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ANALYZING DIGITAL PRESENCE AND ITS IMPACT ON THE FINANCIAL PERFORMANCE OF COMMERCIAL BANKS IN KENYA USING THE WEBIX MODEL AND MULTIPLE REGRESSION ANALYSIS

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Abstract:
Recently, the Kenyan financial sector has witnessed digital evolution. Kenyan commercial banks have been forced to adjust rapidly to this digital evolution to achieve a competitive advantage and improve their financial performance. This study aimed to investigate the relationship between digital presence and the financial performance of commercial banks in Kenya. Data was collected from the websites of all commercial banks in Kenya, while secondary data was collected from audited published financial statements, financial reports of the commercial banks, and the Central Bank of Kenya. Profitability measured financial performance, while the WEBIX model was used to investigate the level of digital presence of commercial banks in Kenya. The study using the WEBIX model, technical and content analysis of the websites of all the commercial banks in Kenya, found that commercial banks in Kenya are gradually moving from Web 1.0 solutions to Web 2.0 solutions by linking their social media accounts to the website. The study also found that commercial banks in Kenya are still in the second (emerging) level of digital maturity. Multiple regression analysis found a statistically significant relationship between the digital presence and the financial performance of commercial banks in Kenya. The study concluded that the policymakers and the management of commercial banks should continually emphasize the importance of investing in digital assets, strategies, and infrastructure to steer the banks through this evolving and dynamic financial landscape. The study also recommends further research using mediating or moderating variables. The researchers believe that the originality of this study will be beneficial to managers of commercial banks.

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Keywords: digital presence, websites, financial performance, speed, connection, appearance, complexity

1. Introduction

In the current business environment, technology is transforming business transactions. Technology has significantly offered potential solutions to the nature of financial interactions and human activity, with real-world social relationships migrating to the virtual world (Tiago & Veríssimo, 2014). Adding to the advanced technology in the banking sector is the digital presence. Digital presence has been defined as the online appearance of the business through websites and social media profiles[ii]. It gives an overview of the business and can lead to new opportunities through its ability to reach a global audience, build brand awareness, and create high-level customer engagement.

Digital presence in the banking sector incorporates online platforms such as websites, social media, and digital channels like mobile and internet banking, where customers can interact with the banks. Digital presence has decreased queues in the banking hall due to the replacement of physical financial services with the introduction of mobile banking. Most customers visiting physical banks are reducing gradually as they find it much easier to transact online. Additionally, Generation Z and millennials are particularly "*interested in trying new things, even when it pertains to banking services*"[iii]. As customers are now more engaged with the internet and social media, banks need to engage in social media as well (Tiago & Veríssimo, 2014). Digital presence has also increased changes in customer buying behavior because of the provision of digital financial services, triggering banks to recognize the importance of social media and build their digital presence.

Banks' financial performance largely depends on their effort to maintain a strong digital presence through their websites and social media to remain competitive. According to Nellemann (2022)[iv], the availability of digital assets such as websites, domain names, blogs, and social media accounts implies that banks are currently adding a lot of value to the digital presence of the company. Social media have embarked on digital presence in order to improve networks as well as helping local banks to defend their interest margins and intensifying competition (Jackowicz *et al.*, 2020), reach a wider audience, and create trust with customers. Commercial banks embark on a user-friendly, easy, and well-designed website that nurtures trust among customers and asserts the bank's commitment to safeguarding their sensitive information[v]. This leads to increased

[ii] https://medium.com/@naturelleai/what-is-a-strong-digital-presence-6aaafa88a16c
[iii] https://thefinancialbrand.com/news/digital-banking/mobile-banking-trends/digital-channel-branding-banking-39931/
[iv] https://www.allbusiness.com/when-buying-a-business-dont-ignore-its-digital-assets-15265-1.html
[v] https://2stallions.com/blog/building-a-strong-online-presence-web-development-for-banks/

customer satisfaction, loyalty, and usage, which can ultimately translate into higher revenues and profitability for the bank. Additionally, having a strong digital presence can also attract new customers and increase market share, which can further boost the bank's financial performance. This is especially important in today's digital age, where consumers are increasingly turning to online channels for their banking needs.

Kenya has witnessed widespread usage of smartphones, high internet connectivity, and social media, making digital presence a strong and significant tool in the banking sector. Kenya's banking sector has witnessed an increase in mobile usage, the rise of fintech companies, and internet penetration, making it easy for banks to reach the unbanked population. Mobile money platforms such as M-Pesa have largely contributed to this financial inclusion in Kenya. Additionally, commercial banks in Kenya are using mobile banking platforms, and social media platforms like X, Facebook, and WhatsApp as communication, promotional, and customer engagement channels that have become crucial in determining the financial success of the banks.

Despite the importance of digital presence, the literature on the digital presence and financial performance of commercial banks is modest, with most scholars focusing on the marketing aspect (Tiago & Veríssimo, 2014; Rawat & Divekar, 2014; Nand *et al.*, 2020; Dolega *et al.*, 2021; and Tolstoy *et al.*, 2022), while other scholars conducted their studies on SMEs (Hornyák, 2017; Beatrix *et al.*, 2020; Mas, 2022), Therefore, this study aims to investigate the level of digital presence and its impact on the financial performance of commercial banks in Kenya.

2. Related Literature

Digital presence has been defined as the disruptor impression a company's brand makes online through its websites, search engines, content, email, and social media[vi]. Digital presence has attracted the attention of academic scholars to shed more light on commercial banks' financial performance. Previous studies have focused on digital presence and non-financial performance. Parveen *et al.*, (2015), examined social media usage and organizational performance in Malaysia, using the qualitative approach, and found that social media greatly impacts organizational performance through customer relations and services, improved access to information, and reduced costs in terms of marketing. Ozdora and Atakan (2015), examined the online presence of Turkish banks and the benefit of CSR activities and found that organizations must communicate non-economic concerns regardless of their core functions to construct a public identity and gain legitimacy. Beatrix *et al.*, (2020), examined the effect of online activity on SMEs' competitiveness and found that the existence and quality of websites have a positive impact on the competitiveness of SMEs.

Other academic scholars have focused on how social commerce-IT capabilities have influenced firm performance (Braojos *et al.*, 2019), online information on digitalization processes and its impact on firm value (Salvi *et al.*, 2021), the impact of

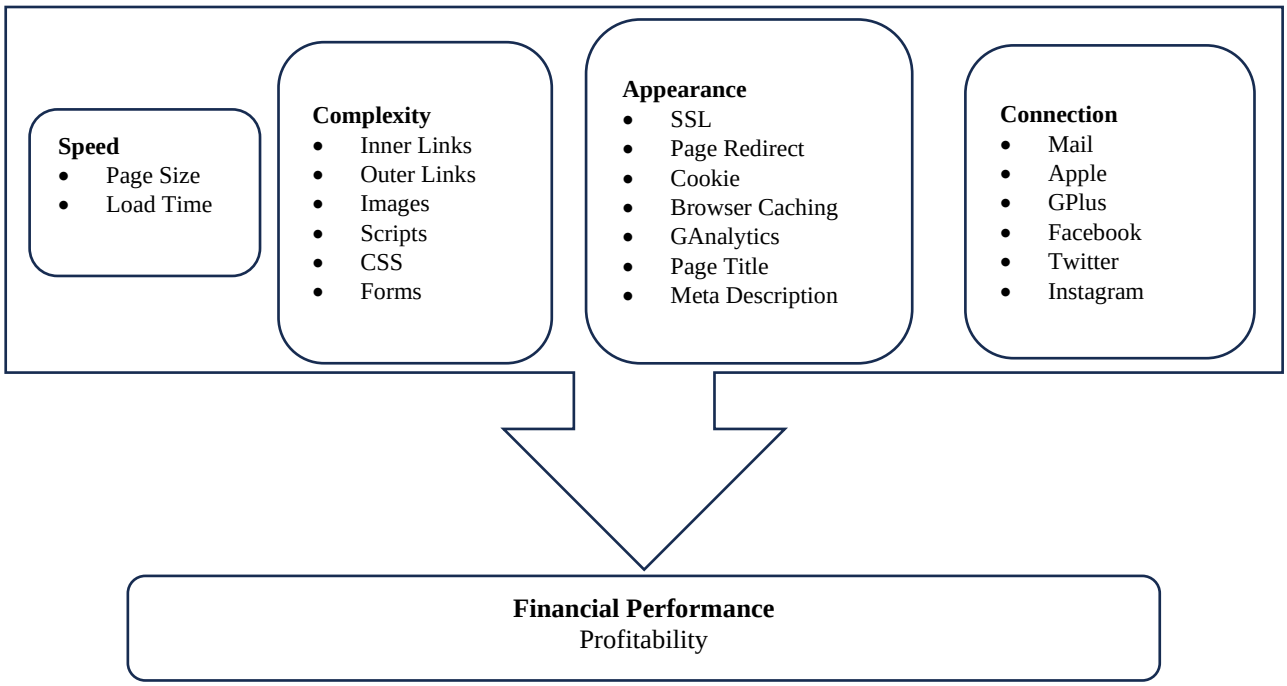
[vi] https://www.brafton.com/blog/content-marketing/digital-presence/

online display advertising and paid search advertising relative to offline advertising on firm performance and firm value (Bayer *et al.*, 2020), and Vazifedoost and Farzin (2015) conducted a study on the impact of social media on firm performance in Iran. Soto-Acosta *et al.* (2016) examined the e-business impact on firm performance through website analysis of the 288 companies' websites of firms based in Spain. The results showed a positive relationship between e-business and firm performance. Luis *et al.* (2015), conducted a study to analyze the impact of digital presence on the competitive advantage of Brazilian banks. The study introduced a digital presence index to consolidate the digital metrics and found that there were high correlations between digital presence (average visits per month, Facebook, Twitter, and Google search) and performance (net profit, total assets, total deposits). Rizov *et al.*, (2022), developed a unifying framework to investigate the effects of firms' internet presence on productivity and market structure. The study used the UK and Spanish firm (FAME and SABI) datasets from 1995-2010. The results showed that website adoption is associated with higher productivity growth and a reduction in market concentration in both countries. Wardati and Er (2019), conducted a study on the impact of social media usage on the sales process in SMEs. The study used a systemic literature review approach and reviewed a total of 24 journals. The study found that the use of social media impacts the sales process of SMEs which can lead to improved customer relations, expanding the market at low cost, and improved performance. Hornyák (2017), examined the digital presence index of small and medium-sized businesses. The study used a sample of 849 small and medium-sized businesses listed in the HSMB database and the analysis was conducted using the WebIX analysis. While, Mas (2022), study on EU27 and USA institutions in the digital ecosystem proposed a digital presence measurement index. The proposed model used the following variables: number of annual visits, number of annual unique visitors, the average number of pages viewed per visit, average bounce rate, backlinks, number of domains, number of IPs, follow links, no follow links, text links, image links, and form links. The results showed that the institutions analyzed had a medium-high digital development. Hanafizadeh *et al.*, (2021), the study explored the consequences of social media usage on firm performance. The study proposed a conceptual map showing the linkages between the maturity level realization of an organization in social media usage and its corresponding performance consequences. This will help managers predict the performance consequences from each maturity stage realized. Additionally, some academic scholars have focused on the digital presence of sectors such as higher learning (Nand *et al.*, 2020), e-commerce SMEs, and businesses (Tolstoy *et al.*, 2022; Rawat & Divekar 2014).

2.1 Conceptual Framework

The conceptual framework shows the direct impact of the independent variables on the dependent variable. The independent variables intended for this study were speed, complexity, appearance, and connection. The dependent variable was financial performance, indicated by profitability, as shown in Figure 1 below.

Figure 1: Conceptual Framework



Source: Authors' Construct 2024

3. Methodology

The study was conducted on all 39 commercial banks in Kenya. Secondary data was collected from audited published financial statements from financial reports of the commercial banks and the Central Bank of Kenya. The financial performance was measured by Profitability. Multiple regression analysis was used to examine the relationship between digital presence and the financial performance of commercial banks in Kenya.

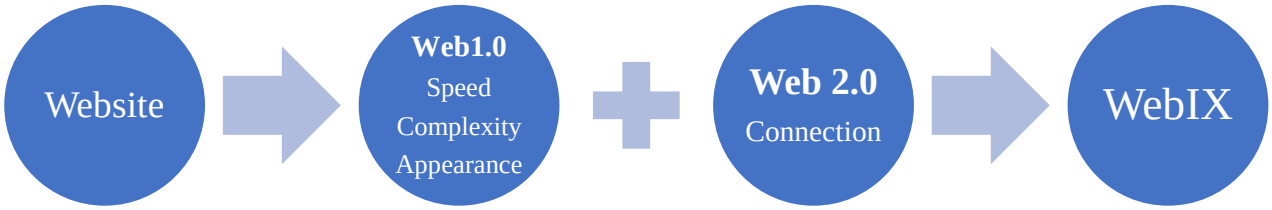
$$Y = \beta_0 + \beta_1 X_1 + \beta_2 X_2 + \beta_3 X_3 + \beta_4 X_4 + e \quad \text{(Equation 1)}$$

Where:
Y = Financial Performance,
β_0 = Constant,
X_1 = Speed,
X_2 = Complexity,
X_3 = Appearance,
X_4 = Connection,
e = Error.

To analyze the level of digital presence of commercial banks in Kenya, the study used the websites of all 39 commercial banks in Kenya. The study used the WebIX model as shown in Figure 2 below. This model was adopted from Hornyák (2017), who used the

WebIX model to examine the online presence of small and medium-sized businesses listed in the HSMB database. Additionally, Beatrix *et al.* (2020), used the WebIX model to examine the effect of online activity on SMEs' competitiveness. However, it is worth noting that there is limited usage of this model in the banking sector.

Figure 2: Conceptual model of WebIX



Source: Authors' construct (Adopted from (Hornyák, 2017))

Technical and content analysis of the websites of all the commercial banks in Kenya was conducted. After analyzing the websites, the data collected was categorized into two sub-indexes (Web 1.0, and Web 2.0), Then, four pillars were created (speed, complexity, appearance, and connection). The speed, complexity, and appearance pillars were created using the Web 1.0 examination while the connection pillar was created using the Web 2.0 examination. The speed pillar analyzed the page size and the load time of the website, the complexity pillar analyzed the inner links, outer links, images, scripts, CSS, and forms in the website, the appearance pillar analyzed the SSL, page redirect, cookie, browser caching, GAnalytics, page title, meta description, and mobile viewport application while the connection pillar analyzed the social media links (email, Apple, GPlus, Facebook, Twitter, and Instagram) as shown in Table 1 below.

Table 1: WEBIX Variable Measurement

Indicator	**Pillar**	**Sub-Index**	**WebIX**
Page Size	Speed = (load time/page size)	Web 1.0	WebIX
Load Time			
Inner Links	Complexity = sum (inner links, outer links, images, scripts, CSS)		
Outer Links			
Images			
Scripts			
CSS			
Forms			
SSL	Appearance = sum (SSL, page redirect, cookie, browser caching, GAnalytics, page title, meta description, and mobile)		
Page Redirect			
Cookie			
Browser Caching			
GAnalytics			
Page Title			

Meta Description			
Mobile			
Mail	Connection = sum (mail, Apple, GPlus, Facebook, Twitter, and Instagram)	Web 2.0	
Apple			
GPlus			
Facebook			
Twitter			
Instagram			

Source: Adopted from (Hornyák, 2017).

The WebIX index was calculated as follows.

$$\text{Average Index}_{\text{Web 1.0}} = \frac{\text{Speed Pillar + Complexity Pillar Appearance Pillar}}{3} \quad \text{(Equation 2)}$$

$$\text{Average Index}_{\text{Web 2.0}} = \text{Connection Pillar} \quad \text{(Equation 3)}$$

$$\text{WebIX} = \frac{(\text{Average Index}_{\text{Web 1.0}} + \text{Average Index}_{\text{Web 2.0}})}{2} \quad \text{(Equation 4)}$$

4. Results

4.1 WEBIX

The study developed a conceptual model (WebIX) to investigate the level of digital presence of commercial banks in Kenya. Technical and content analysis of the websites of all the commercial banks in Kenya was conducted. Table 2 shows the average digital presence of commercial banks in Kenya.

Table 2: Average Digital Presence of Commercial Banks in Kenya

Pillars				Sub-Index		WebIX
Speed	**Appearance**	**Complexity**	**Connection**	**Web 1.0**	**Web 2.0**	
0.258465757	0.612179487	0.411127443	0.517094017	0.427257562	0.517094017	0.491467351

Source: Authors' Construct.

From Table 2 above the average speed of loading the website is generally low (25.85%), it is also clear that the commercial banks have taken into consideration the appearance of their websites (61.12%), and the connection (51.71%) Additionally, commercial banks have developed and maintained fewer complex websites (41.11%). The commercial banks in Kenya are gradually moving from Web 1.0 (42.73%) solutions to Web 2.0 solutions (51.71%) by linking their social media accounts to the website. The WebIX was at 49.15%, indicating that commercial banks in Kenya are still in the second (emerging) level of digital development.

4.2 Test of Multicollinearity

Table 3 indicates the results of multicollinearity using VIF and tolerance values. With all the VIF values being less than 5 and tolerance values being more than 0.10, the assumption of multicollinearity was eliminated from the study.

Table 3: Test of Multicollinearity

Model		Collinearity Statistics	
		Tolerance	VIF
1	(Constant)		
	Connection	.680	1.470
	Appearance	.752	1.329
	Complexity	.703	1.422
	Speed	.767	1.303
a. Dependent Variable: Profitability			

4.3 Regression Analysis

The study conducted a multiple regression analysis to analyze the relationship between the dependent variable, profitability, and the independent variables (Speed, Appearance, Complexity, and Connection). Table 4 shows an R^2 of 0.39 (39%) and an adjusted R^2 of 0.318 (31.8%). This indicates that the 31.8% variation in the profitability of commercial banks in Kenya can be explained by the model. The adjusted R^2 of 0.318 (31.8%) is slightly lower than the $R^{2,}$ indicating the relationship between the dependent and independent variables under study. The predictor values of the model were statistically significant with a *p*-value <0.05.

Table 4: Model Summary

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.624[a]	.390	.318	9108.660	.390	5.424	4	34	.002
a. Predictors: (Constant), Speed, Appearance, Complexity, Connection									

From the ANOVA analysis in Table 5 below, the study found a statistically significant regression equation (F (4, 38) =5.424, *p*= 0.002<0.05). This indicated that the overall regression model statistically significantly predicted the profitability of commercial banks in Kenya.

Table 5: Anova

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1800103193.624	4	450025798.406	5.424	.002[b]
	Residual	2820901455.812	34	82967689.877		
	Total	4621004649.436	38			
a. Dependent Variable: Profitability						
b. Predictors: (Constant), Speed, Appearance, Complexity, Connection						

5. Discussion of the Results

The results revealed that commercial banks in Kenya are gradually moving from Web 1.0 solutions to Web 2.0 solutions by linking their social media accounts to the website. The WebIX index of the commercial banks was at 49.15%, indicating that commercial banks in Kenya are still in the second (emerging) level of digital development. At this stage, commercial banks in Kenya are investing in improving their digital technology operations. According to Shehmir[vii]Companies in the emerging or intentional level of digital maturity are deliberately striving to implement digital solutions and realize the importance of data sharing, collaboration, and working with third parties.

Additionally, the study found a statistically significant relationship between the profitability of commercial banks in Kenya and their digital presence. These results are in line with the findings of Luis *et al.*, (2015), who found high correlations between digital presence (average visits per month, Facebook, Twitter, and Google search) and financial performance (net profit, total assets, total deposits). A study by Jackowicz *et al.*, (2020), found that the adoption of social media helps the local banks in Poland to defend their interest margins and intensifies competition.

6. Conclusion and Recommendations

Despite the importance of digital presence, the literature on the digital presence and financial performance of commercial banks is modest, with most scholars focusing on the marketing aspect, while other scholars have conducted their studies on SMEs. This study, therefore, adds to this research area by investigating the level of digital presence and its impact on the financial performance of commercial banks in Kenya.

The study used multiple regression to analyze the relationship between the dependent and independent variables. WebIX was developed, and technical and content analysis were used to analyze the level of digital presence of commercial banks in Kenya. However, the findings of the study may be different if other models were used. Further research can be conducted with the inclusion of other variables, such as mediating or moderating variables. The researchers believe that this study provides a good basis for further research.

Conflict of Interest Statement

The authors declare no conflicts of interest

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[vii] https://research.aimultiple.com/digital-maturity-model/

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References

Bayer, E., Srinivasan, S., Riedl, E. J., & Skiera, B. (2020). *The impact of online display advertising and paid search advertising relative to offline advertising on firm performance and firm value*. *37*, 789–804. https://doi.org/10.1016/j.ijresmar.2020.02.002

Beatrix, L., Miklós, H., & Kruzslicz, F. (2020). The effect of online activity on SMEs' competitiveness. *Competitiveness Review: An International Business Journal*. https://doi.org/10.1108/CR-01-2020-0022

Braojos, J., Benitez, J., & Llorens, J. (2019). *Information & Management How do social commerce-IT capabilities influence firm performance? Theory and empirical evidence*. *56* (July 2017), 155–171. https://doi.org/10.1016/j.im.2018.04.006

Dolega, L., Rowe, F., & Branagan, E. (2021). Going digital? The impact of social media marketing on retail website traffic, orders, and sales. *Journal of Retailing and Consumer Services*, *60*(February 2020), 102501. https://doi.org/10.1016/j.jretconser.2021.102501

Hanafizadeh, P., Shafia, S., & Bohlin, E. (2021). Exploring the consequence of social media usage on firm performance. *Digital Business*, *1*(2), 100013. https://doi.org/10.1016/j.digbus.2021.100013

Hornyák, M. (2017). Digital Presence Index for the Examination of Small and Medium-sized Businesses. *Management, Enterprise and Benchmarking in the 21st Century*, 121–133.

Jackowicz, K., Kozłowski, Ł., & Kuchciak, I. (2020). Local banks in social media : determinants and consequences. *Economic Research-Ekonomska Istraživanja*, *33*(1), 3356–3384. https://doi.org/10.1080/1331677X.2020.1773892

Luis, C., Oliveira, C. De, Jacubowski, V., Dubeux, C., & Pereira, V. A. (2015). *The Impact of Digital Presence on Competitive Advantage The Digital Presence and Business*. 80–87. https://doi.org/10.5220/0005546900800087

Mas, M. (2022). *EU27 and USA institutions in the digital ecosystem : Proposal for a digital presence measurement index*. *154* (October 2022).

Nand, R., Naseem, M., & Reddy, E. V. (2020). *Effectiveness of online presence in a blended higher learning environment in the Pacific*. *45*(8), 1547–1565.

Ozdora-aksak, E., & Atakan-duman, S. (2015). Public Relations Review The online presence of Turkish banks : Communicating the softer side of corporate identity. *Public Relations Review*, *41*(1), 119–128. https://doi.org/10.1016/j.pubrev.2014.10.004

Parveen, F., Jaafar, N. I., & Ainin, S. (2015). Telematics and Informatics Social media usage and organizational performance : Reflections of Malaysian social media managers. *Telematics and Informatics*, *32*(1), 67–78. https://doi.org/10.1016/j.tele.2014.03.001

Rawat, S., & Divekar, R. (2014). Developing a Social Media Presence Strategy for an E-commerce Business. *Procedia Economics and Finance*, *11*(14), 626–634. https://doi.org/10.1016/s2212-5671(14)00228-7

Rizov, M., Vecchi, M., & Domenech, J. (2022). *Technological Forecasting & Social Change Going Online : Forecasting the impact of websites on productivity and market structure*. *184*(February).

Salvi, A., Vitolla, F., Rubino, M., Giakoumelou, A., & Raimo, N. (2021). *Online information on digitalization processes and its impact on firm value*. *124*(June 2020), 437–444.

Soto-Acosta, P., Popa, S., & Palacios-Marqués, D. (2016). E-business, organizational innovation and firm performance in manufacturing SMEs: an empirical study in Spain. *Technological and Economic Development of Economy*, *22*(6), 885–904. https://doi.org/10.3846/20294913.2015.1074126

Tiago, M. T. P. M. B., & Veríssimo, J. M. C. (2014). Digital marketing and social media: Why bother Jackowicz? *Business Horizons*, *57*(6), 703–708. https://doi.org/10.1016/j.bushor.2014.07.002

Tolstoy, D., Nordman, E. R., & Vu, U. (2022). The indirect effect of online marketing capabilities on the international performance of e-commerce SMEs. *International Business Review*, *31*(3), 101946. https://doi.org/10.1016/j.ibusrev.2021.101946

Vazifedoost, H., & Farzin, M. (2015). *The Impact of Social Media on Firm Performance as a New Marketing Strategy Tool in Iran's High-Tech and Fragrance Industry*. *4*(3), 291–304.

Wardati, N. K., & Er, M. (2019). The Impact of Social Media Usage on the Sales Process in Small and Medium Enterprises (SMEs): A Systematic Literature Review. *Procedia Computer Science*, *161*, 976–983. https://doi.org/10.1016/j.procs.2019.11.207