

Impact of Centralization on the Relationship of Information Quality and Decision Making Effectiveness: Empirical Evidence from Palestinian Banking Sector

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Abstract- The aim of this study is to examine the effect of information quality on decision making effectiveness in Palestinian banking sector. Previously it shows that there are limited studies that explored the link between these variables in Palestine. In this study, decision effectiveness was measured in terms of decision quality. The data in this study was collected from bank managers in Palestine using survey instrument. The collected data were analyzed using PLS software and the findings indicated that information quality plays an important role in decision making effectiveness. Particularly, this study found that accuracy of information has significant effect on decision effectiveness. Moreover, relevance of information has significant positive effect on decision effectiveness. Centralization of the organizational structure has positive moderation effect on the relationship between information quality dimensions and decision making effectiveness.

Index Terms- Decision effectiveness, information quality, organizational structure, banking sector, Palestine.

I. INTRODUCTION

The paramount source of finance to most organization and businesses in Palestine are Banks. These banks need to make decisions for different purposes which decisions are normally issued through managers in order to satisfy their overall objectives. Therefore, to enhance the overall performance and effectiveness of operation, managers have to make effective decisions. Information quality is a standout amongst the most essential necessities for managers to successfully make decisions. According to Strong, Lee, and Wang, (1997) lack of good information quality will bring about losses of billions of dollars, which negatively affect performances of organization. Regardless of the information cost, good quality information is viewed as an investment to organization. Previous studies indicate that knowledge and skills of information quality reveal an important role in decision making process. The study of Abdulkareem and Shahin (2013) stated that modern organizations has given little consideration to the significance of information quality.

The study of Arnone, Laurens, Segalotto, and Sommer (2009) state that like other part of the world, Palestine banking sector plays a vital part to the economic development of the country. Nevertheless, there are few challenges confronting the Palestine banking sector which are mostly connected with

domestic imbalances and internal factors. These issues are essentially identifying with the country's financial system whose infrastructure is not appropriately completed or at times incapacitated, and to weak organizations and their inactive role (Alkhatib and Harsheh, 2012). As indicated by Abdel-Karim and Shahin (2013) lack of good information quality of financial performance has brought to about poor operation of many banks in Palestine, among which include Al-Quos Bank. In addition, the National Information Center Report (1996) demonstrated that most of the information accessed by Palestine organizations is not very well organized and precise.

Making successful and effective decisions is paramount towards the financial viability of the banks in Palestine. Without quality of information and without appropriate decisions used to embark on such decisions, insolvency might be unavoidable. Along these lines, it is vital to study on decision effectiveness, particularly on the impact of information quality and decision making effectiveness in the banking sector. In this manner, the present study is intended to examine the impact of information quality on decision making effectiveness in Palestinian banking sector.

II. LITERATURE REVIEW

DECISION MAKING EFFECTIVENESS

Successful decision means effective decision which implies the right choice among multiple alternatives to achieve that it relies on upon the availability of quality information to the decision makers (Dean and Sharfman, 1996). As indicated by Vein and Idrees (1999) that timeliness, reliability, and accuracy of the information would permit a decision makers to settle on a decent quality decision for the organization. Previous studies among which include Dean and Sharfman (1996) as well as Harrison and Pelletier (1998) expressed that decision making effectiveness is an idea which can be seen as a result of the decision and it is connected to the objective accomplishment. Therefore, the success of decision mostly been measured by the proportion amongst output and input. This proportion according to Teale et al., (2003) can be determined as decision effectiveness. Additionally, Mullins (2006) recommended that doing the right thing at a right time in consideration of performance outcome will empower the effectiveness of a decision measurement as it relate to services sector like banks.

Decision effectiveness is the capacity for doing the best and it is not generally the perfect or ideal (Adair, 2007). Literatures

proposed a several measurements for decision effectiveness; among this are Mullins (2006); Gonzalez-Benito et al, (2010) etc. In the organizational setting, decision quality must be connected to subordinate consideration and acceptance, and the said quality alludes to the job outcomes, while acceptance alludes to subordinate implementation and responsibility of the decision (Ivancevich et al., 2008). In term of measurement Mullins (2006) measured effectiveness as the subordinates commitment and quality of performance.

INFORMATION QUALITY

Information can be comprehended from the organization's viewpoint as data that has been processed and have meaning (Michnik and Lo, 2009). Without adequate data processing organizations might not have the vital information to operate viably. There is no reasonable consensus with respect to what constitutes information. Several researchers like James, (2000) view data and information in a comparative light. According to James (1998), if information is identified, this information is a consequential, structural, and helpful form of data which can contribute toward comprehension understanding of a decision maker may require if confronted with a certain circumstance. The author further repeated that information is identified with learning since it is the result of information used in a significant way, while data can be considered as raw facts that has not been processed. In the same way Higgins (1999) agreed with James (2000).

Previous literatures stated that information quality is comprised of a few components among which are relevancy, accuracy, and timeliness (Redman, 2004) which to great extend determine the effectiveness of decision making at all level of organization (Knight & Burn, 2005). The present study concentrates on testing and operationalizing information quality utilizing these measurements. In modern world, Information technology is a major apparatus for producing good information on account of its capacities to store, process, and convey information to the appropriate authority concern (Wainright, 2005). James (1998) further stated that information technology tools, to a great extent, are faster in result achievement because it involve the use of computer but however this depend on the skills of a decision maker to operate computers in the most effective and efficient manner.

The findings of the previous researchers demonstrated that great information enhances decision making, improves productivity and efficiency as well as an aggressive edge to the organization. As indicated by Mahmood (2000), heuristic decisions are the result of information shortage which would likely prompt wrong decisions making by managers. Idrees (1999) recommended that the accessibility of information is essential in making a decision within a system of the rational theory of decision making and utility maximization; information that is timely, relevance, and accurate will empower decision makers to embark on better decisions and henceforth record organizational success.

Accuracy of information relies on how the data is gathered, and is generally judged by looking at a few calculations, measurements, or specification from the distinctive or the same sources to the right standard or value (Widom, 2004). Accuracy of information empowers a decision to embark on excellent

decisions. On the other hand, information is considered incorrect or inaccurate, if the information prompts an absence of precise in the decisions made.

H1: Accuracy of information has a significant relationship with decision making effectiveness.

Accessibility can be characterized as the availability of data and capacity to get or recover it when required by managers (Delone and McLean, 1992). Accessibility of information quality is associated with the issues of medium of correspondence instead of the data. A poor or inaccessible communication channel may prompt the issues of availability.

H2: Accessibility of information has a significant relationship with decision making effectiveness.

Relevancy in information quality measurement implies that the data must have importance to the current workload (Wang and Strong, 1996). DeLone and McLean (1992) Considered relevancy as one of the vital measurements of information quality. It is contended that when data is important to the current workload, this implies it is sufficient for managers to decide (Miller, 2005; Wang and Strong, 1996).

H3: Relevancy of information has a significant relationship with decision making effectiveness.

Timeliness of information means the sooner the information is accessible to decision producers; the quicker it is for them to decide. Previous studies concluded that there is a positive relationship between the timeliness of information and decision making.

H4: Timeliness of information has a significant relationship with decision making effectiveness.

Completeness of the information can be characterized as the degree to which data are of depth, adequate broadness, and scope for the current workload (Wang and Strong, 1996). This definition is task focused and is derived from the expected utilization of the data for managers. As indicated by the data focused perspective, completeness is characterized as all values for a specific variable that are recorded (Ballou and Pazer, 1985).

H5: Completeness of information has a significant relationship with decision making effectiveness.

Interpretability infers simplicity of understanding. In information quality viewpoint, interpretability is concerned with the interpretational semantic aspect. As indicated by Kahn, Strong, and Wang (2002), interpretability alludes to the degree to which information is in fitting dialects, images, and units the definitions are clear and to technical viewpoints, for example, whether information is represented utilizing a suitable documentation.

H6: Interpretability of information has a significant relationship with decision making effectiveness.

ORGANIZATIONAL STRUCTURE

Scholars have characterized organization structure in different ways. For example, Digger (2002) defined structure as capturing formalization, centralization of power, integration, and complexity. To Griffin and Moorhead (2011), structure speaks to the organization's task reporting and the different relationship within the organization. As indicated by (Islam, Ahmed, Hasan, and Ahmed, (2011), organizational structure comprises of three segments i.e. centralization, complexity, and formality. Formality demonstrates the degree to which the rights and obligations of

the individuals from the organization are resolved and the degree to which these are composed down in guidelines, methods, and directions (Willem, Buelens, and Jonghe, 2007). An organization that is less formal in its structure generally prompts more prominent or better communication with employees and stakeholders because of the less formality inside the organization.

The centralization measurements of organization structure that was subjected to moderation test is the notable of directing impact of centralization on the relationship between information quality and decision making effectiveness. As a component of the organization structure, centralization alludes to the position of the senior administration cadre who are in charge of taking indispensable decision making and practicing power (Gibson et al., 2009). Where an organization endow all the decision making order to the higher administrators, such an organization is arranged and considered as a centralized organization. Where decision making involve lower employees' cadre of the organization such organization is viewed as nearer to decentralization. This standpoint informed the hypothesis that look to test how centralization moderates the relationship between information quality and decision making effectiveness. In this moderating role of centralization it can be watched that centralization directs the relationship between accuracy of information and decision making effectiveness which shows that interaction of accuracy and centralization lead to effectiveness of decision making in banking organization. Similarly, the centralization directs the relationship of completeness of information spread inside the banking organizations and that of the decision making effectiveness among banks in Palestine. Centralization also moderates the relationship between interpretability information and decision making effectiveness. The result of the test shows that the correlation of centralization and completeness prompts to effective decision making in among the banks. This result is an affirmation that incomplete information particularly in the operation of the banking administrations would rather brought on ineffectual decision making.

H7 Moderating effect of Centralization on Information quality and Decision Making effectiveness.

III. METHODOLOGY

An online survey form was created for the data collection purpose. Data were collected from 146 bank managers working in either conventional or Islamic banks across Palestine after approval from the respective bank management was secured.

Three dimensions of decision-making effectiveness were considered. They were quality, commitment, and satisfaction. Quality refers to the extent to which the decision maker is confident in his/her decision, and whether the decision is comprehensive, reliable and understood by subordinates. Four items were used to measure this dimension. The items were taken from various sources (Fisher, Chengular-Smith, & Ballou, 2003; Ives, Olson, & Baroudi, 1983).

Commitment refers to the extent to which a subordinate is committed to accepting the decision in order that it may be successfully implemented. Four items were used to measure this dimension. The items were taken from various sources (DeShon

& Landis, 1997; Hollenbeck, Williams, & Klein, 1989; Ivancevich & Matteson, 2008).

Satisfaction is defined as the extent to which the sum of one's feelings or attitudes toward the decision. Four items were used to measure this dimension. The items were taken from various sources (Cai, 2007; Fisher et al., 2003; Lilien et al., 2004; Speier & Morris, 2003).

Six dimensions of information quality were examined. They were accuracy, accessibility, completeness, relevancy, timeliness, and interpretability.

The accuracy dimension was measured by four items, accessibility by four items, completeness by four items, relevancy by four items, timeliness by four items, and interpretability by five items. All items were taken from various sources (Bovee, Srivastava, & Mak, 2003; Grafe & Werner, 2004; Kahn et al., 2002; Lee et al., 2002; Miller, 2005; Najjar, 2002; Slone, 2006; Wang & Strong, 1996).

The centralization dimensions of organizational structure that was subjected to moderation test is the significant of moderating effect of centralization on the relationship between information quality and decision making effectiveness. The centralization dimension was measured by six items, Formality by seven items. The two items were taken from various sources (Dewar, Whetten, and Boje (1980); Michael and Hage (1968); Soltani, Altaha, and Taheri (2013); Johari, Yahya, and Omar (2011); Sathe (1978); Child (1974); O'Reilly, (1982); Vazifedoust, Nasiri, & Norouzi, (2012).

All items for decision-making effectiveness, information quality and Organizational structure were measured on a five-point Likert scale, ranging from '1' "strongly disagree" to '5' "strongly agree."

IV. ANALYSIS OF RESULTS

Data were analyzed by using partial least squares (PLS), which is a structural equation modeling (SEM) technique that is based on path analysis and regression analysis. PLS is good for both theory confirmation and exploratory research (Chin, 1998). PLS involves two types of assessment: the measurement model and the structural model.

The majority of the bank managers who participated in the study were male (90.4%). Close to half of them were less than 45 years old (43.8%). In terms of education, the majority had a bachelor's degree (84.2%), and most of them had been working in the bank for a long period of time between 10 and 20 years (99.0%). indicating that the sample had a fairly good experience in making decisions.

In general, items with loadings of less than 0.5 should be dropped (Hulland, 1999). Results show the rest factor loading values are greater than the recommended level (i.e. 0.7). The composite reliability (CR) values of the components (ranging from 0.858 to 0.984) exceeded the generally accepted value of 0.70. The AVE values (ranging from 0.603 to 0.795) are higher than the general accepted value of 0.5.

One-tailed t-tests was assumed because corresponds are extreme negative or extreme positive. 95% significance for t-value ≥ 1.645 at level of $p < 0.05$, and 99% significance for t-value ≥ 2.326 at level of $p < 0.01$, and 99.9% significance for t-value ≥ 3.091 at level of $p < 0.001$.

Table 1 and Figure 1 shows Hypotheses testing results. (CO) -> DM, Relevancy (RE) -> DM, and Interpretability (IN) -> DM. Four of six relationships were significant which are; Accuracy (AC) -> Decision Making Effectiveness (DM), Completeness

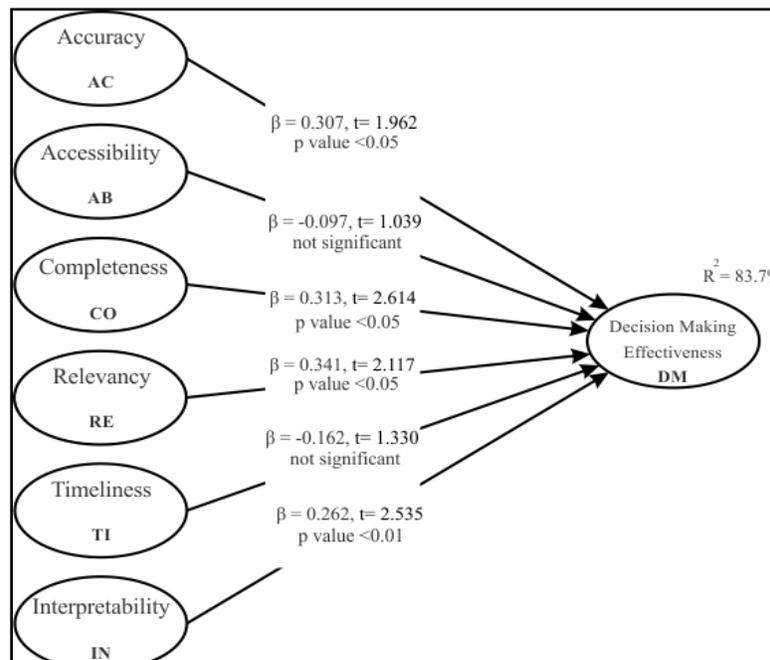


Figure 1. Direct Relationship of Information Quality and Decision Making Effectiveness

Table 1: Direct Relationship of Information Quality Dimension and Decision Making Effectiveness

	Hypothesis	Path coefficient	Standard Deviation (STDEV)	Standard Error (STERR)	t value
H ₁	Accuracy(AC) ->Decision Making Effectiveness (DM)	0.307	0.05	0.07	*1.962
H ₂	Accessibility(AB) ->Decision Making Effectiveness (DM)	-0.097	0.09	0.10	1.039
H ₃	Completeness (CO) ->Decision Making Effectiveness (DM)	0.313	0.08	0.08	*2.614
H ₄	Relevancy (RE) ->Decision Making Effectiveness (DM)	0.341	0.07	0.07	*2.117
H ₅	Timeliness (TI) ->Decision Making Effectiveness (DM)	-0.162	0.08	0.08	*1.330
H ₆	Interpretability (IN) ->Decision Making Effectiveness (DM)	0.262	0.06	0.06	**2.535

The interaction term AC*Centralization has a positive effect on DE (0.160). The interaction term of CO*Centralization has a positive effect on DE (0.114). As well as the interaction term of RE*Centralization is relatively low comparing with other product terms, and has a positive effect on DE (0.057). Finally,

the interaction term of IN*Centralization has a positive effect on DE (0.140). These results give an idea about the direction of moderation effect which is positive in total.

The analysis of bootstrapping yields at t value of 3.955 in the level of $p \text{ value} \leq 0.001$ for the path linking the interaction

term (AC*Centralization) and DE. Therefore, the support for a significant moderating effect of Centralization on the relationship between AC and DE was exist. The t value of 2.067 for the path linking between (CO*Centralization) and DE supports such conclusion in the level of p value ≤ 0.05 . The case is different for the path linking between (RE*Centralization) and DE with t value= 0.981. Lastly, t value of 2.096 for the path between (IN*Centralization) and DE supports for a significant moderating effect of Centralization on the relationship between IN and DE in the level of p value ≤ 0.05 .

V. DISCUSSION AND CONCLUSION

The present study was carried out to examine the role of information quality characteristics (accuracy, accessibility, relevancy, timeliness, completeness, and interpretability) in decision-making effectiveness. Generally speaking, all these features were able to explain 83.7% variance in decision-making effectiveness. The collective influence of information quality characteristics found in this study corroborates the argument and past studies that information quality is key in making decisions toward achieving the organizational effectiveness (Huner, Ofner, & Otto, 2009; Johnson, 2009; Jonas et al., 2008; Ni & Khazanchi, 2009).

However, upon a closer examination, of the six features, only four of them had significant individual effect on decision-making effectiveness. They were accuracy, relevancy, completeness, and interpretability. Such finding suggests that bank managers in Palestine require information that is accurate, relevant, complete, and interpretable when making decisions, implying that information quality features may be culture or context specific. Culture plays a critical role in decision making (Rees & Althakhri, 2008; Vitell, Nwachukwu, & Barnes, 1993). As Arab culture is characterized by high power distance (Hofstede, 2011), it is reasonable to speculate why accessibility and timeliness do not play a major role in managerial decision making. While such speculation may be valid, future research needs to be carried out to corroborate the cultural claim.

The findings offer practical insight to the management of banks in Palestine with regards to how they should manage the information and what type of information they should seek for before making decisions. In particular, decision makers should obtain accurate, relevant, complete, and interpretable information. Only when the information has all these characteristics that decisions made can help achieve the organizational goals.

While the present study has offered valuable insight into the role of information quality on decision-making effectiveness, some caveats have to be considered. One of them is that this study was cross-sectional in nature; hence, drawing causal inferences may be problematic although it is likely that a good decision requires quality information. Secondly, the findings may have limited generalizability to other cultural contexts or research settings, which necessitate that future studies replicate the present research.

Information quality is inevitably an important pre-requisite for managerial decision making, especially when the decisions made can have far-reaching consequences for the organization. Hence, scrutinizing the information obtained and demanding that

the information meets certain features are key to sustainable organizational performance.

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