business sites (Weinberg, 2009). Accordingly, industries are using social media to promote their products in a new way, and each social media has its distinct purpose that the other media may not have. The use of social media by organization, furnishes countless advantages, and several of them have established a positive link between social media and organizational performance (Ainin et al., 2015; Paniagua and Sapena, 2014; Parveen et al., 2013; Rodrigues/ organizational et al., 2015). Organizations that are currently utilizing SMPs are changing from the customarily way of conducting organization business approach to a more advanced methods (Praveen et al., 2016). Therefore, the study poses the following question: Using the application of (AHP), the main question of this study was "How SMPs media usage influences organizational performance in deriving intelligence. We contribute to the stream of study which leverages AHP's ability to deal with multi-attribute decision problems in supply chain management by being the first to use AHP to prioritize the influence of SMPs in obtaining information to improve organizational supply chain performance. In our study, we have identified five commonly used supply chain performance measurement attributes and propose a framework for supply chain performance measurement (see Figure 1).

Figure 1. Framework for supply chain Performance Measurement.

The four levels of hierarchy which consists of the main objective, decision alternatives, decision criteria, and sub-criteria for the evaluation of the

SMPs are presented here. The main objective is illustrated in Figure 1 and Tables 1- 3 show the last 3 three levels of hierarchy.

Table 1: Decision Criteria for supply chain performance

Decision Criteria	Explanation
Delivery	The correct product, to the correct place, and to correct customer and manufacturer at the correct time, in perfect condition and packaging, in the correct quantity with the correct documentation, to the correct customer
Quality	Quality is customer satisfaction or fitness for use.
Assurance of supply	Intelligence on the competition between downstream firms that are competing for inputs in limited supply.
Flexibility	Flexibility is the organizational ability to meet an increasing variety of customer expectations without excessive cost, time, disruption or loss-increasing the range of products available
Cost	The cost associated with the operating the supply chain

Source: (Sarode et al., 2008).

Table 2: Sub-criteria for supply chain performance

Sub-criteria	Explanation
Demand Intelligence	Intelligence activities that the end customer values and is willing to pay for.
Process Product Intelligence	Intelligence that addresses the key manufacturing.
Supplier Intelligence	Intelligence ability to understand the relationships between the firm and its major suppliers.
Logistics Intelligence	Intelligence that takes the changing "landscape" in demand intelligence and determines the optimal response, maximizing customer value and how it affects manufacturing production capacity and schedules, the logistics network, and inventory policy.

Political/Economic Intelligence	Intelligence related to Political, Technological, and Economic changes at a global scale, causing dramatically increased volatility of markets which used to be considered stable and continuously growing.
Supply Chain Visibility Intelligence	Intelligence as access to high quality information that describes various factors of demand and supply.

Source: (Haydock, 2003) and (Williams et al., 2013) and (Klaus, 2011)

Table 3: Descision Alternatives: Popular Social Media Platforms

Type	Platform Types	Definition
Social Networking	Facebook, LinkedIn	Content sharing, mainly personal and business information.
Microblogging	Twitter	Blogging (online diaries), mainly text based that uses hashtags (less than 140 characters).
Media	YouTube/ Instagram	Content sharing, mainly videos and photographs.

Source: Adopted from (Kaplan and Haenlein, 2010).

In this framework, we have identified five important attributes that describes supply chain performance measurement. To ensure the organizational measurement system is aligned with its strategic plan, it is critical for us to have an approach to help companies to understand their supply chain strategy. Therefore, we propose Analytic Hierarchy Process (AHP) in determining the importance of supply chain attributes to a particular supply chain strategy. Table 1 shows the various supply chain performance attributes and metrics at different levels.

AHP Approach

The AHP provides a method to assign numerical values to subjective judgments on the relative importance of each element and then to synthesize the judgments to determine which elements have the highest priority. A high-quality computer system/software-Super Decision was used to develop the model and to conduct a sensitivity analysis of the final ranking list. Figure 2. Shows the screen shot of the AHP model.

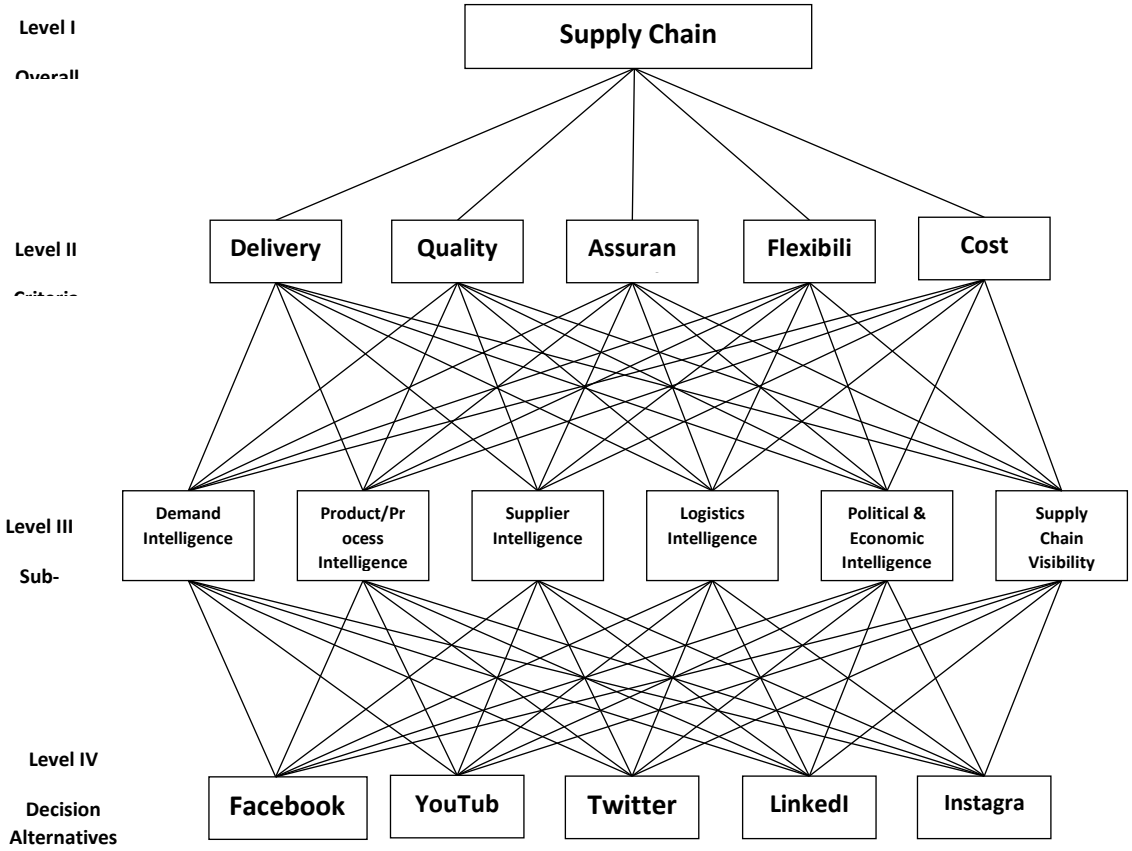

Figure 2: Hierarchical structure of the Analytical process (AHP) model

CALCULATION OF RANKINGS

Once the pairwise comparison is complete, the next step is to calculate the priority. The priority of the attributes determines the strategy of the supply chain. Table 4. shows the various priorities of the above-mentioned attributes as calculated by AHP method.

Table 4. Pairwise comparison Scale

Importance Intensity	Preference Judgement
1	Equally Important
3	Moderately Important
5	Strongly Important
7	Extremely Important
9	Extremely more Important
2, 4, 6, 8	Intermediate values between adjacent values

Source: Saaty (1980)

DATA ANALYSIS

This study uses questionnaire survey to obtain the opinions of supply chain professionals on using SMPs to obtain information to improve organizational performance. The data was collected between June 21, 2017 – September 1, 2017. The survey was conducted through Qualtrics and was sent out to 20 supply chain professionals from five different organization to provide their expert judgement. The experts provided response to several pair-wise comparisons, where two categories were compared with respect to the primary goal. Participants gave a measure of the relative importance of each decision criteria. Hence responses obtained from supply chain professionals were used as input for AHP into Excel and then read into SAS where calculations for obtaining priorities were performed. It took total of 10 judgements (5(-1)/2) to complete the pair-wise comparisons shown in table 5. To estimates the decision criteria priorities, we used the obtained data that is reported in Table 1. The priorities give a measure of the relative importance of each decision criterion.

RESULTS AND DISCUSSION

Table 5 presents reports on the priority scores associated with main performance decision criteria (Il) and the priority matrix of social media platform alternative policy options (IV). For the decision criteria, quality (0.256) is the most important supply chain competitive intelligence factor, followed by assurance of supply (0.230), and quality (0.190); respectively.

Table 5: Normalized pair wise comparison matrix for performance measures.

Criteria→↓	Delivery	Quality	Assurance of supply	Flexibility	Cost
Delivery	1	5/8	5/6	1	8/5
Quality	8/5	1	7/5	7/5	7/5
Assurance of supply	6/5	5/6	1	7/5	6/5
Flexibility	1	5/7	5/7	1	1
Cost	5/8	5/7	5/8	1	1

Maximum Eigen value = 5.033 CI= 0.007

Table 6**:** Summary pairwise assessment matrix overall priorities for SMPs

SMPs	Priority Score	Rank
LinkedIn	**0.322**	1
Face book	**0.206**	2
Twitter	**0.176**	3
YouTube	**0.171**	4
Instagram	**0.153**	5

Table 6 presents reports on the analyzed data with respect to the overall priority scores of the SMPs , LinkedIn (0.322) is the most preferred social media platform option, followed by Facebook (0.206), Twitter (0.176), YouTube (0.171), and Instagram (0.125), respectively. That is, LinkedIn > Facebook > Twitter > YouTube > Instagram respectively. Therefore, LinkedIn is the overall best social media platform choice option.

SUMMARY AND CONCLUSION

This study explored the influence of SMPs on supply chain performance in an organization to select the best SMPs. To achieve the desired goal requires using an MADM, specifically AHP model. This model involved modeling supply chain performance and linking it to SMPs through various types of factors. AHP was chosen as it permits decision makers to model a complex problem in a hierarchical structure describing the association of the governing goal (supply chain performance), decision criteria (supply chain performance measures), sub-criteria (types of SCI), and SMPs.

The objectives were to identify the most important SMPs (Face book, Twitter, YouTube, LinkedIn, and Instagram) and how they contribute to obtaining information about stated performance measurements Result of the pairwise

comparisons of the major criteria indicate that quality is the most important supply chain performance measure with a weight of 0.256 (26%). This finding suggests that quality is perceived as one of the most favorable factors serving to select the best SMPs for an organization. Assurance of supply and delivery are also major contributing factors for selection of SMPs with weights of 0.230 (23%) and 0.190 (19%) respectively. With respect to the major alternative policy options, on the other hand, results of the priorities indicate that LinkedIn (0.322) is the most preferable SMP, followed by Face book (0.206) and Twitter (0.176).

In this study, we apply AHP Model to analyze the priorities of the five important factors which influence the whole supply chain performance. As SMPs are increasingly becoming a stable to organizations and with the advancement in digital growth, organizations are investing more money and time into social media. Therefore, exploring the influence of SMPs in improving organizations performance is critically significant.

FUTURE RESEARCH

Based on our results there appears to be a preference for those SMPs which are professional, text-based, and stable in their content. This observation could be the foundation of a theory for describing how SMPs are used to gather information. That theory could then be tested through an empirical study. This would address the primary limitation of our study which was the low response rate with only five participants' data being used for the analysis. However, five is a commonly accepted number of participants for AHP, due to this small number, the results have limited generalizability. This can be addressed in future work by increasing the number of participants and collecting sufficient data that could be used to generalize the results of AHP model. The methodology developed has been used successfully and can be applied by organizations to assist in formulating strategic plan of action using SMPs to acquire information to improve supply chain performance.

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