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Unveiling the Impact of Social Media Usage on Firm Performance: The Mediating Influence of Organizational Agility and Innovation Capability

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Abstract: The current research tended to examine the impact of social media usage on firm performance with the mediating role of organizational agility and innovation capability. The methodology used was descriptive correlation with structural equation modelling. For this purpose, 148 managers, deputies and experts of the German automotive industry participated in the study. Data collection was conducted using a questionnaire while analysis of the data utilized the structural equation modeling based the partial least squares method. The findings suggest that social media usage has a substantial and positive impact on innovation capability, organizational agility, and firm performance. Additionally, innovation capability has a notable positive influence on organizational agility and firm performance. Furthermore, organizational agility significantly contributes to firm performance. Both innovation capability and organizational agility play an important mediating role in the relationship between social media usage and firm performance. Moreover, innovation capability acts as a mediator between social media usage and organizational agility, while organizational agility mediates the effect of innovation capability on firm performance. Thus, it can be inferred that social media usage facilitates improvements in firm performance by enhancing organizational agility and innovation capability.

Keywords: firm performance; innovation capability; organizational agility; social media

1 INTRODUCTION

Performance plays a crucial role in the examination of organizations. The significance of performance in attaining objectives, along with the elements that contribute to its effectiveness and efficiency, receive significant attention across various public and private entities. In modern competitive world, organizations constantly need to improve their performance in any environment they operate in, and they must use all their efforts to achieve performance excellence [1]. At present, a majority of organizations find themselves functioning within an environment characterized by intense competition and constant fluctuations. This environment is marked by ongoing shifts in both internal and external factors, making it exceedingly challenging to anticipate and foresee these changes. In contrast, organizations invest substantial resources and effort in planning, organizing, and executing strategies with the aim of realizing their organization's long-term objectives and visions. Therefore, it is very important for managers and organizations to know to what extent their performance has been towards achieving goals and where their position is in current complex and dynamic environment. Therefore, survival and success of organizations in modern competitive environment, which is characterized by change and transformation, complexity and uncertainty, requires the adoption and implementation of effective strategies and continuous performance improvement [2]. The ongoing enhancement of organizational performance plays a pivotal role in fostering growth, development, and advantageous prospects for organizations. Various entities such as governments, organizations, and institutions are actively engaging in progressive efforts to achieve this. However, the continuous improvement of performance necessitates an examination of progress and goal attainment, as well as identifying challenges and obtaining feedback and information regarding policy implementation and areas requiring substantial improvement [3]. Consequently, this study aims to investigate the impact of social media usage on firm performance, considering the mediating influences of organizational agility and innovation capability.

1.1 Organizational Agility and Firm Performance

In its literal sense, the term "agile" refers to swift movement and activity. Agility, on the other hand, encompasses the capability to move rapidly and effortlessly, as well as to think quickly and intelligently. The origin and foundation of agility can be traced back to agile manufacturing, which has gained popularity in recent times and is recognized as a successful strategy by manufacturers aiming to enhance their performance [4]. In such an environment, every organization must possess the capacity to concurrently manufacture diverse products with short lifespans, modify product designs, adapt production methods, and respond effectively to changes [5]. A manufacturer that has such capabilities can be considered to be an agile organization if it has those capabilities. Agility is the ability to adapt to changes and identify and effectively use the opportunities that arise as a result of change. Agile organization tends to satisfy its customers and employees. It is essential that every organization has the ability to respond to continuous changes in its business environment. In such organizations, agility thinking also aims to leverage opportunities and create stable conditions for innovation and capability growth [6].

Organizations need agility for several reasons. The first reason is limited business opportunities; in fact, presence of many competitors prevents long-term presence of the opportunities that have arisen, and every organization tends to achieve these opportunities with all its strength. The second reason is the lack of organizational capabilities necessary for rapid penetration of new products in the market. The third reason that has made agility necessary for current organizations is unpredictability of continuous changes at various levels of the market. The organization

may be enabled to distribute the existing risk among several cooperative companies by creating virtual organizations. The fourth important and key reason and advantage is creation of a virtual organization, which brings together all the capabilities available in all scattered companies [7]. Despite this, organizations must follow some rules and principles in order to create agility and accelerate responsiveness and flexibility so that they can achieve this goal quickly and effectively. Adherence to these principles indicates a culture of acceptance of organizational agility [8-9]. The conducted studies also show the role of organizational agility in improving firm performance [10-13]. Therefore, the following hypothesis is developed:

H_1: organizational agility is effective on firm performance.

1.2 Innovation Capability, Organizational Agility and Firm Performance

Increasing the competitive advantage of companies in the 21st century will largely depend on the ability of their organizations to develop innovative capabilities [14]. Having a clear understanding of the importance of innovation tends to make organizations more aware of effective ways of improving their innovation capabilities over time [15]. Throughout history, there has been a gradual transition between simple labor, raw materials, and consumption markets giving way to science and technology as the most important factors in national development. The rapid acceleration of converting data into information, information into knowledge, and knowledge into technology highlights the critical significance of creativity and innovation for the survival of both companies and countries. This assertion is further supported by empirical research [16]. In today's highly competitive business environment, one thing that remains consistent is the presence of change. The rapid advancements in technology across different industries, coupled with shorter product and service life cycles and heightened competition, have significantly emphasized the significance of innovation within organizations [17].

Innovation in the competitive world is not only necessary for growth of organizations but also for their survival [18]. New ideas and methods quickly replace previous methods and change has become a normal routine. Modern organizations require rapid and continuous innovation in products, services, technologies and processes. Due to rapid changes and intense competition, companies have no choice but to innovate. Companies that cannot consistently provide innovative products and services are doomed to failure. Therefore, the ability to continuously innovate products, services, and work processes is critical for organizations. Accordingly, "innovation" has been increasingly regarded as a research topic over the past twenty years [19]. Organizations that possess a higher level of innovation, as well as the ability to create and develop new skills and resources that enhance their overall performance, will be more effective in adapting to dynamic environments [20]. This is why innovation has been regarded as the most important factor of sustainable competition of the organization [21]. The conducted studies also show the role of innovation in increasing organizational agility [22-24] and improving firm performance [25-30]. Therefore, the following hypotheses are developed:

H_2: innovation capability is effective on firm performance.

H_3: innovation capability is effective on organizational agility.

1.3 Social Media, Innovation Capability, Organizational Agility and Firm Performance

Recently, technological advances and increased use of social media have changed how organizations interact with their customers globally [31]. At present, social media is emerging as a crucial platform for businesses to engage and interact with customers. The utilization of social media in business communication can be attributed to the rapid growth of the online user community [32]. With the remarkable surge in social media usage, both individuals and various entities such as businesses and governmental organizations are embracing these platforms as their means of communication [33]. In the business realm, acquiring data from social networks and reaching a wider audience through information dissemination, as well as incorporating diverse channels into marketing strategies, play crucial roles in crafting effective branding approaches via social media [34]. Social media is easily available and can lead to increased communication. According to Fernando [35], organizations can develop connections with customers, leading to the establishment of relationships and a deeper comprehension of customer requirements, market conditions, and competitive positions. This understanding allows them to effectively introduce and promote their goods and products.

According to Mahmoud et al. [31], research findings indicate that companies utilize social media platforms, such as social networking sites, to establish direct connections with customers, boost website traffic, discover fresh business prospects, foster relationships, disseminate informational content, gather customer feedback, and overall enhance their brand. Therefore, rapid changes in modern world have challenged companies, but within this group, there exist prosperous enterprises that capitalize on the possibilities generated by managerial techniques and emerging technologies [36]. According to the research conducted, it has been observed that utilizing social media platforms has a favorable and noteworthy impact on the agility of organizations [37, 38]; innovation capabilities [39-41] and improving firm performance [42-47]. Therefore, the following hypotheses are developed:

H_3: social media usage is effective on firm performance.

H_4: social medial usage is effective on innovation capability.

H_5: social media usage is effective on organizational agility.

H_6: innovation capability has a mediating role in the impact of social media usage on firm performance.

H_7: organizational agility has a mediating role in the impact of social media usage on firm performance.

H_8: innovation capability has a mediating role in the impact of social media usage on firm performance.

H_9: organizational agility has a mediating role in the impact of innovation capability on firm performance.

In general, the existing theoretical literature has highlighted the significance of social media usage, organizational agility, and innovation capability in relation to firm performance. However, upon reviewing empirical studies, it becomes apparent that only a limited number of research works have examined the impact of social media usage on firm performance, taking into account the mediating roles played by organizational agility and innovation capability specifically within the automotive industry. Consequently, the primary objective of this study is to develop a model that explores the influence of social media usage on firm performance, considering the mediating effects of organizational agility and innovation capability within the German automotive sector. Based on insights derived from the relevant theoretical literature and framework, Fig. 1 illustrates the conceptual model for investigation.

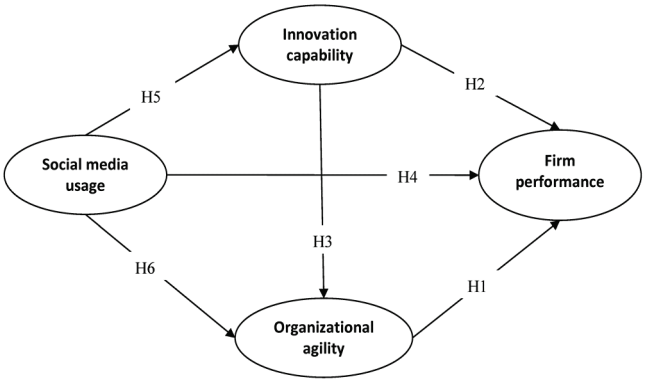

Figure 1 Conceptual model

2 RESEARCH METHODOLOGY

This study employs a descriptive correlational approach with structural equation modeling (SEM) using partial least squares (PLS) to investigate the associations between variables.

2.1 Sampling

The study involved individuals in managerial, deputy, and expert roles within the German automotive sector. A total of 200 surveys were disseminated among this population. Out of these, 148 questionnaires (74%) were successfully filled out and subjected to analysis.

2.2 Data Collection Instruments

We utilized a questionnaire to assess social media usage, which was developed by Dodokh and Al-Maaitah [48] based on existing research conducted by Boshoff and Elliot [49], Moen et al. [50]. The questionnaire comprises 15 items that gauge social media utilization for marketing (5 items), customer relations and service (5 items), and information accessibility (5 items). For measuring innovation capability, we employed the questionnaire developed by Janssen [51] and Akman and Yilmaz [52]. This questionnaire includes 15 items, assessing both individual innovation capability (9 items) and organizational innovation capability (6 items). To assess organizational agility, we used the questionnaire developed by Lu and Ramamurthy [53]. This questionnaire consists of 6 items, measuring investment agility in the market (3 items) and operational agility (3 items). Lastly, firm performance was measured using the questionnaire developed by Rai et al. [54], which comprises 6 items. All items were rated on a five-point Likert scale, ranging from "totally disagree" (1) to "totally agree" (5).

3 RESULTS

3.1 Validity and Reliability

To assess reliability, the study employed Cronbach's alpha coefficient and composite reliability. Validity was evaluated through factor loadings, average variance extracted, and the Fornell-Larker test. Composite reliability index proposed by Hair et al. [55] is better than Cronbach's alpha. Because in Cronbach's alpha index, the observable variables of each measurement model have the same weights. In fact, it equates their relative importance, but this assumption does not exist in composite reliability. In fact, composite reliability uses the factor loadings of the items when calculating; this change in calculation shows more and better composite reliability values than Cronbach's alpha ratio. Like Cronbach's alpha coefficient for internal consistency of the measurement model, value of this index is 0.7 or higher. According to Saeidi et al. [56], Nazari-Shirkouhi et al. [57], in confirmatory factor analysis, a factor load of 0.6 or higher for each item signifies that the construct is clearly defined. According to Table 1, the factor loadings for items of the variables are more than 0.6; as a result, the factor loadings are confirmed. The important point here is that if calculation of factor loadings between the construct and its indicators lead to values less than 0.6, we should modify those indicators (questionnaire items) or remove them from the model. Average Variance Extracted (AVE) was used to check convergent validity. Fornell and Larcker [57] suggest utilizing AVE values of 0.5 or higher, indicating that the construct accounts for 50% or more of the variance in its markers [56]. The variables' factor loadings, composite reliability, and AVE are presented in Tab. 1. The values of these tables show the adequate and appropriate reliability of the constructs. Fornell and Larcker [57] propose that an AVE value of 0.5 or higher is desirable, indicating that the construct accounts for at least 50% of the variability in its indicators. The results presented in Tab. 1 include the factor loadings, composite reliability, and AVE values for the variables. These findings demonstrate the satisfactory and suitable reliability of the constructs.

The Fornell-Larker index was employed to assess the discriminant validity of the constructs. For this criterion to be met, the square root of the AVE for a given construct should exceed the correlation between that construct and other constructs. This suggests that the correlation between the

construct and its indicators is stronger than its correlation with other constructs. The outcomes of the correlation analysis and the second validity criterion, i.e., the square root of AVE, are presented in Tab. 2.

Table 1 Factor loadings, composite reliability and AVE of variables

Variable	Item	Factor	α	*CR*	*AVE*
Social media for marketing	1	0.861	0.835	0.884	0.604
	2	0.778			
	3	0.756			
	4	0.778			
	5	0.704			
Social media for customer relations and services	1	0.773	0.870	0.906	0.659
	2	0.825			
	3	0.811			
	4	0.799			
	5	0.849			
Social media for information accessibility	1	0.777	0.813	0.870	0.573
	2	0.710			
	3	0.783			
	4	0.743			
	5	0.768			
Individual innovation capability	1	0.776	0.933	0.944	0.653
	2	0.771			
	3	0.808			
	4	0.845			
	5	0.827			
	6	0.848			
	7	0.774			
	8	0.815			
	9	0.802			
Organizational innovation capability	1	0.872	0.927	0.943	0.732
	2	0.848			
	3	0.868			
	4	0.839			
	5	0.844			
	6	0.864			
Market investment agility	1	0.883	0.822	0.895	0.740
	2	0.902			
	3	0.791			
Operational agility	1	0.880	0.742	0.854	0.661
	2	0.782			
	3	0.773			
Firm performance	1	0.731	0.865	0.899	0.599
	2	0.731			
	3	0.824			
	4	0.805			
	5	0.791			
	6	0.755			

Table 2 Matrix of correlation and root square of AVE of variables

Variable	Social media usage	Innovation capability	Organizational agility	Firm performance
Social media usage	0.70			
Innovation capability	0.50**	0.79		
Organizational agility	0.51**	0.50**	0.77	
Firm performance	0.60**	0.67**	0.59**	0.77
Note: The diagonal entries of the correlation matrix correspond to the square root of the AVE				

Based on the findings presented in Tab. 2, it can be observed that the square root of AVE for each variable exceeds its correlation with other variables. This indicates that there is discriminant validity among the variables. Furthermore, the values below the diagonal in the correlation matrix were examined to assess the relationships between these variables. It is evident that all variables possess a positive and statistically significant correlation coefficient.

3.2 Structural Model Testing

To anticipate the performance of a company, an investigative study was conducted using a proposed conceptual model and SEM. The estimation of the model was accomplished utilizing the PLS method in accordance with the hypotheses. To assess the significance of path coefficients, t-values were calculated through the bootstrap method, employing 500 sub-samples. Fig. 2 illustrates the tested model, portraying the interconnectedness between variables. As depicted in Fig. 2, social media usage exhibits a positive and significant impact on innovation capability, organizational agility, and firm performance. Likewise, innovation capability demonstrates a positive and significant influence on both organizational agility and firm performance. Furthermore, organizational agility exerts a positive and significant effect on firm performance. The numbers enclosed within the circle represent the explained variance of the respective variables. Tab. 3 presents the path coefficients and the amount of explained variance for the variables.

Table 3 Path coefficients and explained variance

Variable	β	*t*-value	*p*-value	Variance
On firm performance vie:				0.59
Social media usage	0.26**	2.927	0.01	
Organizational agility	0.26**	3.456	0.001	
Innovation capability	0.42**	4.849	0.001	
On organizational agility vie:				0.34
Social media usage	0.34**	3.574	0.001	
Innovation capability	0.33**	3.601	0.001	
On innovation capability vie:				0.25
Social media usage	0.50**	6.651	0.001	

*$p < 0.05$; **$p < 0.01$

Based on the findings presented in Tab. 3, it can be observed that social media usage has a positive and significant impact on innovation ability, organizational agility, and firm performance. Furthermore, innovation capability also exhibits a positive and significant relationship with organizational agility and firm performance. Additionally, organizational agility demonstrates a positive and significant influence on firm performance. Moreover, the model variables account for 59% of the variance in firm performance, 34% of the variance in organizational agility, and 25% of the variance in innovation capability, indicating their explanatory power. The indirect coefficients are reported in Tab. 4.

The findings presented in Tab. 4 indicate that both innovation capability and organizational agility play a crucial role in mediating the positive impact of social media usage on firm performance. Specifically, innovation capability acts as a significant mediator in the relationship between social media usage and organizational agility. Additionally, organizational agility also mediates the effect of innovation

capability on firm performance. Furthermore, the results of hypotheses testing are summarized in Tab. 5.

In PLS analysis, the Goodness of Fit (GOF) index serves as a comprehensive measure to assess the validity and quality of the model. It evaluates the overall predictive capability of the model and determines its effectiveness in predicting the endogenous variables. In this study, the absolute fit index of GOF for the tested model was found to be 0.67, indicating a suitable fit. A value above 0.36 is considered adequate and acceptable, suggesting that the model demonstrates good quality.

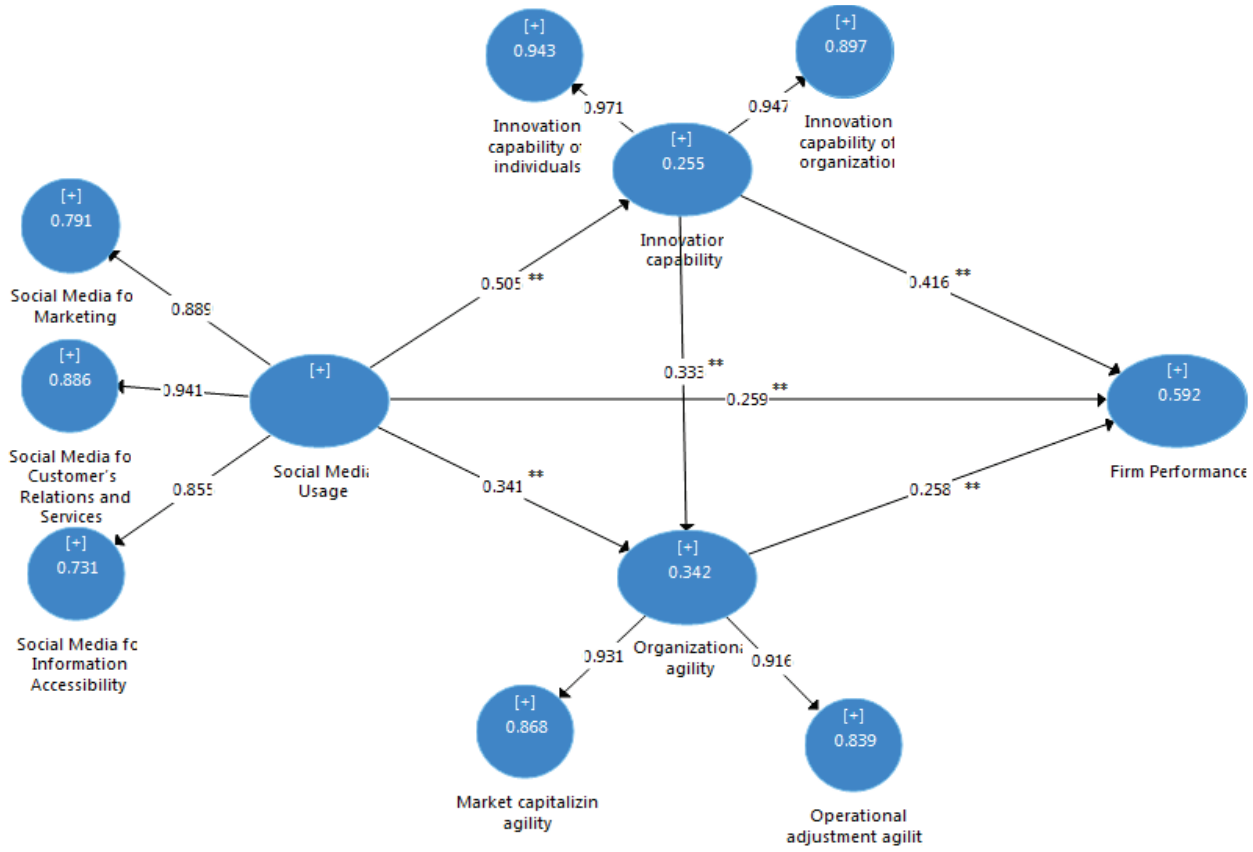

Figure 2 The tested model

Table 4 Indirect coefficients

Indirect paths	Indirect effects	*t*-value	*p*-value
Social Media Usage → Innovation capability → Firm performance	0.210	3.771	0.000
Innovation capability → Organizational agility → Firm performance	0.086	2.482	0.013
Social Media Usage → Innovation capability → Organizational agility → Firm performance	0.043	2.469	0.014
Social Media Usage → Organizational agility → Firm Performance	0.088	2.368	0.018
Social Media Usage → Innovation capability → Organizational agility	0.168	3.121	0.002

Table 5 Results of hypothesis testing

Hypothesis	Result
H1: Organizational agility is effective on firm performance	Confirmed
H2: Innovation capability is effective on firm performance	Confirmed
H3: Social media usage is effective on firm performance	Confirmed
H3 Social media usage is effective on firm performance	Confirmed
H4: Social media usage is effective on innovation capability	Confirmed
H5: Social media usage is effective on organizational agility	Confirmed
H6: Innovation capability has a mediating role in the effect of social media usage on firm performance	Confirmed
H7: Organizational agility has a mediating role in the effect of social media usage on firm performance	Confirmed
H8: Innovation capability has a mediating role in the effect of social media usage on firm performance	Confirmed
H9: Organizational agility has a mediating role in the effect of innovation capability on firm performance	Confirmed

4 DISCUSSION

The purpose of this research was to examine the impact of social media usage on a company's performance, taking into account the mediating roles of organizational agility and innovation capability through SEM. The findings indicated that the suggested model demonstrated a satisfactory fit with the collected data and managed to account for 59% of the

variation in firm performance, 34% of the variation in organizational agility and 25% of the variation in innovation capability.

The findings from the SEM indicate that utilizing social media has a favorable and substantial impact on innovation capability, organizational agility, and overall firm performance. Therefore, social media usage leads to an increase in innovation and organizational agility and improves firm performance. This discovery aligns with the research conducted by Zhang et al. [37], Ahmadi and Ershadi [38], Le and Chakraborty [39], Borah et al. [40], Noruzy et al. [42] and Nguyen et al. [43]. In order to elucidate this discovery, innovation and organization agility will increase and firm performance will improve if the organization uses social media to promote its products, promotes its brand through social media, evaluates its marketing performance by receiving feedback (like, share and follow in Instagram, Facebook and Twitter), strategically gathers customer feedback from various social media platforms and establishes strong connections with its customers by engaging in ongoing communication through these channels. It conducts customer service activities on social media, leveraging the feedback received to enhance the quality of its products. Additionally, the company utilizes social media as a means to reach out to potential customers, while also utilizing it to acquire valuable insights about the target market and competitors. Furthermore, the company effectively employs social media to provide comprehensive information about its products. In general, social media are useful and valuable for network participants because they increase and promote activities and use of resources. In market conditions, social media provide significant benefits, including improving the economic value of organizations.

Another finding of the model is that innovation capability positively influences organizational agility and firm performance. Therefore, innovation capability leads to increasing organizational agility and improving firm performance. This discovery aligns with the research conducted by Hatunoğlu [22], Cepeda and Arias-Pérez [24], Ravichandran [12], Bahta et al. [25], Chen et al. [26], Saunila et al. [29] and Calantone et al. [30]. To explain this finding, organizational agility will increase and performance will improve if the organization has the ability to offer new products/services to customers, has introduced new processes and service methods, has created new management methods, has used new marketing methods, has created new business models, believes that it is necessary to deliver products/services to customers according to the latest technologies, and tries to provide the highest quality for customers, is able to develop new products before competitors, actively adapts itself to customer needs, and allocates more funds to research and development compared to competitors. Therefore, organizations equipped with the ability to innovate have a distinct advantage in swiftly addressing environmental challenges and effectively capitalizing on emerging products and market prospects, surpassing their non-innovative counterparts. Consequently, this enhances overall business performance.

The model's findings indicate that organizational agility plays a crucial role in enhancing firm performance. Consequently, the study demonstrates a positive and noteworthy impact of organizational agility on overall business outcomes. These results align with the research conducted by Wamba [10], Felipe et al. [5], Nazari-Shirkouhi et al. [11] and Ravichandran [12]. According to this finding, firm performance will improve if the organization makes appropriate decisions and implements quickly in the face of market/customer changes, considers market-related changes and apparent chaos as an opportunity for quick investment, has the ability to rapidly improve products/services to meet customer expectations, responds and fulfills customer demands quickly and customers have confidence in this ability whenever there is a disruption in supply, the organization can quickly make replacement adjustments and internal adjustments, and has the ability to deal with changes in the market and customer demand in business processes physically and quickly. Organizational agility describes business flexibility and the ability to respond in the market environment. Companies that tend to remain in this environment must constantly search for new business opportunities. Organizational agility makes organizations learn to make rapid changes and be able to transform and renew the company without losing opportunities and thus achieve business success.

5 MANAGERIAL REMARKS

Automotive industry managers are suggested to consider social media usage for marketing, for customer relations and services, and for information accessibility. Because social media usage facilitates identification of potential customers, facilitates the identification of customer view in obtaining important market information, facilitates the identification of potential customers to communicate in the market. In addition, it makes them aware of the market conditions, the nature and intensity of competition in it, so that they can adopt appropriate strategies to adapt to the market and allocate more resources and time to the activities needed to improve firm performance.

Considering the role of innovation capability, it is suggested to managers of the automotive industry that delivery strategy of the company be in accordance with the latest technologies of the day, be able to develop new products before the competitors, actively adapt itself to customer needs, allocate more budget to R&D department, improve its business processes and use new managerial approaches.

Considering the role of organizational agility, the managers are suggested to discover environmental changes quickly, identify opportunities and threats in the environment, make decisive decisions to cope with environmental changes, adopt clear decisions to manage coping opportunities and respond to changes in the business environment.

6 CONCLUSION

The findings indicate that the utilization of social media, the capability to innovate, and organizational agility are predictors of firm performance. Furthermore, the study reveals that innovation capability and organizational agility play a positive and significant mediating role in the

relationship between social media usage and firm performance. Similarly, innovation capability mediates the effect of social media usage on organizational agility, and organizational agility mediates the impact of innovation capability on firm performance. In conclusion, it can be inferred that incorporating social media into online marketing strategies is crucial for companies to enhance their performance through fostering innovation and organizational agility. Failure to engage with social media deprives companies of valuable opportunities to connect with consumers, given the increasing ubiquity of the Internet and the growing significance of social media as an essential tool in digital marketing efforts.

7 LIMITATIONS

This study involved a limited number of managers, deputies, and experts from the German automotive industry, making it difficult to generalize the findings. The results are solely based on self-reported data. For further research the impacts of social media usage in the automotive industry, future studies should consider incorporating qualitative and mixed research methods. It is important to note that the current study is correlational in nature and does not support causal inferences.

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