

The influence of digital platforms on the performance of Algerian Startups: An Empirical Survey

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Abstract:

The article explores the influence of digital platforms on Algerian startups' performance, emphasizing the significance of efficiency and expanded market reach facilitated by websites and social media. In order to test the study model and hypotheses, the article included a questionnaire formulated using previous studies. Fifty-one (51) from 100 managers of Algerian startups filled out this questionnaire. Empirical findings using Smart PLS 3 indicate a positive impact of efficiency and expanded market reach on startup performance, while questioning the underutilization of social media and websites, suggesting a need for increased awareness and training among managers to leverage these platforms effectively for rapid startup growth.

Keywords: *Startups; Digital Platforms; Efficiency; Expanded Market Reach; Websites and Social Media Networks; Performance.*

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1. INTRODUCTION:

In today's business climate, digital platforms are essential for startups as they serve as catalysts for creativity, expansion, and a competitive advantage **(Roberto Ruggieri et al., 2018)**. These platforms, which include a wide range of technologies including social networking, e-commerce, cloud computing, and banking services, provide the crucial foundation required for businesses to succeed. They provide data-driven insights, which are essential for making well-informed decisions, simplify operations, improve consumer interaction, and make large markets easier to reach **(Abell Thomas, 2021)**. Additionally, by connecting entrepreneurs with a worldwide network of investors, industry insiders, and possible partners, these digital platforms promote an atmosphere of ongoing learning and development. Digital platforms are essential for startups because they enable them to expand efficiently, improve their business models, and react quickly to changes in the market **(Arati Srinivasan and N. Venkatraman, 2018)**.

Literature Review:

Francesco Schiavone et al. (2021), Digital business models and ridesharing for value co-creation in healthcare: A multi-stakeholder ecosystem analysis.

The paper examines how digital business models intersect with the healthcare industry and how they might provide value. It looks at how these models promote collaboration between various payers, providers, and patients in the healthcare ecosystem to improve patient outcomes and service delivery. The research may examine the advantages and difficulties of incorporating digital and mobile platforms into healthcare services, emphasising how ridesharing might enhance patient-centred care, save costs, and increase access to treatment. The ramifications of these digital business models for law, legislation, and upcoming innovations in healthcare might also be covered in the study.

Jan Frederic Nerbel and Markus Kreutzer (2023), Digital platform ecosystems in flux: From proprietary digital platforms to wide-spanning ecosystems.

The transition from closed, proprietary platforms to open, linked networks is highlighted as the article explores the development of digital platforms into expansive ecosystems. It looks at how these ecosystems grow by cooperation and integration, which promotes innovation and increases value generation. The dynamics and difficulties of managing these intricate systems are also examined in the paper, along with concerns about competitiveness, governance, and technological advancement. It also highlights how strategic choices influence the expansion and longevity of digital platform

ecosystems. The paper's conclusion makes the case that companies hoping to prosper in the digital economy must comprehend how these ecosystems are changing.

Magaji Abdullahi Usman and Xinbo Sun (2023), The impact of digital platforms on new startup performance: Strategy as moderator.

This paper investigates the impact of digital platforms on the success of recently established businesses, emphasizing the moderating function of strategy. It looks at how companies use digital platforms and how various techniques may impact how well they function. The report emphasizes how crucial strategic alignment with digital platforms is to attaining successful startup outcomes. It also covers how companies may improve their market positioning and competitive advantage using digital platforms. The paper sheds light on the intricate connection between performance, startup tactics, and digital platforms.

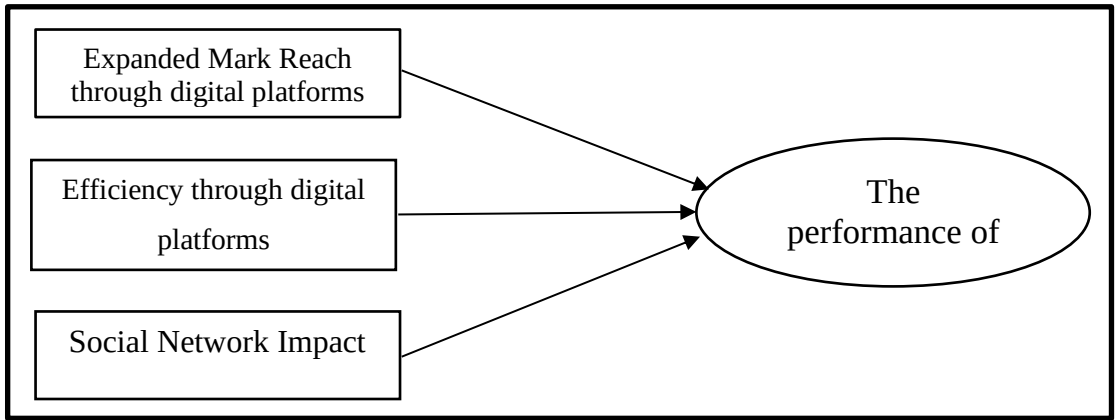
Sarah Tiba et al. (2021). Sustainability startups and where to find them: Investigating the share of sustainability startups across entrepreneurial ecosystems and the causal drivers of differences.

The article explores how sustainability companies are distributed among various entrepreneurial ecosystems and pinpoint the variables that affect how common they are. It investigates how certain ecosystems support a higher concentration of sustainability-focused companies than others, examining the functions of regional laws, available resources, and consumer demand. The research also explores the attributes that contribute to the success of these businesses in certain areas, such as legal frameworks, finance accessibility, and support systems. Ultimately, it offers perceptions into the key spots and circumstances that encourage the growth of sustainability-focused businesses.

Research Methodology:

The current study aims to know the impact of digital platforms on the performance of startups in Algeria among a sample of startup owners. Based on previous studies, it was chosen to determine the study general model's variables, shown in Figure 01.

Figure 01: The study general model



Source: by the authors based on literature review

Research Problematic:

The emergence of digital platforms has significantly changed the environment for entrepreneurship, presenting businesses with both possibilities and problems. This study's main problem is to determine the influence of digital platforms on startup results; Thus, the main focus of the research opposition is the following question:

Do digital platforms have a significant impact on the performance of Algerian startups?

To facilitate the treatment of this research problem, the authors formulated the following sub-questions:

- **Is there a positive effect of efficiency through digital platforms on the performance of Algerian startups?**
- **Is there an impact of websites and social media on the performance of Algerian startups?**
- **Is there a positive effect of expanded market reach through digital platforms on the performance of Algerian startups?**

Hypotheses:

This research is based on a set of hypotheses based on several studies that are consistent with what has been discussed in the research literature. These hypotheses are as follows:

H1: There is a positive effect of efficiency through digital platforms on the performance of Algerian startups;

H2: There is an impact of websites and social media on the performance of Algerian startups;

H3: There is a positive effect of expanded market reach through digital platforms on the performance of Algerian startups.

2. Theoretical Framework:

2.1 Startup:

A startup is a short-lived company created to look for a scalable and replicable business strategy. This concept emphasizes the exploratory character of startups, whose objective is to identify a viable business plan that may be developed further (**Blank, 2013**). These firms play a critical role in fostering innovation, employment growth, and industry rivalry. They often push the boundaries of technology and provide novel and innovative concepts to the market, upending long-standing businesses and promoting economic dynamism (**Ebner. A, 2005**).

2.2 Digital Platforms:

In a broad sense, digital platforms are web-based frameworks that enable the exchange of commodities, services, or social currency amongst users, whether they people, companies, or both. This process creates value. Digital startups use digital platforms as a foundation, which allows them to produce and capture value via the facilitation of transactions among multiple interconnected groups (**Geoffrey G. Parker et al., 2016**).

2.3. Social Network Impact:

Network effects, which occur when a platform's value rises with each new user, are a defining feature of digital platforms. This self-sustaining loop may result in fast expansion and market domination. In addition to providing user connectivity, these platforms leverage data and analysis to improve their products and services and solidify their place in the market (**Martin Kenney and John Zysman , 2016**).

2.4. Expanded Market Reach:

It describes the tactics and initiatives a company uses to reach a wider or more varied range of clients. This may entail expanding into untapped markets, focusing on distinct clientele, or introducing novel goods and services. Increasing the possible consumer base for the company, improving brand recognition, and eventually increasing revenue are the objectives (**Bo Rundh, 2023**).

2.5. Efficiency:

It compares the expenses and results of various alternatives or treatments to determine how economically efficient they are. It's a technique for figuring out which course of action or plan yields the most returns with the least amount of money outlay. By determining the alternative that provides the most benefit at the lowest cost, this evaluation aids in the making of well-informed decisions,

particularly when resources are few (CHRISTOPHER A. MOUTON et al., 2022).

2.6. The Performance of Startup:

A number of indicators, including revenue growth, market share, client acquisition, operational efficiency, measures it and financial stability, and it describes how well the firm performs in reaching its objectives. In order to achieve sustainable development and success, it evaluates how successfully a company satisfies market needs, manages its resources, and positions itself against rivals (Chris P. Eveleens et al. , 2016).

3. Experimentation:

3.1 Research Data:

The study population and measure the degree of their agreement with the content of the questionnaire paragraphs; a five-point Likert scale was used. The owners of startups were chosen, and 100 individuals were targeted. After studying the contents of the individuals' answers, 51 valid questionnaires were accepted for study. It is noted that most of the previous studies regarding constructing the measurement of these latent variables adopted in this study take the reflective rather than formative form.

3.2 Convergent Validity:

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3.2.1. Average Variance Extracted (AVE):

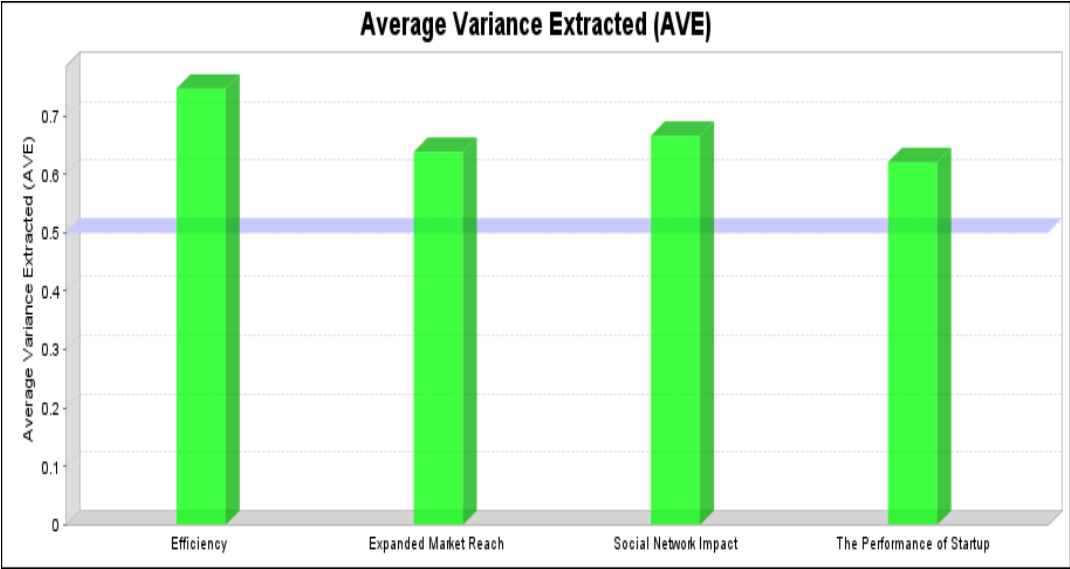
The study's results indicate the validity of the models and measures. Most of the AVE coefficients are significant and statistically acceptable, and most of the values are greater than 0.50, according to Fornell and Larcker (1981). This indicates that each latent variable explains more than half of the variances of its indicators, and thus, the average validity has been achieved in this model. (See **Table 01** and **Figure 02**)

Table 01: Average Variance Extracted (AVE)

Latent Variable	Average Variance Extracted (AVE)
efficiency through digital platforms	0.747
Websites and Social Media	0.666
Expanded Mark Reach through digital platforms	0.639
Performance of Algerian startups	0.621

Source : By the authors using SmartPls 3

Figure 02 : Average Variance Extracted (AVE)



Source : By the authors using SmartPls 3

3.2.2- Composite Reliability (CR):

The composite reliability test results were significant for all CR coefficients and are therefore acceptable statistically because they surpass 0.7 according to **Hulland (1999)**. This latest indicates the interconnectedness of the study items in measuring the latent variables and, thus, the existence of reliability for the measurement model used. The following table shows the most important results of the test.

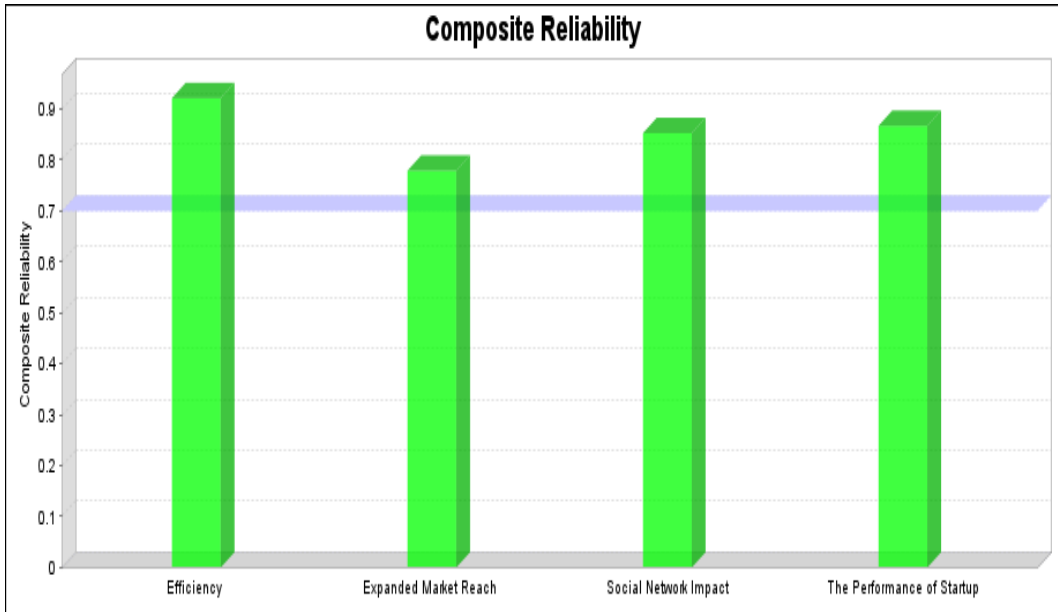
Table 02: Composite Reliability (CR)

Latent Variable	Composite Reliability (CR)
efficiency through digital platforms	0.922
Websites and Social Media	0.853
Expanded Mark Reach through digital platforms	0.779
Performance of Algerian startups	0.867

Source : By the authors using SmartPls 3

The following figure also shows the significance of all CR coefficients:

Figure 03 : Composite Reliability (CR)



Source : By the authors using SmartPls 3

3.2.3- Coefficient of Rho De Joreskog:

The table below shows that the Rho De Joreskog coefficients for the variables are statistically significant and acceptable because they are greater than 0.7, according to Fornelle & Larcker (1981), except for the variable of the size of market expansion through the use of digital platforms. (See **Table 03**)

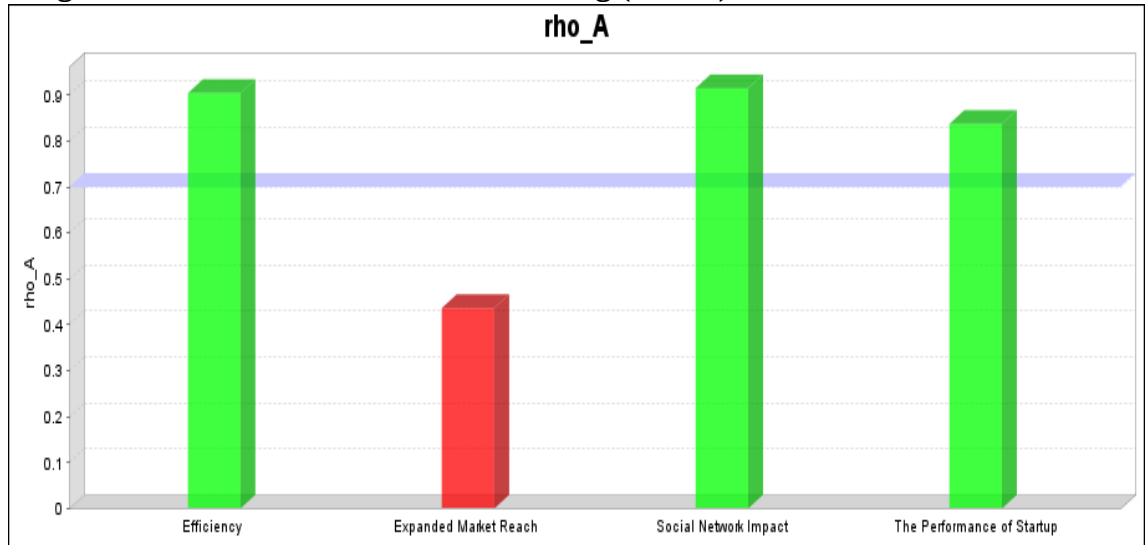
Table 03: Coefficient of Rho De Joreskog (Rho_a)

Latent Variable	Rho_a
efficiency through digital platforms	0.904
Websites and Social Media	0.915
Expanded Mark Reach through digital platforms	0.436
Performance of Algerian startups	0.837

Source : By the authors using SmartPls 3

Figure 04 shows the significance of Rho De Joreskog Coefficient for all the variables:

Figure 04 : Coefficient of Rho De Joreskog (Rho_a)



Source : By the authors using SmartPls 3

3.2.4- Discriminant Validity (DV):

The discriminant validity test is based on the “Critère de Fornell-Larcker” criterion, and through these two tests, it becomes clear that all DV coefficients are significant and statistically acceptable. Furthermore, considering the diameter, we note that each variable is distinct from the other, indicating a difference between the latent variables and, thus, their lack of similarity. Each variable represents itself, and the following table shows the results of this test:

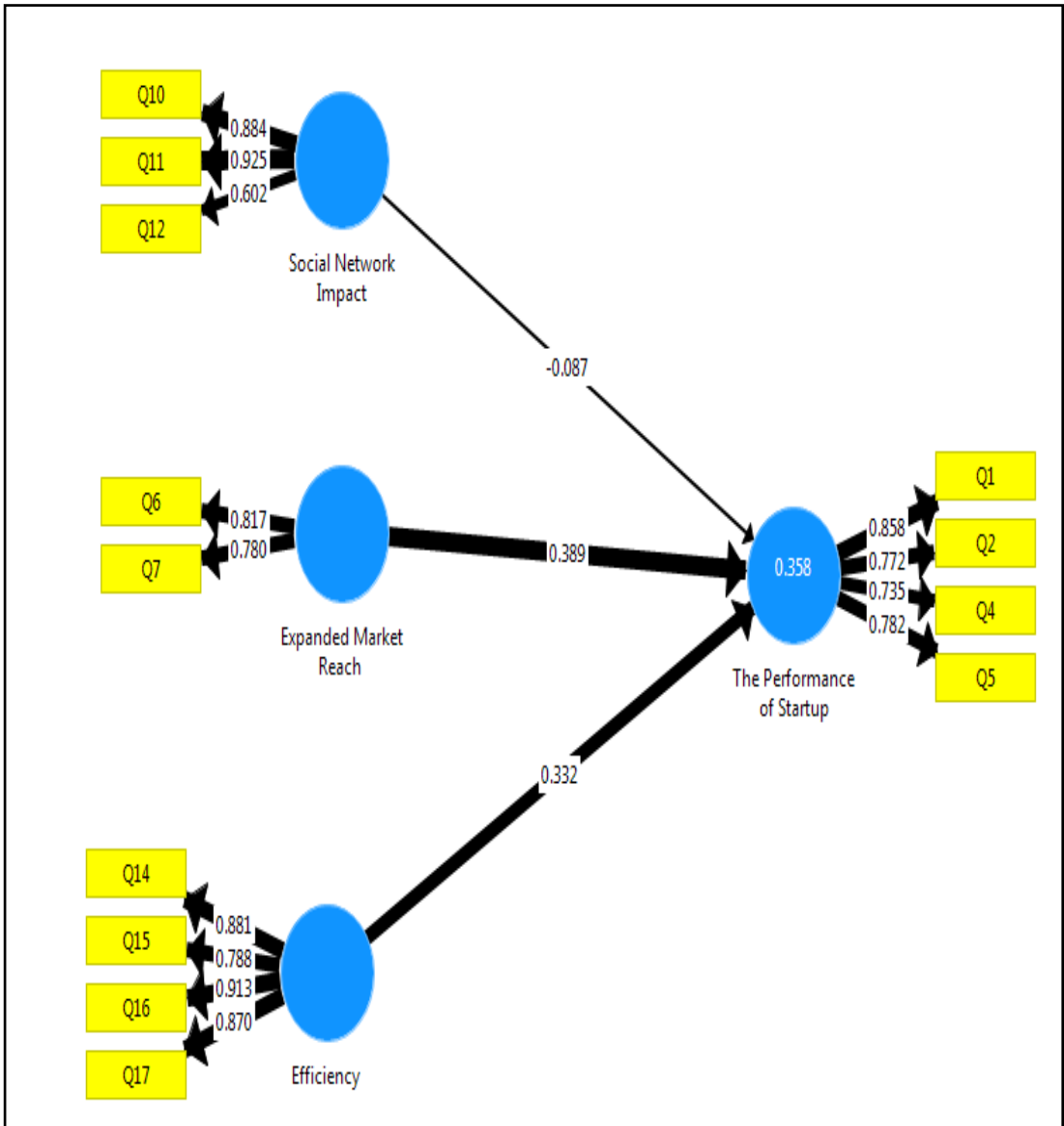
Table 04 : Discriminant Validity (DV)

Latent Variable	Efficiency through digital platforms	Efficiency through digital platforms	Efficiency through digital platforms	Efficiency through digital platforms
Efficiency through digital platforms	0.864			
Websites and Social Media	0.524	0.816		
Expanded Mark Reach through digital platforms	0.597	0.520	0.799	
Performance of Algerian startups	0.519	0.289	0.542	0.788

Source : By the authors using SmartPls 3

The figure below shows the study model that was relied upon for testing it for a sample of startup owners. There are (03) latent variables (first order): Websites and Social Media, Efficiency, and Expanded Mark Reach, and the latent dependent variable is represented by the Performance of Algerian startups.

Figure 05: Graphical representation of the study model with its obvious variables



Source : By the authors using SmartPls 3

3.3. Model Estimation:

Most of the validity or saturation coefficients within the model are greater than (0.7), indicating the validity of the statements (questionnaire items).

3.3.1. Latent Variables Correlations:

The table below shows the correlation coefficients between the latent variables. All correlation coefficients are positive, high, and statistically acceptable, indicating a strong and significant correlation between the variables.

Table 05 : Latent Variables Correlations

Latent Variable	Efficiency through digital platforms	Efficiency through digital platforms	Efficiency through digital platforms	Efficiency through digital platforms
Efficiency through digital platforms	1			
Websites and Social Media	0.524	1		
Expanded Mark Reach through digital platforms	0.597	0.520	1	
Performance of Algerian startups	0.519	0.289	0.542	1

Source : By the authors using SmartPls 3

3.3.2. Criteria for verifying the validity of the structural model:

When applying the PLS methodology to a model, there are three criteria and levels to verify the validity of the obtained model (the quality of the model, the quality of the internal model, and the quality of each structural regression equation). After the good correspondence of each latent variable with the indicators that correspond to it (variables) has been verified, the goodness of fit of the structural model can be confirmed using a set of criteria. These criteria are mainly represented in the coefficient of determination R², effect size (F²), prediction validity (Q²), and Goodness of Fit index (GOF).

3.3.2.1- The coefficient of determination:

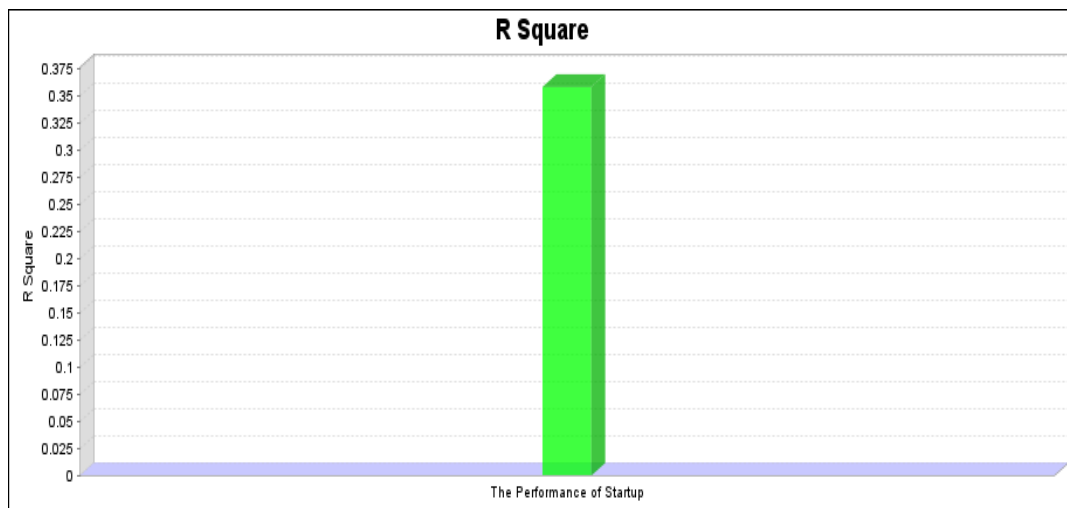
From the table and the two figures below (**Table 06, Figure 06, and Figure 07**), it is clear that all R Square coefficients are significant. Statistically, it is acceptable, so the independent variables (efficiency, websites, social media, expanded market reach) explain about 35.8% of the dependent latent variable, represented by the performance level. For the emerging enterprise, the adjusted coefficient of determination values are close and do not significantly differ from the values of the coefficient of determination, equaling 31.7%, which indicates the model's quality and significance.

Table 06 : Values of the coefficient of determination and the adjusted coefficient of determination

	R Square	R Square Adjusted
Performance of Algerian startups	0.358	0.317

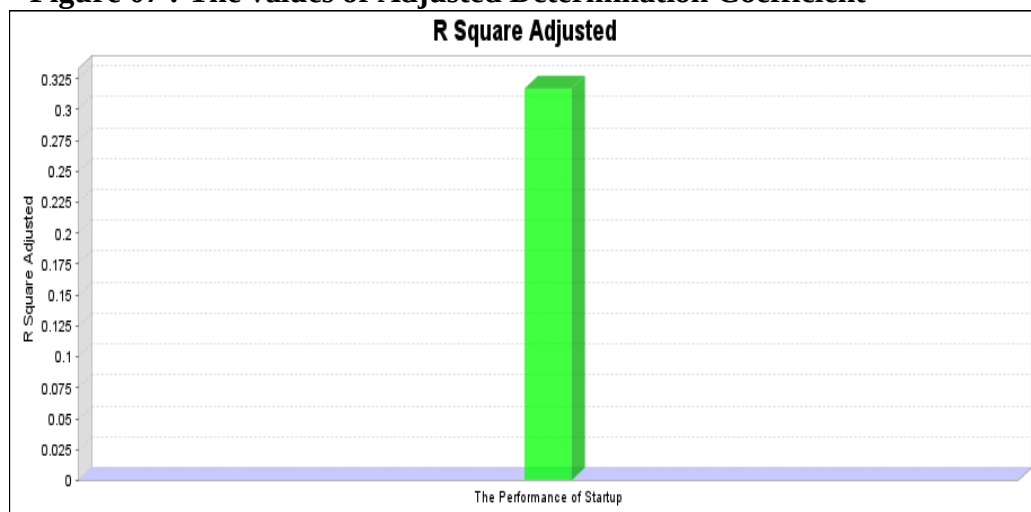
Source : By the authors using SmartPls 3

Figure 06 : The values of Determination Coefficient



Source : By the authors using SmartPls 3

Figure 07 : The values of Adjusted Determination Coefficient



Source : By the authors using SmartPls 3

3.3.2.2. Effect of size f Square:

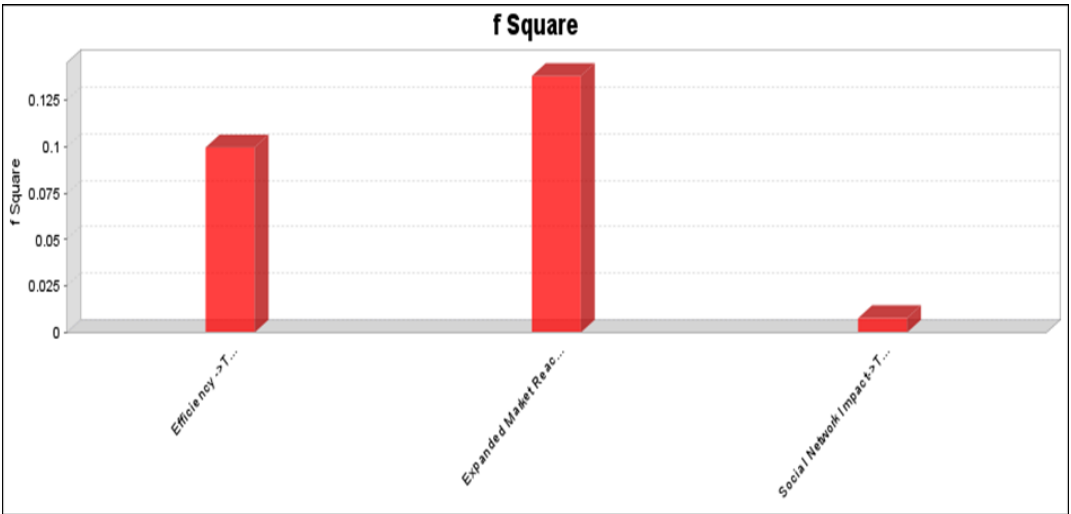
Regarding the size effect test, it was found that most of the f-square coefficients are significant and statistically acceptable. The size effect is considerable if it is greater than 0.35, according to Cohen (1988), a moderate effect if it is greater than or equal to 0.15, and weak if it is less than or equal to 0.15. Less than 0.02. This indicates a moderate effect of the expanded market reach on the performance of Algerian startups (0.138) when other variables are held constant and the presence of a weak efficiency effect on the performance of Algerian startups, estimated at 0.1. The impact of websites and social media on Algerian startups' performance is feeble and estimated at 0.008. The following table shows the values of the size effects of the variables taken in the study:

Table 07: Effect of size f Square

	Performance of Algerian startups
Efficiency through digital platforms	0.1
Websites and Social Media	0.008
Expanded Mark Reach through digital platforms	0.138

Source : By the authors using SmartPls 3

Figure 08: Effect of size f Square



Source : By the authors using SmartPls 3

3.3.2.3. Predictive relevance (Q Square): This test consists of testing the predictive ability of the structural model, and the following relationship gives the formula of this test:

Q Square = $1 - E/Q$, so that:

E: Sum of squared errors.

Q: Sum of squares of observed values.

If Q Square is positive, then the model shows predictive validity, according to Tenenhaus (1999).

The table below clearly shows that the Q-square coefficient is statistically significant and acceptable because it is greater than 0, according to Croutsch (2009). This result indicates that the latent variables present in the study model can be predicted.

Table 08 : Predictive relevance (Q Square)

Latent Variable	Predictive relevance Q Square
مستوى أداء المؤسسة الناشئة	0.174

Source : By the authors using SmartPls 3

3.3.2.4. Goodness of Fit index (GOF):

Table 09 : Goodness of Fit index (GOF)

AVE		R Square		Latent Variable
0.747		0.519		Efficiency through digital platforms
0.666		0.289		Websites and social media
0.639		0.542		Expanded Mark Reach through digital platforms
0.621		1		Performance of Algerian startups
$\overline{AVE}$	0.668	$\overline{R^2}$	0.587	
$GOF = \sqrt{\overline{AVE} \times \overline{R^2}}$ $= 1.120$				GOF

Source : By the authors using SmartPls 3

The influence of digital platforms on the performance of Algerian Startups

According to Wetzels (2009), the value of the GOF index, which is equal to 1.120, exceeds 0.36, which indicates the quality of the proposed model as a whole.

3.4. The Test of Study Hypotheses:

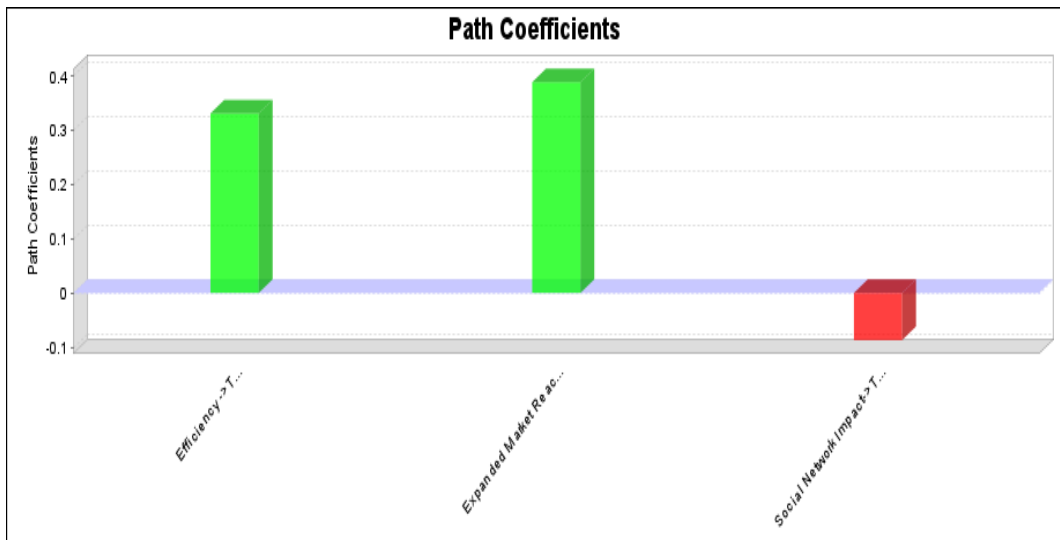
At this stage, the hypotheses are tested by relying on the values of the path coefficients, which represent the direct effects. The testing of the study hypotheses can be summarized as follows:

Table 10: Path coefficients and their significance

Hypotheses	Path	Original Sample (O)	Sample Mean (M)	Standard Deviation (STDEV)	T Statistics (O/STDEV)	P Values	Decision
H1	Efficiency -> Performance of Algerian Startups	0.332	0.334	0.168	1.980	0.048	Accepted
H2	Websites and Social Media -> Performance of Algerian Startups	-0.087	-0.064	0.147	0.691	0.555	Refused
H3	Expanded Market Reach -> Performance of Algerian Startups	0.389	0.398	0.160	2.436	0.015	Accepted

Source : By the authors using SmartPls 3

Figure 09: Path Coefficients



Source : By the authors using SmartPls 3

From the table and figure above, it is clear that:

- To accept the first hypothesis (H1), that there is a positive effect of efficiency through digital platforms on the performance of Algerian startups;
- To refuse the second hypothesis (H2), that there is an impact of websites and social media on the performance of Algerian startups;
- To accept the third hypothesis (H3), that there is a positive effect of expanded market reach through digital platforms on the performance of Algerian startups.

3.5. Discussion:

Accepting the first hypothesis (H1) means that efficiency has a significant impact on the performance of Algerian startups for many causes:

1. Startup managers boost their performance by interacting with the platform ecosystem's innovative complementary goods and services.
2. The digital platforms help these startups reduce risk by ensuring a new venture's functionality with innovation that satisfies platform criteria.
3. They enhance collaboration with other digital ecosystem players and cut costs by broadening the scope of our innovation and repurposing common resources within this investment climate.

Rejecting the second hypothesis indicates that most of those surveyed are ignorant of the value of social media and websites in enhancing their startup performance. Furthermore, they are unaware that startups create excellent value when more companies and customers use their sales platforms. Moreover, the overlooked fact is that there might be substantial cost savings associated with using and recycling free materials from popular platforms. In this aspect, the manager's experience is crucial. Nonetheless, the findings indicate that 88.2 % of participants have under four years of market experience.

There are two ramifications follow from accepting the third hypothesis. Firstly, the definition of startup market risk has changed since they joined digital platforms, which has helped managers eliminate these risks by choosing optimized market scopes. Secondly, the platforms increase the engagement of clients from various geographical regions, enlarging the startup market.

4. CONCLUSION:

This paper explores an essential question about the impact of digital platforms on Algerian startup performance. It is relatively rare to look at empirical results about the digital platform in this research setting. After an appraisal of the findings, it is capable of being concluded that digital platforms are considered one of the basic components of business climate for startups, and they have implications for the results achieved by these emerging small firms.

The results show that the efficiency achieved through the use of digital platforms positively affects the performance of Algerian startups by reducing production and marketing costs and the costs of managing deals with various partners, which improves the profits realized by these startups. In the same direction, expanding the market using digital platforms attracts large numbers of customers from different geographical regions and thus increases the startup's sales. It also helps Algerian startups distribute the risks associated with the activity across several market segments. Conversely, most of the managers of startups included in the study sample give little importance to social networks and websites and their role in achieving popularity and rapid spread for these startups in the market due to their lack of experience in practicing the activity. The lifespan of most of their busis is short, less than four years.

Recommendations :

Based on the findings of theoretical review and empirical investigation, the following recommendations can be formulated:

- 1- To organize awareness campaigns and training courses about marketing through social media networks for startup owners by public and private business incubators.
- 2- To accompany the owners of startups in elaborating business plans appropriate to the business climate in Algeria.
- 3- To diversify the sources of financing for startups in Algeria by creating decentralized funds to facilitate access to flexible financing that will help them in their rapid growth.
- 4- To organize business meetings that bring together startups with private companies, public institutions, and financing institutions to find investment opportunities for these emerging small firms and activate their creative role.
- 5- To improve internet infrastructure and flow speed in Algeria to increase the effectiveness of digital platforms.

- 6- To enable the technological parks in Algeria to expand their activity and capacity to in-cube digital projects and startups. All required means must be provided, and laws must be enacted to help them exercise their role in improving the digitalization of the startup ecosystem.
- 7- To alert developers of digital platforms to the need to make them easy to use by startups and their partners in the market.
- 8- Facilitating the conditions for practicing activity for institutions that have the “startup” label, especially for organized and regulated activities.

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