

## The impact of digitized customer behaviors on performance: The mediating and the moderating role of digitized CRM

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### CHRONICLE

#### Article history:

Received: July 18, 2023

Received in revised format: September 3, 2023

Accepted: October 4, 2023

Available online: October 4, 2023

#### Keywords:

Digitized customer behavior

Digitized CRM

Performance

### ABSTRACT

The aim of this study is to explore the effect of digitized customer behavior on performance in the presence of digitized CRM as a mediating and a moderating variable. Research data was gathered using an online questionnaire completed by a convenience sample of marketing employees in service companies. The questionnaire was designed using a five-point Likert scale. The results showed that digitized customer behavior had a significant effect on performance, digitized CRM played a significant mediating role between digitized customer behavior and performance while had no significant moderating part in such an effect. Consequently, it was concluded that for companies to lift their performance, a digitized CRM program is a key prerequisite. This study contributes to the extant literature through highlighting the importance of digitized CRM for performance enhancement. Scholars and practitioners are required to consider the effects of digitized CRM on organizational outcomes.

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## 1. Introduction

Performance as a key construct gained great attention from companies and researchers. It signifies a company's success in terms of its financial performance. A major interest of companies and researchers is factors affecting performance. In fact, such a construct is affected by numerous factors like market orientation, digital marketing, customer relationship management (CRM), as well as customer behavior and outcomes (Becker et al., 2009; Rodriguez & Atsumi, 2014; Rodriguez & Atsumi, 2014; Rodriguez & Atsumi, 2014; Wang & Miao, 2015; Sugiono et al., 2021; AlTaweel & Al-Hawary, 2021; Djakasaputra et al., 2021). The current study is concerned with two key constructs related to performance, which are customer behavior and CRM. Previous works on performance indicate that this construct is affected by customer behavior (Doong et al., 2008; Eisingerich et al., 2014; Chang, 2017; Fadhilah, 2020) and CRM (Ahearne et al., 2007; Becker et al., 2009; Rodriguez and Honeycutt Jr., 2011; Rodriguez & Atsumi, 2014). However, there is a gap in the literature on the role of digitized CRM in the effect of digitized customer behavior on performance, particularly, the mediating and the moderating role of digitized CRM. Therefore, the aim of this study is to investigate the mediating as well as the moderating role of digitized CRM in the effect of digitized customer behavior on performance. Achieving the aim of this study contributes to literature as there is a lack of previous studies in this regard. Theoretically, the study highlights the importance of digitized CRM as a key factor affects performance through clearing up if such a construct mediates or moderates the effect of digitized customer behavior on performance. Empirically, the study instructs companies what to expect from digitized CRM to enhance their performance. Some companies use digitized CRM to improve customer relationships (Rodriguez & Atsumi, 2014), improving company performance and recovering customer satisfaction (Al-Hawary and Aldaihani, 2016), and utilizing customer digital experiences to create customer value (Wang, 2016), therefore, this study highly spot the actual benefit of digitized CRM.

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ISSN 2561-8156 (Online) - ISSN 2561-8148 (Print)

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doi: 10.5267/j.ijds.2023.10.005

The study is organized as follows. The next section contains a literature review on performance, followed by hypotheses development in section 3, methodology in section 4, results in section 5, discussion, and conclusion in section 6, and finally, limitations and future research directions in section 7.

## **2. Literature review**

### *2.1 Performance*

Performance is one indicator of the organizational overall performance as the latter is divided into financial and non-financial indicators, hence, performance is a key indicator of a company's financial performance (AlTaweel & Al-Hawary, 2021). According to Zalocco et al. (2009), performance can be evaluated based on outcomes and behavior, that is, using indicators such as market share and profitability to measure outcomes and using selling skills like effective communications as well as selling activities like managing time to measure behaviors. A review of the extant literature to explore factors affecting performance reveals that this construct is influenced by numerous other constructs such as customer orientation technologies like CRM and social media (Rodriguez & Atsumi, 2014), mobile CRM (Rodriguez & Atsumi, 2014), digital marketing (Djakasaputra et al., 2021), and market orientation (Wang & Miao, 2015). Specifically, performance is affected by customer behaviors such as customer purchases, customer participation (Eisingerich et al., 2014) as well as customer loyalty (Sugiono et al., 2021). Moreover, prior research argues that CRM technological implementation has a significant effect on performance (Becker et al., 2009).

### *2.2 Digitized customer behavior*

Digitized customers have been described as flexible customers who continuously change their purchasing behavior (Wang, 2016), and customers who have high levels of digital competencies (Kowalik, 2020). Examples of customer behaviors take account of three key variables, which are purchase intention, loyalty intention, and participation intention (Wibowo et al., 2021). In the digital context, these three variables refer to behaviors of digitized customers. According to Wibowo et al. (2021), purchase intention signifies a customer desire to purchase products or services, loyalty intention assumes a customer commitment to a specific company, and participation intention implies a customer desire to participate in a company's events or programs. For the current study, purchase intention means a customer desire to purchase products or services using digital means such as social networking sites, loyalty intention refers to a customer desire to be committed to a specific seller using digital means, and participation intention indicates that a customer prefers to take a part in a company's events or discussions through digital means to provide feedback or suggestions.

### *2.3 Digitized CRM*

There are three key aims of CRM, which are improving customer data, enhancing customer relationships, and co-creation of customer value (Rodriguez & Atsumi, 2014). Al-Hawary and Aldaihani (2016) added that the aim of CRM as a customer orientation strategy is to improve a company's performance and recover its customers' satisfaction. CRM can be defined in strategic and tactical terms. Strategically, CRM refers to managing customers' relationships and enriching stakeholders' values based on building long relationships with profitable customers utilizing both strategies of marketing relationships and information technologies, while tactically, CRM refers to applying a specific technology (Lipiäinen, 2015). Digitally, CRM refers to achieving the three-mentioned aims using digital means. Therefore, some scholars (e.g., Wang (2016) defined digital CRM as creating customer value based on customer digital experience. It should be noted here that CRM itself is not a technology but a method of running business and technology makes it easier (Fairhurst, 2001). The author added that the importance of technology in doing CRM activities has emerged in transforming customer data into valuable information, applying business rules individually to each customer interactions, tailoring many variations of products and services to customers, and carrying out real-time interactions. Thus, digitized CRM is defined for the purpose of this study as developing and maintaining customer relationships and creating value for both customers and stakeholders with assistance of related technologies.

## **3. Hypotheses development**

### *3.1 Behaviors of digitized customers and performance*

To the current study, behaviors of digitized customers comprise three key behaviors, which are digitized purchase intention, digitized loyalty intention, and digitized participation intention. Chang (2017) argues that customer purchase intention plays a significant role in promoting volume. Fadhillah (2020) found that purchase intention is influenced by customer perceived benefits and customer trust in products and in turn affects performance. On the other hand, loyalty intention assumes that a customer will make further purchases from the same company in the future (Doong et al., 2008). Moreover, customer participation, i.e., providing the company and customers with feedback and suggestions, is positively related to performance (Eisingerich et al., 2014; Almohaimmed, 2021). Consequently, it was proposed that:

**H<sub>1</sub>:** Behaviors of digitized customers show a significant positive effect on performance.

### 3.2 The role of digitized CRM

Generally, technologies of customer orientation such as CRM and social media were deemed as main predictors of companies' performance (Rodriguez & Atsumi, 2014). The relationship between CRM and performance is well documented in the literature. For example, Rodriguez and Honeycutt Jr. (2011) found a positive association between CRM adoption and performance. Further, a study by Rodriguez and Boyer (2020) on mobile CRM shows that mobile CRM is positively related to performance. Itani et al. (2019) indicate that decisions of customer purchases are affected by the relationship between customers and persons. Ahearne et al. (2007) point out that the acceptance of IT-enabled CRM has a positive effect on performance. On the other hand, there is a significant link between customer behavior and using digitized CRM. According to Chen and Popovich (2003), customer behavior is a core dimension in helping companies identify and reward the best customers and build long relationships with them. These studies assume digitized CRM is positively related to performance. In fact, the role of customer digitized behavior is not clear, i.e., is it a mediating or a moderating role or plays both roles. Therefore, it was expected that:

**H<sub>2</sub>:** Digitized CRM has a significant mediating part in the effect of customer digitized behavior on performance.

**H<sub>3</sub>:** Digitized CRM has a significant moderating part in the effect of customer digitized behavior on performance.

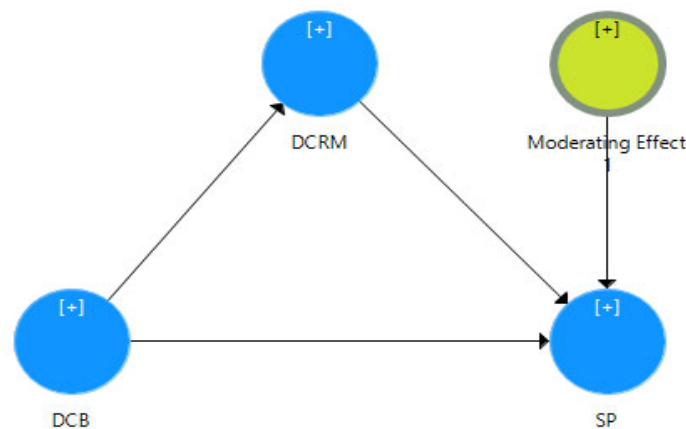
## 4. Methodology

### 4.1 Research sample and data collection

The sample of this study is a nonprobability convenience sample to reach easily accessible respondents who are available at a given time. A convenient sample of marketing employees in service companies was selected for the purpose of the current study. Data was collected over one week using online questionnaires distributed to marketing employees. It was designed using a five-point Likert scale in which 1 refers to "strongly disagree", 2 means "agree", 3 implies "neutral", 4 refers to "disagree", and 5 signifies "strongly agree". A total of 210 questionnaires were returned, from which 13 questionnaires were excluded due to outliers. Hence, the final valid number of the collected responses was 197 questionnaires. These questionnaires are analyzed using SmartPLS 3.0.

### 4.2 Research conceptual model

The conceptual model as displayed in Fig. 1 shows that the study is concerned with testing three hypotheses related to the effect of DCB as an independent variable on Performance as a dependent variable (H<sub>1</sub>), and the role of DCRM as a mediating variable and moderating variable between DCB and Performance (H<sub>2</sub> & H<sub>3</sub>).



**Fig.1.** Research conceptual model

### 2.1 Research measures

This study encompasses three key variables: an independent variable (digitized customer behaviors), a moderating variable (digitized CRM), in addition to a dependent variable (performance). The independent one was measured as shown in Table 1 using 5 items adapted from Doong et al. (2008) and Wibowo et al. (2021), the moderating one was assessed by 5 items based on three previous works (Wang, 2016; Fairhurst, 2001; Rodriguez & Atsumi, 2014), and the dependent one was evaluated using 4 items referring to Zallocco et al. (2009).

**Table 1**  
Research measures

Variables	Code	Items	References
Digitized customer behaviors	DCB1	Our customers are likely to buy our products using digital means.	Doong et al. (2008); Wibowo et al. (2021)
	DCB2	Our customers recommend our products to online customers	
	DCB3	Our customers “Like” our commercial posts with others.	
	DCB4	Our customers “Share” our digital content with others.	
	DCB5	Our customers provide their experiences to other digital customers.	
Digitized CRM	CRM1	Our focus is to build long relationships with our key customers.	Wang (2016); Fairhurst (2001); Rodriguez et al. (2014)
	CRM2	We are interested in analyzing our customers’ digital experiences.	
	CRM3	Our aim is to provide our customers a value using digital means.	
	CRM4	We have real-time interactions with our customers.	
	CRM5	Our customers receive products/services using digital means.	
Performance	SP1	We have a good market share for the previous 3 years.	Zallocco et al. (2009)
	SP2	Our profitability is influenced by our customer relationships	
	SP3	Our marketing team owes good marketing skills.	
	SP4	We have effective communications with our customers.	

### 3. Results

#### 3.1 Validity, reliability, and model fit

Validity was measured using convergent validity based on standardized factor loadings (SFL), which should be more than 0.70, and the average variance extracted (AVE), which should be greater than 0.50. Discriminant validity was gauged using the square roots of AVE values ( $\sqrt{AVE}$ ) and correlations between latent variables. That is, such square roots should be greater than correlations between latent variables (Wong, 2013). On the other hand, reliability was measured by Cronbach’s coefficient alpha ( $\alpha$ ) and composite reliability (CR). Values of alpha coefficients and CR should be no less than 0.70. The results of these indicators are shown in Table 2. It can be noted that the values of the standardized factor loadings (SFL) are higher than 0.70, AVE values are greater than 0.50, AVE square roots are higher than correlations between latent variables, alpha coefficients and composite reliabilities are higher than 0.70. These results indicate that both validity and reliability are well established.

**Table 2**  
Results of validity, reliability, and model fit

Latent variables	Item codes	Convergent validity		Discriminant validity			Reliability	
		SFL	AVE	DCB	DCRM	SP	$\alpha$	CR
DCB	DCB1	0.941	0.873	<b>0.934</b>	0.397	<b>0.885</b>	0.963	0.972
	DCB2	0.954						
	DCB3	0.950						
	DCB4	0.953						
	DCB5	0.871						
DCRM	DCRM1	0.950	0.784	0.397	<b>0.885</b>	0.930	0.948	
	DCRM2	0.894						
	DCRM3	0.802						
	DCRM4	0.907						
	DCRM5	0.866						
Performance	SP1	0.850	0.680	0.367	0.432	<b>0.824</b>	0.840	0.893
	SP2	0.813						
	SP3	0.944						
	SP4	0.721						

Bold values refer to the square root of AVE values.

In terms of model fit, the results in Table 2 indicate that the standardized root mean square residual (SRMR) is less than 0.08 (Cuong & Khoi, 2019), and the normed fit index (NFI) is close to 1 (Puspitasari & Darwin, 2021). These results confirm that the model fits the current data well.

#### 3.2 Research structural model

First, the quality of the structural model was assessed based on Stone-Geisser’s ( $Q^2$ ) value and the coefficient of determination ( $R^2$ ) value.  $Q^2$  is used to identify the predictive relevance of the structural model while  $R^2$  is used to evaluate the predictive power of the model.  $Q^2$  value should be more than zero (Peiró Signes et al., 2014). The results showed that  $Q^2$  value for DCRM was 0.120 and 0.152 for Performance. However,  $R^2$  values for DCRM and SP were 0.158 and 0.243, respectively, which indicate weak predictive powers (Jony & Serradell-López, 2021). Second, in term of hypotheses testing, the results in Figure 2 and Table 3 indicate that DCB exerts a significant direct effect on DCRM ( $\beta = 0.397$ ,  $t = 6.22$ ,  $P = 0.000$ ) and DCRM had a significant direct effect on Performance ( $\beta = 0.328$ ,  $t = 3.66$ ,  $P = 0.000$ ). It was also found that DCB had a direct significant effect on Performance ( $\beta = 0.365$ ,  $t = 5.27$ ,  $P = 0.000$ ) as well as an indirect significant effect on Performance through DCRM ( $\beta = 0.130$ ,  $t = 3.29$ ,  $P = 0.001$ ). Such results imply that DCB is significantly related to SP and DCRM plays a significant role in the relationship between DCB and Performance, which means that both H1 and H2 are accepted.

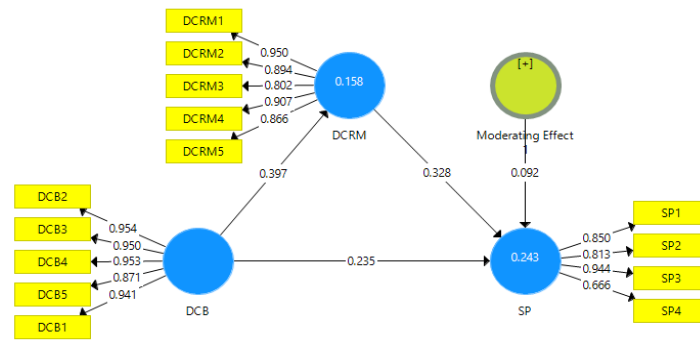


Fig. 2. Research structural model

Table 3  
Results of hypotheses testing

Variables and paths	Total effects	P value	Direct effect	P value	Indirect effect	P value
DCB → DCRM	0.397	0.000	0.397	0.000	-	-
DCB → SP	0.365	0.000	0.235	0.005	0.130	0.001
DCRM → SP	0.328	0.000	0.328	0.000	-	-
Moderating effect → SP	0.092	0.165	-	-	-	-

For the moderating effect of DCRM in the effect of DCB on Performance, the results point out that DCRM had no such a moderating effect ( $\beta = 0.092$ ,  $t = 1.39$ ,  $P = 0.165$ ), which means that H3 was not supported.

#### 4. Discussion and conclusion

This study investigated the mediating as well as the moderating parts of digitized CRM in the effect of digitized customer behavior on performance assuming three hypotheses. The first hypothesis (H1) on the effect of digitized customer behavior on performance was supported in line with some prior works (e.g., Chang, 2017; Fadhilah, 2020; Doong et al., 2008; Eisingerich et al., 2014). Basically, the current study reveals that customers who like purchasing products using digital means, recommend products to other online customers, “Like” commercial posts, “Share” others’ digital content, and provide other online customers with their experience have a pivotal role in performance improvement. The second hypothesis (H2) postulated that digital CRM plays a significant mediating role in the relationship between digitized customer behavior and performance. The current data supports H2. Finally, the third hypothesis (H3) presumed that digital CRM plays a significant moderating role in the relationship between digitized customer behavior and performance. Such a moderating part was not supported. It should be noted here that there is a gap in the literature on mediating or moderating parts of digitized CRM in relationships between exogenous constructs and performance. However, some studies (e.g., Rodriguez and Honeycutt Jr., 2011; Rodriguez and Boyer, 2020; Itani et al., 2019) indicate that CRM technologies are significant predictors of performance.

The current study found that companies’ focus on building long relationships with customers, companies’ interest in analyzing customers’ digital experiences, providing customers a value using digital means, and companies’ real interactions with their customers clarify why digitized customer behavior affects performance, which means that there is an indirect effect of digitized CRM between digitized customer behavior and performance. On the other hand, the effect of digitized customer behavior on performance does not vary depending on a third factor such as digitized CRM, i.e., the moderating variable. In other words, digitized CRM supports the effect of digitized customer behavior on performance. Based on these results, this study concluded that performance enhancement is a function of digitized CRM as a mediating factor not as a moderating one. Therefore, companies should pay great attention to digitized CRM to elevate performance as the effect of digitized customer behavior does not change depending on digitized CRM as a moderator.

#### 5. Limitations and future research directions

The sample of the current study is limited to marketing employees selected from service companies collecting data using a cross-sectional design. Therefore, scholars are required to conduct new studies selecting samples from different companies from different industries using longitudinal designs. Further studies are requested to investigate the moderating role of digitized CRM between digitized customer behavior and company performance including performance to generalize the current results.

#### Funding

This research has been supported by the Research Fund at the Arab Open University, Saudi Arabia. Research Group No. AOURG- 2023-003.

#### Acknowledgments

Researchers would like to thank the Arab Open University, Saudi Arabia. We also thank the Deanship of Scientific Research, Qassim University, Saudi Arabia.

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