The Journal of Social Sciences Research
ISSN(e): 2411-9458, ISSN(p): 2413-6670
Vol. 6, Issue. 8, pp: 727-736, 2020
URL: https://arpgweb.com/journal/journal/7
DOI: https://doi.org/10.32861/jssr.68.727.736

Academic Research Publishing Group

Original Research Open Access

Evaluating the Effectiveness of News Management Software's: A Study of Pakistan News Channels

Ali Ashraf (Corresponding Author)
Faculty of Media and Communication Studies, University of Central Punjab, Lahore, Pakistan
Email: ali.ashraf@ucp.edu.pk

Taimoor-ul Hassan
Faculty of Media and Communication Studies, University of Central Punjab, Lahore, Pakistan

Farahat Ali
Faculty of Media and Communication Studies, University of Central Punjab, Lahore, Pakistan

Article History
Received: June 15, 2020
Revised: July 21, 2020
Accepted: July 30, 2020
Published: August 5, 2020

Abstract

Technological innovations and its implementation in different organizations has been one of the prime interest of academicians as well as practitioners. The diffusion and implementation of information systems invited researchers to check effectiveness of the systems. The current study is using the Delone and Mclean as theoretical framework in context of media organizations. Sample data has been collected from top 15 news channels employees who are using news management software. A sample of 1000 was selected from these channels with the help of stratified sampling technique. Data were analysed by using the structural equation modelling. The results show that employees perceive that service quality, system quality and information quality are significant contributor to news flow and individual performance. Moreover, news flow is directly and indirectly affecting the individual performance. In addition to this, individual performance is significant predictor of process performance, satisfaction and organizational performance. The result strongly supports the integration of news flow and satisfaction in Delone and Mclean model. The results also support the mediating role of news flow, process performance and satisfaction. The paper offers a snapshot that how quality indicators and user satisfaction from news management system can increase the effectiveness of media organization. The research would be a great value to practitioners and media organizations.

Keywords: News information systems success; News management system; TV news channels; News flow; Delone and mclean.

1. Introduction

Technological developments occurred in last two decades have changed the television newsrooms completely. Media organizations are struggling with workplace conditions and newsrooms digitalization. To meet the ever-demanding needs of their audience and compete with their competitor, media organizations have introduced the Information system (IS) in their newsrooms to make the news gathering process effective and efficient. Weiss and Schwingel (2008), defined the Information system (IS) in media organizations as a content management system that facilitates newsroom workers, reporters, editors, and others to proceed with the content for reviews and finally help it to get to the consumer. Information system in a newsroom is not a new thing, different Information or content management systems had been implemented since the early time of computer systems but now a day IS is in sophisticated form, meeting the latest requirements of the media industry. Saltzis and Dickinson (2008), describe the information system as an important catalyst in producing speedy content for media houses. Boyd *et al.* (2008), describes an information system as a content management system that countenances news flow and facilitates journalists to air their content timely and saves from ambiguity and confusion. Holmberg (2002), described Information System as it helps quick sorting of news, efficient support of information flow among reporters and editors, improving content, time and resource management for meeting deadlines, refrain journalist to work in parallel and providing access to journalists with the information they might require to perform their job. Mauthe and Thomas (2004), label Information system for TV organization as having all functions required to manage news, that includes news filing, video import, and export within the system, editing of news and footages requires for the news, teleprompter management and control, access to archives and finally broadcasting of the news. Todorović (2006), describes each Tv organization customizes information systems for their specific requirements.

There are ample studies that discuss Information systems success in media organizations. From print media i.e. newspapers, news websites, radio stations to TV medium, information systems have helped increase the productivity of organizations. Rodgers (2015), termed information systems as helpful and flexible in developing layouts for both news and advertising for print media. Zangana (2017), studied two TV news channels with one implemented Information system for their news operations while another news channel was still running at the non-automation

system. The findings of the study suggest that news channels with Information systems produced better results for the organization and had a positive impact on journalists than its counterpart. We found media organizations especially TV news channels with implemented information systems for their news production but there are very few studies that describe the implications at organization and journalists' level (Brautović, 2009). Different models are available to study the success of information system. Manchanda and Mukherjee (2015), review and compare four information systems: TAM (Technology Acceptance Model), DeLone and McLean model, updated DeLone and McLean model and Model by Gabel and fellow researchers in their relevance to the information system field, The D & M model is the most prevalent among all previous models providing different parameters to gauge the system success while other mention models are good for some specific scenarios. The D & M have been studied in medicines (Ojo, 2017), for E-Government, (Rana *et al.*, 2013), in RFI (Radio Frequency Identification) system (Dwivedi *et al.*, 2013) similarly, many researchers like Larsen (2003), Seddon (1997) and Urbach *et al.* (2009) studied information systems in different organizations and discuss its effectiveness. The influential DeLone and McLean model (DeLone and McLean, 1992) having six interconnected variables to define Information System success: SQ (System Quality), IQ (Information Quality), Use, User Satisfaction, Individual Impact, and Organizational Impact. further researches tested, recommend changes, and develop the concept of Information System success (Dwivedi *et al.*, 2013). The very model is not tested in media and communication studies yet. The current study is testing the D&M model with slight modification for the information system success in the field TV channel in Pakistan.

The assessment, validation, and success of Information system success have been one of the favourite areas of research for both academicians and practitioners. Measuring Information system success is not an easy task, as "success" varies from industry to industry. The clash of interests between the management and employees also contributes toward the complexity of Information system success as management might take success in terms of an increase in profits while employees see the very concept as ease in day to day tasks in an organization. Urbach *et al.* (2009). Different theories and models are developed to measure the success of information systems in different organizations but DeLone and McLean (1992), later updated Delone and McLean (2003) received immense popularity among Information systems researchers. The Updated D&M model contains six variables to gauge the success of the Information system (Delone and McLean, 2003), while some mediating variables are also being introduced while taking this model in the context of TV. The study also employed a D&M model with slight modification and going to test it for TV organizations. A significant number of studies examined and found a positive relationship between system quality and individual performance. Petter and McLean (2009) and Bharati and Berg (2003) found a positive relationship between system quality on individual (employee) performance. Petter *et al.* (2008) in a review-based study found the variable system quality affecting positively to individual performance in the context of different organizations. Undurraga (2017) studied technological innovation in news industry, the results of the study suggest that new system increase the news flow as it enables journalists to file news at multiple platform simultaneously. Based on available literature following hypothesis is anticipated.

H1: System quality positively affect news flow.

H2: System quality positively affect individual performance.

Information quality is one of the very important variables especially in the context of media organizations. Seddon (1997), noticed a supported relationship between information quality and users or individuals at the organization level. The studies by Yoon (2009) and Sørum *et al.* (2012) supported information quality with a performance at the employee level i.e. individual performance. Petter *et al.* (2008), conducted meta-analysis on Information system success supported a significant relationship between information quality and individuals. Rai *et al.* (2002), also found a positive relation of information quality and perceived usefulness. Roldán and Leal (2003) and Iivari (2005) found significant relationship information quality and user, termed as individual in the current study. In the context of media and communication with particularly in TV channels, Weiss and Schwingel (2008) noticed the positive effect of information quality at individuals i.e. journalists. they found that TV channel having information system has fewer information issues and their news was aired on time with comparisons to those journalists who did not have an information system. Zhang *et al.* (2016), noted that better information quality result into gratification and gratification contributes to more information writing. The more information writing contributed to more news flow. The second hypothesis is based on the studies mentioned above as:

H3: Information quality positively affect news flow.

H4: Information quality positively affect individual performance.

Service quality was one of the missing variables in the initial D&M model (DeLone and McLean, 1992). This important variable was included in the updated model of the D&M study (Delone and McLean, 2003). Lin (2007), in the study of online system success found that service quality has a significant tie with the individuals. Wang and Liao (2008), in accessing eGovernment system success experienced a positive relationship between service quality and individuals. Tam and Oliveira (2017), in their study for information systems in mobile banking found that service quality is one of the key factors at the individual level. Al-Debei *et al.* (2013) studied information systems in the context of web portal success, found service quality is positively affecting the users. Chang *et al.* (2012) studied information system success in the field of medical services. They found that service quality and user (individual) factors are vital parts of their information system. Weiss and Schwingel (2008), discussed that the better content management system is linked with better content and production of the news. In other words, information system enabled journalists to produce more content effectively. So, based on these studies and many more third hypothesis of the study is proposed as

H5: Service quality positively affect news flow.

H6: Service quality positively affect individual performance.

Lodhi (2016), studied Enterprise Resource Planning (ERP) success, the study found a positive relation in individual performance and process performance. Lin *et al.* (2006), noticed that individual performance enhances business gain which ultimately improves organizational performance. They did an extensive study on more than 250 organizations having an information system in Taiwan and their results showed that individual performance has a positive association with process performance. The fourth hypothesis supported by mentioned studies is as:

H7: Individual performance positively affect process performance.

H8: Individual performance positively affect satisfaction.

Various studies supported the idea that process performance positively influences organizational performance. Dehning and Richardson (2002), theory proposed a strong relationship between process and organizational performances. Lodhi (2016), also proposed a positive relationship between the two variables in the context of ERP systems. Chung *et al.* (2007), also notices that process performance is positively related to organizational performance. Harr *et al.* (2019), notices that information system had produced better results regarding competence, partnership, and acquiescence for employees, these factors resulted into employee satisfaction that contributed to overall for organizational performance. Based on mentioned and many more studies the fifth hypothesis of the study as:

H9: Process performance positively affect organizational performance.

H10: Satisfaction positively affect organizational performance.

Weiss and Schwingel (2008), studied that journalists of TV channels having information systems, produced better results for their organizations in comparison to TV channels working manually. Timely news reporting and efficient resource management enabled journalists to contribute to their organization positively. Lodhi (2016), also noticed that there is a significant relationship between individual performance and organizational performance. Based on the studies the sixth hypothesis of the study is as:

H11: Individual performance positively affect organizational performance.

Brautović (2009), discussed the information system (newsroom computer system) increased overall productivity of the organization. One of the main causes of the better performance was improved flow of information (news) due to newsroom computer systems, which became the cause of improved individuals' performance. Implementation of digitization improved news flow lead to improved work speed of journalists which ultimately resulted into processing of more news and avoided the probability of working in parallel. Gomez-Mensah (2016), in the study about technology effect in news process (newsgathering, production, and delivery) of Ghana TV discussed that information systems had positives effects on news production and improved individual performance as well. These and many more studies suggested that news flow will mediate between the main component of any Information system that is system, service and information quality and individual performance so the proposed hypothesis is as:

H12: News flow is mediating among the relationship of Service Quality, information quality, and system quality with individual performance**.**

Spyridou *et al.* (2013), noticed improvement in news process and satisfaction of individuals due to information system, these factors ultimately contributed towards better organizational performance. Lin *et al.* (2006), also argued that due to improved individual performance, process performance and satisfaction level were also noticed to have positive effects which lead to improving overall organizational performance. These studies and others like these leads to propose the following hypothesis.

H13: Satisfaction and process performance are mediating between the relationship between individual performance and organizational performance.

2. Method

The present study used survey method for data collection from the journalists who are using news information system for news gathering and production process. The sample of the study is top 15 TV news channels who implemented the news management for news gathering and production process. The selection of the top 15 channels is based on criteria of TRPs (TV Ratings of Programs), viewership and Nationwide Reach. The stratified sampling technique was employed to collect data from the defined population of the study. In survey, stratified sampling is useful to find out key evidence from diverse groups to enable the investigator to develop basic understanding and to know their opinion or attitude towards specific issue (Ary *et al.*, 2002). A sample of 1000 journalists which include reporters, assignment editors, copy editors or desk editors, producers and other staff who is involved in the news gathering and production process through software have been taken for the study. Data was collected from the journalist between the month of January and February of 2020. The detail of 1000 sample size and stratified sampling is provided in the below table.

Table-1. Selection of sample through Stratified Sampling Technique

Channel	Islamabad	Karachi	Lahore	Total	%	% Strata
PTV News	1000	40	30	1070.00	0.14	143
GEO	30	800	25	855.00	0.11	114
ARY	32	900	20	952.00	0.13	127
Dunya	28	15	100	143.00	0.02	19
Samaa	30	800	18	848.00	0.11	113
92 News	25	28	80	133.00	0.02	18
Express	28	25	90	143.00	0.02	19
Aaj news	25	700	15	740.00	0.10	99
Dawn News	23	500	20	543.00	0.07	72
Bol News	22	425	18	465.00	0.06	62
News one	20	400	15	435.00	0.06	58
GNN	32	28	150	210.00	0.03	28
Hum News	480	25	22	527.00	0.07	70
24 News	22	25	250	297.00	0.04	40
NEO News	13	17	115	145.00	0.02	19
			Total	7506	**Sample= 1000**	

Preliminary analysis was performed through SPSS. Demographic results showed that majority of the respondents were males (80%) while females were only 200 (20%). In addition to this, the age range of males' respondents were between 20 to 70 years while for females age range were between 20 to 50 years. The monthly income of the males' respondents was between 30,000 to 150,000 while for females it was between 20,000 to 100,000. Half of the respondents have minimum qualification of master's (50%), 45% holds Bachelor or BS degree while 5% respondents have MPhil degree. More than 80% of respondents belongs to cities while remaining 20% belongs to rural areas.

2.1. Measures

Main variables of the study are measured with the help of established scales. The scales are modified to meet the requirements of TV news channels and reliability and validity of the scale is evaluated. The system quality scale is adapted from Gable *et al.* (2008). The scale for Service Quality is adapted from the study by Parasuraman *et al.* (1988). The scale to measure Information quality is adapted from Pitt *et al.* (1995). Individual Performance scale is adopted from the study of Gable *et al.* (2008). The scale to measure Process Performance is adapted from the study of Chand *et al.* (2005) and Axelsson and Sonesson (2004). Organizational Performance is measured from the scale developed by Gable *et al.* (2008). User Satisfaction scale was adapted from the Lin (2007) and Wang *et al.* (2007), study. A scale for news flow has been developed with help of existing literature and experts from the academia and professional field. The reliability and validity of the scale has been tested through Cronbach alpha, composite reliability, factor loading, and AVE (Average variance extracted).

2.2. Data Collection Procedure

Before the data collection, a permission was taken regarding questionnaire from ethical review committee of Faculty of Media and Communication Studies. The researchers took the permission from relevant news channels offices and visited their channels on their allocated date and time. Respondents were informed about the purpose of research and a formal consent was taken before the data collection from the employees. The respondents were informed that their identity will not be disclosed, and information will be used only to understand the success of software in news channel. Those employees who were not willing to participate in the study, were excluded.

2.3. Analysis

The researchers used the SPSS version 25 for data entry and initial data screening. All the hypotheses were tested with the help of Smart PLS version 3.2.9.

3. Results

Partial least square (PLS) approach of SEM (Structural equation modelling) was used to test the measurement and structural part of the study. This approach is useful while conducting the exploratory and confirmatory studies (Chin, 1998; Falk, 1992; Jöreskog and Sörbom, 1993; Schaper and Pervan, 2007). Smart PLS 3.2.9 software was used to perform the PLS based SEM analysis. This software was used for this study because it can work on wide range of data set, non-normality, and can handle complex model easily (Hair *et al.*, 2017; Pan *et al.*, 2015). Preliminary assumptions of missing data, data distribution, and outliers were checked as per the recommendations of Hair *et al.* (2013).

3.1. Measurement Model

The measurement model contains the detail about the factor loadings of the items, Cronbach alpha, composite reliability, average variance explained, and details related to discriminant validity. Table 2 shows the factor loadings of the construct and some construct have low loadings on some items, but their average variance explained is above 0.50 value. Factor loading tells about the loading of each item on construct and threshold value for this is 0.70. Smart PLS provide the two measures of internal consistency, one is Cronbach alpha and second is composite reliability. Cronbach alpha value is old test of reliability and internal consistency. The value of Cronbach alpha for each construct is above the threshold of 0.70 (Bland and Altman, 1997; Tavakol and Dennick, 2011), which shows that there is no issue of reliability in any variable. Moreover, composite reliability is considered a good measure of internal consistency and unidimensionality of construct. The cut off value for composite reliability is 0.70. Each construct holds a value above 0.70 which is sign of unidimensionality and internal consistency. Convergent validity is measured through average variance extracted (AVE). AVE provides the details related to average variance explained by each construct and it's cut off value is 0.50 (Hair *et al.*, 2011). Each construct of this study is showing an AVE value above the threshold, so there is no issue of convergent validity in all the constructs.

Table-2. Psychometric Properties of System Quality, Information Quality, Service Quality, News Flow, Individual Performance, Process Performance, Satisfaction, and Organizational Performance

Variables	*K*	*λ Range*	*α*	*CR*	*AVE*
System Quality	11	0.52-0.82	0.92	0.93	0.53
Information Quality	7	0.47-0.83	0.81	0.86	0.52
Service Quality	5	0.63-0.84	0.82	0.87	0.58
News Flow	5	0.71-0.83	0.83	0.88	0.59
Individual Performance	7	0.67-0.78	0.87	0.88	0.51
Process performance	6	0.66-0.83	0.85	0.89	0.57
Satisfaction	3	0.78-0.81	0.71	0.84	0.63
Organizational Performance	8	0.63-0.81	0.88	0.90	0.53

Note: k = number of items, CR = composite reliability, AVE = Average variance extracted, λ (lambda) = standardized factor loading α = Cronbach's alpha

There are two ways to ensure the discriminant validity issue. One is Fornell-Lerker Criteria and second one is Heterotrait-Monotrait analysis (Fornell and Larcker, 1981; Henseler *et al.*, 2015). The researchers applied the both techniques to assess the discriminant validity. The table 3 shows the correlation among factors and it is clear from the values that square root of AVE for each construct is greater than its squared correlated with all other construct and matrix diagonal values are greater than the off diagonal value (Fornell and Larcker, 1981; Hair *et al.*, 2017). The is no discriminant validity issue as per the table of the correlation among the factors.

Table-3. Mean, Standard Deviation and Correlation among Factors

Variables	*M*	*SD*	1	2	3	4	5	6	7	8
1. System Quality	3.85	1.29	0.714	0.084	0.078	0.054	0.14	0.049	0.105	0.064
2. Information Quality	3.83	1.22		0.721	0.52	0.365	0.382	0.269	0.546	0.201
3. Service Quality	4.03	1.22			0.768	0.368	0.392	0.334	0.272	0.138
4. News Flow	3.52	1.32				0.727	0.518	0.559	0.349	0.243
5. Individual Performance	4.08	1.06					0.757	0.383	0.563	0.276
6. Process performance	3.67	1.35						0.795	0.22	0.028
7. Satisfaction	3.64	1.29							0.764	0.277
8. Organizational Performance	3.62	1.23								0.73

Note: M = mean, SD = standard deviation

The threshold for *Heterotrait-Monotrait* (HTMT) is 0.85 or 0.90 (Henseler *et al.*, 2015; Voorhees *et al.*, 2016). and it provides the details about the discriminant validity issues. The table 4 shows that all these values are less than the cut off value so there is no issue of discriminant validity in the variables.

Table-4. Heterotrait-Monotrait Ratio HTMT Matrix

Variables	1	2	3	4	5	6	7	8
1. System Quality		0.07	0.07	0.14	0.08	0.10	0.07	0.07
2. Information Quality			0.61	0.42	0.48	0.35	0.72	0.21
3. Service Quality				0.42	0.47	0.43	0.31	0.11
4. News Flow					0.53	0.66	0.38	0.24
5. Individual Performance						0.46	0.66	0.28
6. Process performance							0.27	0.06
7. Satisfaction								0.29
8. Organizational Performance								

3.2. Evaluation of Structural (inner) Model

In the two-stage approach of partial least square, the second part deals with the structural part of the model. In structural part of model, we evaluate the direct and indirect effects (mediation) in the model. The results of table 5 indicate that H1, H2, H3, H4, H5, H6 and H7 are accepted. These results suggest that three indicator of news flow namely system quality (H1), information quality (H2), service quality (H3), significantly predict the news flow. Overall, 27.1% variance of news flow can be explained by the three characteristics of quality. Moreover, four indicators of individual performance namely system quality (H4), information quality (H5), service quality (H6), and news flow (H7) significantly predict the individual performance. Moreover, 23.1% variance of individual performance can be explained by the three characteristics of quality and news flow. In addition to this, H8 is supported ($\beta = .34$, $p < .01$) as individual performance is positively related with process performance. Overall, 15.7% of variance of process performance can be explained by individual performance (Figure 1). The results show that individual performance is positively related with satisfaction ($\beta = .45$, $p < .01$), this supporting H9 and explained a variance of 18.2% in satisfaction. The results also indicate that H10 is supported since individual performance is positively related with organization performance. In terms of organization performance, the results show that process performance ($\beta = .36$, $p < .01$) and satisfaction ($\beta = .42$, $p < .01$) is positively related with organizational performance. Overall, 42.1% of variance of organizational performance can be explained by the individual performance, process performance and satisfaction.

Table-5. Direct Effects of quality indicators on different dependent variables

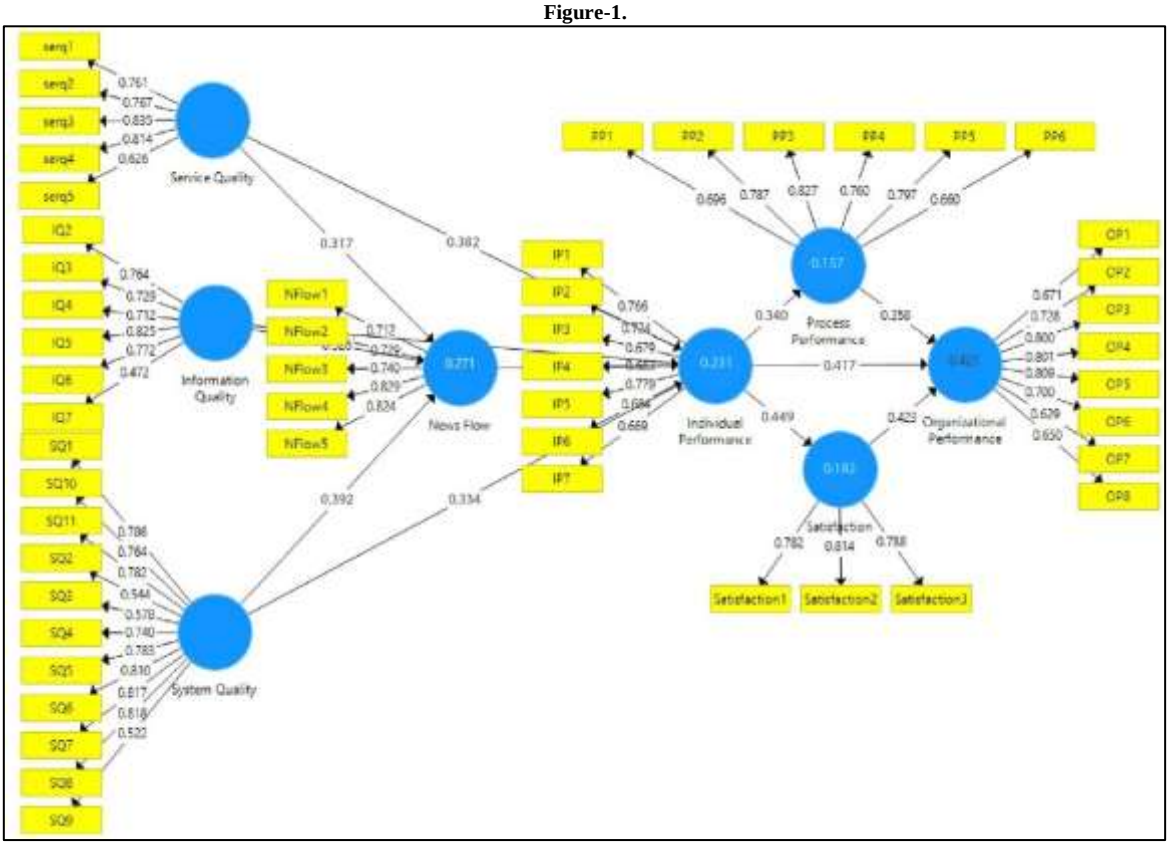
Antecedent	**Consequent**									
	News Flow		**Individual Performance**		**Process Performance**		**Satisfaction**		**Organizational Performance**	
	Coeff.	***f^2***	***Coeff.***	***f^2***	***Coeff.***	***f^2***	***Coeff.***	***f^2***	***Coeff.***	***f^2***
Service Quality	.32***	.28	.38*	.26						
Information Quality	.53**	.27	.25**	.21						
System Quality	.39**	.22	.33**	.21						
News Flow			.35**	.27						
Individual Performance					.34**	.26	.45**	.32	.42*	.30
Process Performance									.34**	.24
Satisfaction									.42**	.26
R^2	.27		.23		.16		.18		.42	

Note: Coeff. = standardized regression coefficient,

3.3. Mediation Analysis

To test the mediating hypotheses, two separate mediation analysis were performed with a bootstrap of 5000 values. In the first analysis, new flow was a mediator between the three quality indicators and individual performance. In the second analysis, process performance and satisfaction were a mediator between the relationship of individual and organizational performance. The results indicate that relationship of system quality ($\beta = 0.18$, $p < 0.05$), information quality ($\beta = 0.26$, $p < 0.01$), service quality ($\beta = 0.19$, $p < 0.01$) and individual performance was mediated by news flow which means that three quality indicator (independent variables) had indirect effects on individual performance via news flow. Therefore, Hypothesis H12 was supported. Moreover, second mediation analysis shows that individual performance had indirect effect on organizational performance through process performance ($\beta = 0.20$, $p < 0.05$) and satisfaction ($\beta = 0.17$, $p < 0.05$). The results indicate that process performance and satisfaction were mediator for the relationship of independent variable (individual performance) and dependent variable (organizational performance). Thus, Hypotheses 13 was also supported.

Figure-1.



4. Discussion

This study has found the impact of service quality, information quality, system quality, news flow, individual performance, process performance, and satisfaction on organizational performance and relationships of these variables. First, our study found that news flow is directly determined by the three quality indicators (service quality, information quality, system quality). When these three quality indicators work efficiently, they make the better news flow in the software. Second, individual performance depends on the three quality indicators and news flow. According to result, four variables directly affect the individual performance and can increase the journalist individual performance. Third, individual performance is a significant predictor of process performance, satisfaction from software and organizational performance. Fourth, process performance and satisfaction from software is also a significant predictor of organizational performance. In mediation result, the research identified that news flow, process performance and satisfaction from software is mediating the relationship between independent and dependent variable. These results indicated that better individual performance will leads to better organizational performance.

4.1. Theoretical Implications

This research contributes in the existing literature in two ways. First, we identified the news flow as important indicator of individual performance for new organization. News organization works differently than the other organization. In other organization like in universities, hospital and libraries, Delone and Mclean model has already been applied but these organization check the success of their system in terms of emails, websites and customer or patient's data. In news organization main commodity is news for which this whole system was used. So, the whole purpose of different news management software's is to effectively and smoothly helps the news reporter to send their news work to editor. Therefore, quality indicators help in the smooth functioning and transmission of news from reporter to editor. Researchers has previously identified that news is the main product that a news organization sells to its audience (Jackson, 2009; McManus, 1992). Channels struggle for breaking news and try to broadcast the news before another channel (Chadwick, 2011; Hamilton, 2004).

Second, satisfaction from software is an important theoretical contribution. Previous research has found that satisfaction from website or software is important element to predict the organizational performance (Kang and Lee, 2010). Previous model of DeLone and McLean (1992) mentioned the user satisfaction but latest model of Dehning and Richardson (2002) excluded it, but we found that satisfaction is important contributor in organizational performance. Satisfaction has direct and significant effect on organizational performance. Moreover, previous research deals with the satisfaction from the usage experience of software (Cheung and Lee, 2009; Sangwan, 2005) but our research defines the satisfaction as the gratification a user receive from the characteristics or features of software. Moreover, our study has extended the D&M IS success model to media organization.

4.2. Practical Implications

The results of this study have three major implications for practitioners and media organizations. First, the study provide insight that how quality indicators contributes to success of individual in an organization. Based on the findings, quality parameters help a reporter, editor or producer to maintain the news management and broadcasting in a better way. The problem in the quality indicator can slow down the process and individual performance. Therefore, channels should focus on the quality parts of software to increase the news flow and individual performance. The more easy, reliable and helpful employees find the software, the more effectively and efficiently, they can perform their duties. Those organizations who have week system, service or information quality, they can hardly perform like a top organization.

Second, user satisfaction from the features of software is another factor that can help the media organization. Organizations pay less attention to user satisfaction from the implemented system (Khosravi *et al*., 2013). Our study results indicate that satisfaction from website leads an employee towards better organization performance. So, organizations should keep in mind the interface and design of the software and journalist can consider it more user friendly. For example, if the journalist recommends that different options in the software are hard to access on mobile, then organization should work on it.

Third, our model offers a solution to organization that they can check their success of their software's and they can evaluate the organization performance. With the help of these findings, they can locate the problem and can priorities their investment.

4.3. Limitations and Future Implications

One of the research limitations is that we have collected the data from only top 15 organization, so these results are not applicable to those organization who are not using any software in their organization. Moreover, this model has been tested in the media organizations of a developing country. A comparison with other Asian countries media organization or with the advanced countries media organization can provide more generalised results. Future research should explore more dimensions of quality which can contribute in performance of an individual while keeping in mind the media organization. In addition to this, future research should also compare the performance of those organization who have access to news management system in their organization with those who do not have access to these news management systems.

References

Al-Debei, M. M., Jalal, D. and Al-Lozi, E. (2013). Measuring web portals success: a respecification and validation of the DeLone and McLean information systems success model. *International Journal of Business Information Systems*, 14(1): 96-133.

Ary, D., Jacobs, L. C. and Razavieh, A. (2002). *Introduction to research in Education.* 6th edn: Harcourt Brace: Forth Worth.

Axelsson, M. and Sonesson, J. (2004). Business process performance measurement for rollout success. Available: http://www.diva-portal.org/smash/get/diva2:830215/FULLTEXT01

Bharati, P. and Berg, D. (2003). Managing information systems for service quality: A study from the other side. *Information Technology and People*, 16(2): 183-202.

Bland, J. M. and Altman, D. G. (1997). Statistics notes: Cronbach's alpha. *British Medical Journal*, 314(7): 571-72.

Boyd, A., Alexander, R. and Stewart, P. (2008). *Broadcast journalism: Techniques of radio and television news.* Routledge: New York.

Brautović, M. (2009). Usage of newsroom computer systems as indicator of media organization and production trends: Speed, Control and Centralization. *Medijska istraživanja: znanstveno-stručni časopis za novinarstvo i medije*, 15(1): 27-42.

Chadwick, A. (2011). The political information cycle in a hybrid news system: The British prime minister and the Bullygate affair. *The International Journal of Press/Politics*, 16(1): 3-29.

Chand, D., Hachey, G., Hunton, J., Owhoso, V. and Vasudevan, S. (2005). A balanced scorecard based framework for assessing the strategic impacts of ERP systems. *Computers in Industry*, 56(6): 558-72.

Chang, C. S., Chen, S. Y. and Lan, Y. T. (2012). Motivating medical information system performance by system quality, service quality, and job satisfaction for evidence-based practice. *Bmc Medical Informatics and Decision Making*, 12(1): 135.

Cheung, C. M. and Lee, M. K. (2009). Understanding the sustainability of a virtual community: model development and empirical test. *Journal of Information Science*, 35(3): 279-98.

Chin, W. W. (1998). *The partial least squares approach to structural equation modeling. In G. A. Marcoulides (Ed.).* NJ: Lawrence Erlbaum: Modern methods for business research Mahwah. 295-358.

Chung, W. W., Tan, K. H., Koh, S. L., Law, C. C. and Ngai, E. W. (2007). An investigation of the relationships between organizational factors, business process improvement, and ERP success. *Benchmarking: An International Journal*, 14(3): 387-406.

Dehning, B. and Richardson, V. J. (2002). Returns on investments in information technology: A research synthesis. *Journal of Information Systems*, 16(1): 7-30.

DeLone, W. H. and McLean, E. R. (1992). Information systems success: The quest for the dependent variable. *Information Systems Research*, 3(1): 60-95.

Delone, W. H. and McLean, E. R. (2003). The DeLone and McLean model of information systems success: a ten-year update. *Journal of Management Information Systems,* 19(4): 9-30.

Dwivedi, Y. K., Kapoor, K. K., Williams, M. D. and Williams, J. (2013). RFID systems in libraries: An empirical examination of factors affecting system use and user satisfaction. *International Journal of Information Management,* 33(2): 367-77.

Falk, R. (1992). *A primer for soft modeling.* 1st ed edn: University of Akron Press: Akron, OH.

Fornell, C. and Larcker, D. F. (1981). Evaluating structural equation models with unobservable variables and measurement error. *Journal of Marketing Research,* 18(1): 39-50.

Gable, G. G., Sedera, D. and Chan, T. (2008). Re-conceptualizing information system success: The IS-Impact measurement model. *Journal of the Association for Information Systems,* 9(1): 2-18.

Gomez-Mensah, K. C. L. (2016). *How new technologies are affecting news gathering, production and delivery, a case of Ghana television doctoral dissertation.* University of Ghana.

Hair, J. F., Ringle, C. M. and Sarstedt, M. (2011). PLS-SEM: Indeed a silver bullet. *Journal of Marketing Theory and Practice,* 19(2): 139-52.

Hair, J. F., Hult, G. T. M., Ringle, C. and Sarstedt, M. (2013). *A primer on partial least squares structural equation modelling (PLS-SEM).* Sage: Los Angeles, CA.

Hair, J. F., Hult, G. T. M., Ringle, C. and Sarstedt, M. (2017). *A primer on partial least squares structural equation modeling (PLS-SEM).* 2nd ed. edn: SAGE Publications: Thousand Oaks, CA.

Hamilton, J. (2004). *All the news that's fit to sell: How the market transforms information into news.* Princeton University Press.

Harr, A., vom Brocke, J. and Urbach, N. (2019). Evaluating the individual and organizational impact of enterprise content management systems. *Business Process Management Journal,* 25(7): 1413-40.

Henseler, J., Ringle, C. M. and Sarstedt, M. (2015). A new criterion for assessing discriminant validity in variance-based structural equation modeling. *Journal of the Academy of Marketing Science,* 43(1): 115-35. Available: https://doi.org/10.1007/s11747-014-0403-8

Holmberg, S. A. (2002). *Editorial systems for multiple channel publishing.* Master Thesis. Stockholm: The Royal Institute of Technology.

Iivari, J. (2005). An empirical test of the delone-mclean model of information system success. *ACM SIGMIS Database: the DATABASE for Advances in Information Systems,* 36(2): 8-27.

Jackson, P. T. (2009). News as a contested commodity: A clash of capitalist and journalistic imperatives. *Journal of Mass Media Ethics,* 24(2-3): 146-63.

Jöreskog, K. G. and Sörbom, D. (1993). *LISREL and: Structural equation modeling with the SIMPLIS command language.* Scientific Software International.

Kang, Y. S. and Lee, H. (2010). Understanding the role of an IT artifact in online service continuance: An extended perspective of user satisfaction. *Computers in Human Behavior,* 26(3): 353-64.

Khosravi, P., Rezvani, A. and Ahmad, M. N. (2013). Does organizational identification lead to information system success. *World Applied Sciences Journal,* 21(3): 402-08.

Larsen, K. R. (2003). A taxonomy of antecedents of information systems success: variable analysis studies. *Journal of Management Information Systems,* 20(2): 169-246.

Lin (2007). Measuring online learning systems success: Applying the updated DeLone and McLean model. *Cyberpsychology and behavior,* 10(6): 817-20.

Lin, Hsu, P. Y. and Ting, P. H. (2006). ERP systems success: An integration of IS success model and balanced scorecard. *Journal of Research and Practice in Information Technology,* 38(3): 215-28.

Lodhi, R. N. (2016). *Enterprise resource planning system success in corporate sector of Pakistan: a mixed methods approach Doctoral dissertation.* Bahria University Islamabad Campus.

Manchanda, A. and Mukherjee, S. A. (2015). Review of information system success models. *International Journal of Innovative. Research in Technology and Science,* 1(3): 15-18.

Mauthe, A. and Thomas, P. (2004). *Professional content management systems: Handling digital media assets.* John Wiley and Sons.

McManus, J. H. (1992). What kind of commodity is news. *Communication Research,* 19(6): 787-805.

Ojo, A. I. (2017). Validation of the DeLone and McLean information systems success model. *Healthcare Informatics Research,* 23(1): 60-66.

Pan, V. Q., Chew, P. Q., Cheah, A. S. G., Wong, C. H. and Tan, G. W. H. (2015). Mobile marketing in the 21st century: a partial least squares structural equation modelling approach. *International Journal of Modelling in Operations Management,* 5(2): 83-99.

Parasuraman, A., Zeithaml, V. A. and Berry, L. L. (1988). SERVQUAL: A multiple-item scale for measuring consumer perceptions of service quality. *Journal of Retailing,* 64(1): 12-40.

Petter, S. and McLean, E. R. (2009). A meta-analytic assessment of the DeLone and McLean IS success model: An examination of IS success at the individual level. *Information and Management,* 46(3): 159-66.

Petter, S., DeLone, W. and McLean, E. (2008). Measuring information systems success: models, dimensions, measures, and interrelationships. *European Journal of Information Systems,* 17(3): 236-63.

Pitt, L. F., Watson, R. T. and Kavan, C. B. (1995). Service quality: A measure of information system effectiveness. *MIS Q.,* 19(1): 173-87.

Rai, A., Lang, S. S. and Welker, R. B. (2002). Assessing the validity of IS success models: An empirical test and theoretical analysis. *Information Systems Research,* 13(1): 50-69.

Rana, N. P., Dwivedi, Y. K. and Williams, M. D. (2013). Evaluating alternative theoretical models for examining citizen centric adoption of e-government. *Transforming Government: People, Process and Policy,* 7(1): 27-49.

Rodgers, S. (2015). Foreign objects? Web content management systems, journalistic cultures and the ontology of software. *Journalism,* 16(1): 10-26.

Roldán, J. L. and Leal, A. (2003). *A validation test of an adaptation of the DeLone and McLean's model in the Spanish EIS Field. In critical reflections on information systems: A systemic approach.* IGI Global. 66-84.

Saltzis, K. and Dickinson, R. (2008). Inside the changing newsroom: Journalists' responses to media convergence. *Aslib Proceedings, New Information Perspectives,* 60(3): 216-28.

Sangwan, S., 2005. "Virtual community success: A uses and gratifications perspective." In *Proceedings of the 38th annual hawaii international conference on system sciences. IEEE.* pp. 193c-93c.

Schaper, L. K. and Pervan, G. P. (2007). ICT and OTs: A model of information and communication technology acceptance and utilisation by occupational therapists. *International Journal of Medical Informatics,* 76(1): S212–S21.

Seddon, P. B. (1997). A respecification and extension of the DeLone and McLean model of IS success. *Information Systems Research,* 8(3): 240-53.

Sørum, H., Andersen, K. N. and Vatrapu, R. (2012). Public websites and human–computer interaction: an empirical study of measurement of website quality and user satisfaction. *Behaviour and Information Technology,* 31(7): 697-706.

Spyridou, L. P., Matsiola, M., Veglis, A., Kalliris, G. and Dimoulas, C. (2013). Journalism in a state of flux: Journalists as agents of technology innovation and emerging news practices. *International Communication Gazette,* 75(1): 76-98.

Tam, C. and Oliveira, T. (2017). Understanding mobile banking individual performance. *Internet Research,* 27(3): 538-62.

Tavakol, M. and Dennick, R. (2011). Making sense of cronbach's alpha. *International Journal of Medical Education,* 2: 53-55. Available: https://www.ijme.net/archive/2/cronbachs-alpha/

Todorović, A. L. (2006). *Television technology demystified: A non-technical guide.* CRC Press.

Undurraga, T. (2017). Making news, making the economy: Technological changes and financial pressures in Brazil. *Cultural Sociology,* 11(1): 77-96.

Urbach, N., Smolnik, S. and Riempp, G. (2009). The state of research on information systems success. *Business and Information Systems Engineering,* 1(4): 315-25.

Voorhees, C. M., Brady, M. K., Calantone, R. and Ramirez, E. (2016). Discriminant validity testing in marketing: An analysis, causes for concern, and proposed remedies. *Journal of the Academy of Marketing Science,* 44(1): 119–34.

Wang, Y. S. and Liao, Y. W. (2008). Assessing eGovernment systems success: A validation of the DeLone and McLean model of information systems success. *Government Information Quarterly,* 25(4): 717-33.

Wang, Y. S., Wang, H. Y. and Shee, D. Y. (2007). Measuring e-learning systems success in an organizational context: Scale development and validation. *Computers in Human Behavior,* 23(4): 1792-808.

Weiss, A. S. and Schwingel, C. (2008). The delicate relationship in journalism: Where content and production meet in the content management system. A comparative study of US and Brazil Newsroom Operations. *Brazilian Journalism Research,* 4(2): 88-107.

Yoon, C. (2009). The effects of organizational citizenship behaviors on ERP system success. *Computers in Human Behavior,* 25(2): 421-28.

Zangana, A. (2017). *The impact of new technology on the news production process in the newsroom.*: Doctoral Dissertation. University of Liverpool: UK.

Zhang, K., Min, Q., Liu, Z. and Liu, Z. (2016). Understanding microblog continuance usage intention: an integrated model. *Aslib Journal of Information Management,* 68(6): 772-92. Available: https://doi.org/10.1108/AJIM-03-2016-0025