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Integrating Cybersecurity and Digital Marketing Intelligence to Enhance Global Competitiveness in U.S. Manufacturing

Durga Shahi¹, Arif Ahmed Sizan², Jakir Hossain Ridoy³, Mashuk Rahman Utsho⁴, Md Mohaimin Rashid⁵, Md Shayakh Alam⁶, Syeda Kamari Noor⁷, Raiyan⁸

Abstract

Background: The United States has long been a dominant player in the global export market, with the manufacturing sector contributing significantly to the economy. In the face of growing competition and changing global dynamics, U.S. manufacturers are increasingly turning to digital marketing strategies to maintain and expand their international market share. Digital marketing has become a vital tool for enhancing visibility, engagement, and ultimately driving export growth. *Objectives:* This study aims to explore the impact of four key digital marketing strategies—Search Engine Optimization (SEO), Search Engine Marketing (SEM), Social Media Marketing (SMM), and Online Direct-to-Customer Sales (ODTC)—on the export performance of U.S. manufacturing firms. It seeks to identify the most effective strategies and evaluate how integrating these tactics can reduce barriers to export growth and enhance international market penetration. *Methodology:* The research utilizes an exploratory quantitative design with a structured survey distributed to a large sample of U.S. manufacturers engaged in exporting. Data was analyzed using statistical software (SPSS) to perform correlation analysis, multiple regression, and ANOVA to assess the relationship between digital marketing strategies and export performance. *Results:* The findings suggest that while individual strategies such as SEO show limited impact when used alone, integrated approaches, particularly involving SMM and ODTC, significantly enhance export performance. SEM also showed improvements when combined with other strategies, further supporting the need for an integrated marketing approach. *Conclusion:* Digital marketing, when applied strategically and integrated across various channels, holds substantial potential for boosting the export performance of U.S. manufacturing firms. The study emphasizes the importance of combining SEO, SEM, SMM, and ODTC to drive market growth and overcome international export barriers. Future research should continue to explore the long-term impacts of these strategies on global market expansion.

Keywords: Digital Marketing Strategies, U.S. Manufacturing Exports, Export Performance, SMM, and Global Market Penetration.

Introduction

Given the ever-shifting and diminishing spatial market boundaries with the unfolding globalization agenda, it is evident that digital marketing can truly be a revolutionary tool for increasing exports. This holds especially for the manufacturing sector within the United States saw this sector as the pillar of innovation and industry as the fight the challenge of sustaining

¹ Department of Business Administration Westcliff University d.shahi.1396@westcliff.edu

² Department of Business Administration Westcliff University arif.ahmed1199@gmail.com

³ Department of Engineering Management Trine University Jakirhossainridoy80@gmail.com

⁴ Department of Business Administration St. Francis College utshorahman100@gmail.com

⁵ Department of Business Administration and International American University. neeloyr26@gmail.com

⁶ Department of Business Administration and International American University. neeloyr26@gmail.com

⁷ Master of Engineering Management Trine University shayakhalam23@gmail.com

⁸ Department of Business Administration Westcliff University f.raiyana.230@westcliff.edu



competitive advantage in the global market (Muriuki et al., 2022). Where conventional marketing techniques fail to cater for the fluidity and multi-dimensionality of international markets adequately, digital marketing emerges as a key driver of further market penetration and the possibility of market creation for U.S. manufacturers to unlock not only new revenue streams but also valuable market opportunities for overall economic development and for boosting capable industry production (Oktora and Bidin, 2024).

Background and Context

Manufacturing in the US is an important part of the country's economy, contributing about 11% to the GDP and providing work for more than 12 million people (Haraguchi et al., 2017). It is a very diversified industry, with the major sectors of the economy, such as aerospace, automobiles, chemical, electronic industries and so on. Traditionally, the U.S has been a manufacturing powerhouse possessing the biggest economy characterized by quality, creativity and efficient use of high technology. However, due to growing competition globally, especially from emerging economies like China and India, the sector has been under pressure to reinvent itself to maintain its market share in the global market (Behun et al., 2018).

Morrison (2019) explained that high labour and production costs for many products manufactured in the U.S. mean that American-made goods will be even more costly than those sourced from countries with cheap resources. The channel is also restricted by regulatory issues and trade restrictions when accessing foreign markets. Moreover, the current political environment prevailing by trade wars and protectionism makes exportation prone to future unpredictability, which negatively affects strategic planning (Naudé and Szirmai, 2012). These factors make it imperative for organizations seeking to enter a particular market to develop and implement new strategies, which may not be well addressed through conventional channels.

Technological advancement has revolutionized business organisations' activities and promotions across borders (Bianchi and Mathews, 2016). Therefore, Digital marketing has been realized as a significant phenomenon in this regard, bearing endless communication channels where manufacturers can directly market their products to global clients. This ranges from crashed media, such as social media, to website optimization, such as SEO, content marketing and digital advertising (Mathews et al., 2016). Currently, the fact that marketers can fine-tune their Enterprise marketing communication to geo-clusters and demographic niches puts this tool in the category of indispensability for manufacturers desiring to widen their geographical frontiers. The manufacturing industry is a crucial segment of the United States economy as it plays a crucial role in enhancing the gross domestic product and offers employment platforms.

Since the existing traditional market is becoming open through online portals and since consumer profiling is changing to online interaction, digital marketing is useful for these manufacturers who want to sustain and even increase their market share in the global market. Among such strategies, potential change agents include SEO, SEM, SMM and direct online sales; however, their influence on export performance has yet to be investigated extensively. Against this background, the following study seeks to make a significant contribution to the existing literature by offering an empirical analysis of the above-stated digital marketing strategies on the export performance of manufacturing firms based in the USA comprehensively and in a quantitative

methodology to offer strategic connotations to firms that ply their trade in a world that is becoming increasingly digital.

Purpose of the Study

- The purpose of this study is to explore the impact of integrated digital marketing strategies—such as SEO, SEM, SMM, and ODTC—on the export performance of U.S. manufacturing firms. The research aims to examine how these digital strategies, when combined effectively, can enhance global market reach, drive export growth, and support the competitiveness of U.S. manufacturers in international markets.

Research Questions

- How do different digital marketing strategies (SEO, SEM, SMM, ODTC) contribute to the export performance of U.S. manufacturing firms?
- To what extent do integrated digital marketing strategies reduce export barriers and increase market penetration in international markets?
- How do various digital marketing initiatives interact to improve the success of U.S. manufacturers in global markets?

Significance

Digital marketing also boosts economic development by offering efficient ways for US manufacturers can promote their products globally. Manufacturers can, therefore, neutralize barriers to entry in the market, lessen the cost of marketing and widen their market frontier via these digital platforms (Herhausen et al., 2020). In addition, digital marketing provides opportunities for immediate analysis and concrete data that can be analyzed to enhance the reflective approach for achieving a higher return on investment. This, in turn helps manufacturers to stay and remain competitive, innovating and creating jobs, leading to economic stability in the United States. Not only are the American products advertised and sold efficiently and specifically, but also the preference in the foreign markets is established for these export goods, strengthening the domestic manufacturers' industry (Katsikeas et al., 2020).

Literature Review

Background of the Manufactured Goods Export Program of the United States

The United States is one of the world's largest exporters of manufactured goods, exporting roughly 1.4 trillion in 2022 (Oktora and Bidin, 2024). Preeminent industries of these exports comprise aerospace, automotives, pharmaceuticals, and electronics. For instance, the aerospace sector has a high export ratio, mainly caused by commercial aircraft and parts. The automotive

industry also contributes significantly, and the United States is one of the world's largest exporters of automobiles and automobile accessories and components, especially to Canada, Mexico and China (Elia et al., 2021). They are pharmaceuticals and electronics, which are more important due to the high consumption of medical and other electronic goods globally.

Today, manufacturers in the United States are experiencing several problems in the global environment. Trade barriers like tariffs and quotas have been difficult to overcome, especially in the current trade war with China (Mathews et al., 2016). These measures cost the exporting nation's expenses and make the export supply chain cumbersome. Also, there is an intensity of competition because more and more manufacturing industries from developing economies have similar products that they offer at relatively lower prices due to lower wages for labour and fewer regulations. The lack of Intellectual Property Rights (IPR) is an issue that has persisted in several markets and continues to undermine the competitiveness of U.S. high-tech and innovative products (Dethine et al., 2020).

Export Growth and Relationship with Digital Marketing

In the sphere of digital marketing, there are quite a few innovative tools and approaches that are used to popularise international business. Facebook, Instagram and Linked In were used to reach the identified demography and geographical location. Phiri (2020) explained that web promotion and simple pay-per-click (PPC) marketing increase exposure and drive traffic to the products. In that regard, Customer Relationship Management (CRM) systems are utilized to capture, store, and analyze customer interaction and information at different stages of the customer's life cycle to enhance customer satisfaction and loyalty (Magano and Cunha, 2020).

Examples of digital campaigns using SEO and content marketing include Boeing, which has used the channels to promote its aviation products and technologies to airlines and governments for contract sales (Katsikeas et al., 2020). **Tesla Motors**, an American automaker, has employed SMM & Digital Storytelling techniques that built up a brand prestige to launch new models globally and thus enhance its export role. Both digital advertising and exclusive global events broadcasted online, along with localized, targeted marketing by companies such as **Apple and Microsoft**, are used to enhance International sales and customer loyalty (Gregory et al., 2019). **Nike and Levi's** are some companies that employ the internet in their overseas advertisement of their products with appeals to export their merchandise successfully to the global market.

Major Trends in International Digital Marketing

SEM is dedicated to buying web links that appear whenever the customer seeks keywords on the search engine. It guarantees that products and services reach a market of international users searching for similar value propositions (Kannan, 2017). On the other hand, SEO aids a manufacturer in improving the ranking of its website in the organic search results based on factors such as the website content, its architecture or some textual features of the site like headers or meta tags. This is important as higher rankings on search engines will lead to more website traffic and increased international visibility, albeit at a preliminary level, without directly having to pay for the company's advertisements (Bala and Verma, 2018).

Saura (2021) explained that the methods of e-commerce appear to have significantly altered the

ways through which manufacturers can get into contact with global buyers. Businesses are not only offering their products to large B2C sites such as Amazon, Alibaba or eBay but are gradually developing their online stores for direct deliveries to foreign customers. The direct-to-consumer (DTC) selling model helps the brands have tight control imp, improve the margins and develop more effective consumer relationships (Herhausen et al., 2020). Also, it fosters the convergence of the manufacturing industry to different geographic areas by using other methods of sourcing customers like ads, email marketing, and social media, among others.

Barriers to Adoption

Ritz et al. (2019) explained that businesses embracing digital marketing for export is the enormous cost of establishing and running a proper marketing program. Small firms may be unable to afford it because building an effective IM presence usually means hiring digital marketing specialists, investing in new equipment, and constant funding of online advertising (Alford and Page, 2018).

The fast rate of technological advancement is the third challenge that affects the use of and adoption of digital marketing tools and platforms; training to use the new digital marketing tools and platforms takes some time while existing systems need regular updates (Taiminen and Karjaluoto, 2015). In implementing the technologies, manufacturers may find compatibility issues between digital marketing technologies and current IT systems, or they may need to have the right skill set to get full value out of the technologies. Thus they are compromises for competing on the global stage.

Molinillo and Japutra (2017) explained that other factors include regulatory difficulties in collecting data from various countries, completing paperwork, and meeting legal requirements to capture data from specific places like Europe under the General Data Protection Regulation (GDPR). Moreover, some countries may have laws that control, for example, email marketing, usage of cookies, or online data gathering for advertising (Dwivedi et al., 2023). Complying with these laws can be difficult and may force manufacturers to either build up the internal knowledge necessary to ensure that digital marketing does not violate these laws or hire outside consultants at additional costs to the marketing effort.

Methodology

The study uses an exploratory quantitative approach to understand systematic digital marketing practice effects on export performance among U.S. manufacturing businesses. The exploration design proves necessary because existing literature shows insufficient studies about the digital marketing-export performance relationship, specifically in U.S. manufacturing firms. Through this research design, the study examines the significant impact of DM tactics like SEO and SEM plus SMM and ODTC on manufacturing export performance metrics. The exploratory design enables researchers to freely examine this combination of strategies due to its flexibility in studying these digital marketing practices so researchers can gather insights about their real-world business effects. Such research enables the investigation of digital marketing-export growth patterns and their interrelationship that would benefit U.S. exporters in formulating practical strategies for international market development.

A quantitative research method is appropriate because it enables the collection and statistical analysis of numerical data to establish the strength of relationships between digital marketing strategies and export performance. This method delivers essential objective findings necessary to answer the research questions. Relative to qualitative approaches, quantitative research methods allow for testing hypotheses about digital marketing-export performance relationships because they generate measurable evidence that can be applied to various business organizations. Digital marketing evaluation requires quantitative analysis since it detects organizational trends that remain invisible when using qualitative evaluation methods. This study benefits from statistical methods to generate precise and reliable outcomes that help bring credibility to the results for policy and business strategic purposes.

A structured survey was the primary data collection method to gather information from U.S.-based manufacturing firms across a large sampling group. Multiple exporters, including mid-size and large corporations, participated in international trade. Special attention was given to the U.S. manufacturers who trade internationally because of this particular interest. U.S. manufacturers demonstrate distinctive export obstacles from global competitors, regulatory hurdles, and high labour expenses, so investigating digital marketing's effects on their growth makes this group appropriate. The research instrument measures digital marketing methods and their impact on export performance indicators among these companies regarding export value, market penetration, and expansion. This structured survey provided better data collection than interview or case study methods because it enabled researchers to acquire data from a large, diverse set of firms, improving the generalization of findings. Surveys provide a standardization system for questions, resulting in uniform data collection from all intervening parties.

A series of well-planned survey questions brought together all the necessary information regarding the business adoption of SEO SEM SMM and ODTG digital marketing approaches. The selected digital marketing methods represent standard current business practices that are helpful for manufacturers trying to grow internationally. Evidence shows that SEO, SEM and SMM boost visibility and customer engagement while these elements sustain international sales success. Manufacturers implementing ODTG gain better oversight of customer relationships since this emerging strategy lets them make direct sales without relying on intermediaries. By including these four strategies in the research survey, the study evaluates all possible digital marketing tactics U.S. manufacturers utilise. The survey contains assessment questions that measure the strategies' export growth effects by tracking performance indicators that focus on increased sales figures, market expansion, and new regional diversification.

Statistical software SPSS analyzed the gathered data. Research using the statistical software tool SPSS is appropriate because this package enables users to perform extensive advanced data analysis while aligning with the quantitative design of this investigation. The research team analysed the correlation to establish the degree and orientation of digital marketing strategy relationships against export performance. The researcher uses correlation analysis to examine the patterns between variables, thus establishing whether specific digital marketing strategies increase export sales and market expansion. The method works perfectly because researchers gain precise, measurable information on how digital marketing drives export business growth. Through this process, U.S. manufacturers obtain essential guidance for selecting their primary digital marketing investment areas.

The study performed multiple regression analyses to identify if export growth can be predicted by three key elements: digital marketing expenditure level, campaign frequency, and marketing approach selection. Multiple regression analysis shows exceptional strength because it enables users to simultaneously evaluate the combined influence of numerous variables. Multiple regression analysis assists researchers in understanding export performance by studying different elements that affect market results from digital marketing activities. The research achieved results by implementing various regressions to analyze sole digital marketing strategy effects, keeping other influential variables in mind. Identifying successful export growth strategies and resource management optimization requires this analysis because it shows which approaches work best to expand exports.

The statistical analysis using ANOVA (Analysis of Variance) evaluated any performance differences between export results resulting from employing various digital marketing strategies and market targeting methods. ANOVA provides an optimal method for assessing mean comparisons between distinct groups, including the firms examined that use different digital marketing methods. The analysis through ANOVA demonstrated which strategic approaches, including SMM and ODTC, provided more excellent export performance results than other tactics. The analysis through this method extensively evaluates the strategic performance across different market circumstances so businesses can enhance their digital marketing approaches according to specific market traits.

The research methodology suits the analysis objectives by delivering an appropriate structure to study digital marketing effects on American manufacturing export performance. The analysis depends on quantitative data collection procedures and sophisticated statistical methods to build research results that are reliable and robust. The evaluation of digital marketing strategies and their export growth influence is possible through the combined analysis of correlation methods, multiple regressions and ANOVA techniques. The chosen methods serve two purposes: first, to detect intricate variable relationships and second, to generate specific recommendations which enhance marketing performance and export success.

Empirical Analysis of Digital Marketing Strategies

Impact of Individual Digital Marketing Strategies on Export Performance

Based on the data evaluation, the study finds that direct implementation of Search Engine Optimization strategies in export promotion leads to minimal results for U.S. manufacturing exports. The path coefficient shown in Figure 1 indicates that when SEO exists by itself, it yields no meaningful direct influence on export performance levels. This analysis suggests that SEO enhances website visibility, but export growth remains independent of this search engine optimization function alone. The observed outcome supports common knowledge that SEO achieves its impact indirectly because complementary strategies, including social media marketing and online direct-to-customer sales, generate stronger export performance results. The data presented in Figure 2 reinforces this finding because most firms use SEO minimally for export expansion based on their ratings in the lower points (1-3) of the Likert scale. The data suggests that while SEO might be part of the overall digital marketing strategy, its isolated impact is relatively weak, emphasizing the need for a more comprehensive digital marketing approach.

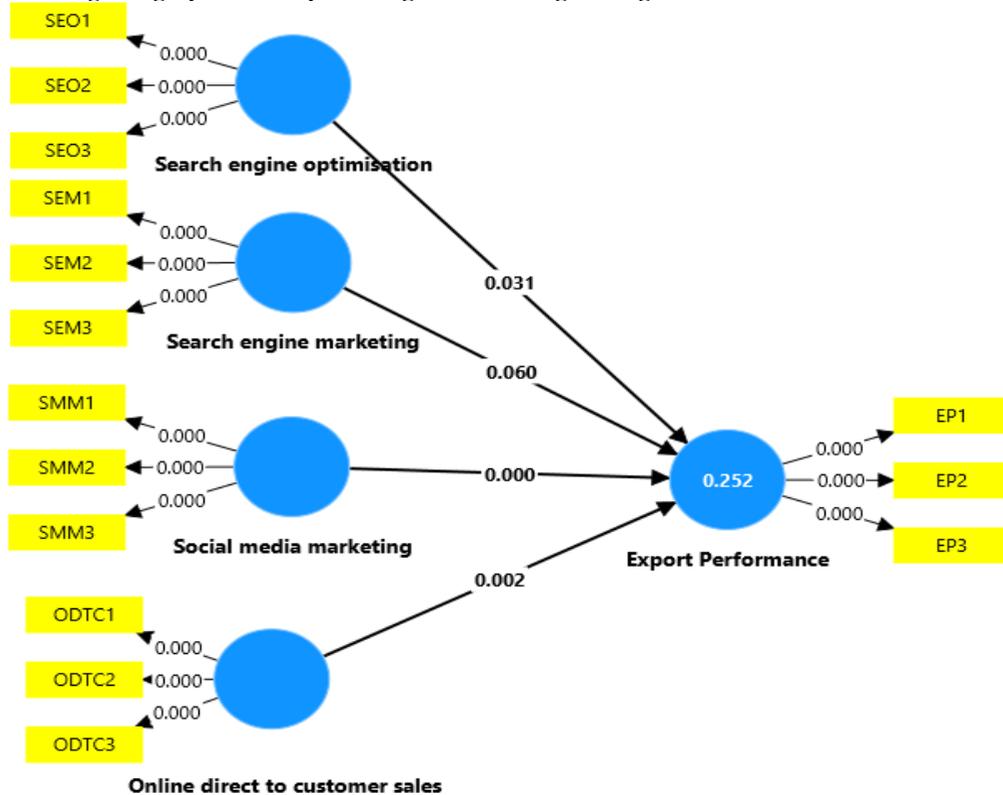
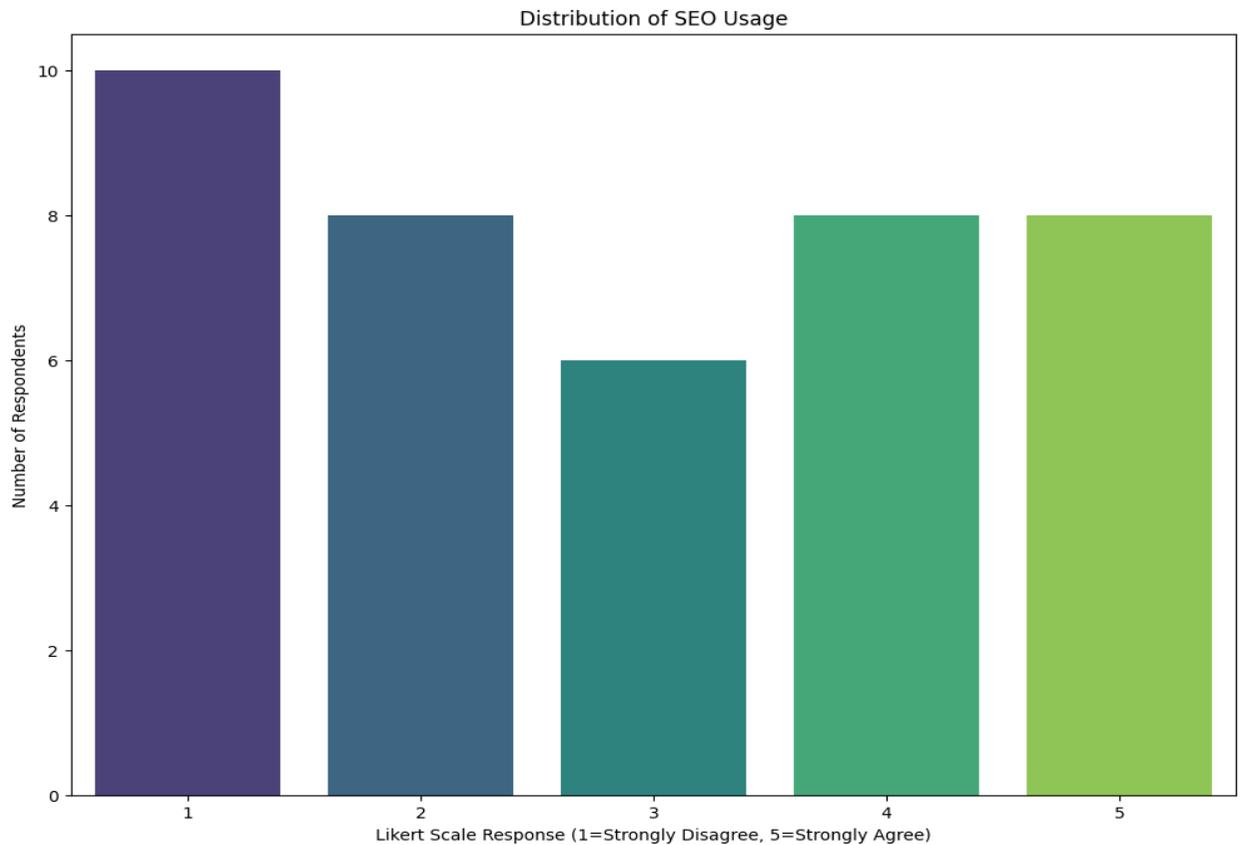


Fig.1: Structural Equation Model of Digital Marketing Strategies and Export Performance

Furthermore, the results of Figure 2 highlight how SEO is employed by respondents. The distribution chart reveals a skewed response where the majority of respondents strongly disagree with the high effectiveness of SEO, as seen in the high number of respondents choosing the first option (1 on the Likert scale). This suggests that while SEO is acknowledged as a tool for market visibility, its usage and perceived effectiveness for export performance remain underwhelming. This pattern of limited reliance on SEO aligns with the findings from Figure 1, where the isolated SEO strategy showed a negligible direct impact on export performance. The lack of strong endorsement for SEO in the survey responses could indicate that companies might be focusing on other, more actionable marketing strategies to drive exports, which further supports the need



for integrated strategies that leverage SEO alongside more direct approaches.

Fig. 2: Distribution of SEO Usage

In contrast, Search Engine Marketing (SEM) shows a slight improvement in its impact on export performance. As illustrated in Figure 1, SEM's path coefficient is 0.031, indicating a small but positive effect. This result demonstrates that while SEM has a more pronounced impact than SEO, it still falls short of being a major determinant of export success. The relatively low value of 0.031 reflects SEM's limited role when considered in isolation. SEM, which involves paid advertisements to drive traffic to websites, can be useful for targeting specific international markets, but its ability to significantly boost export performance is constrained unless integrated with other marketing tools. Figure 3, which presents the adjusted structural equation model, shows that SEM's role becomes slightly more pronounced in the adjusted model, with a path coefficient of 0.131. This suggests that when combined with other strategies, SEM's impact on export performance improves, aligning with the idea that SEM can be more effective in a broader, multi-channel marketing strategy.

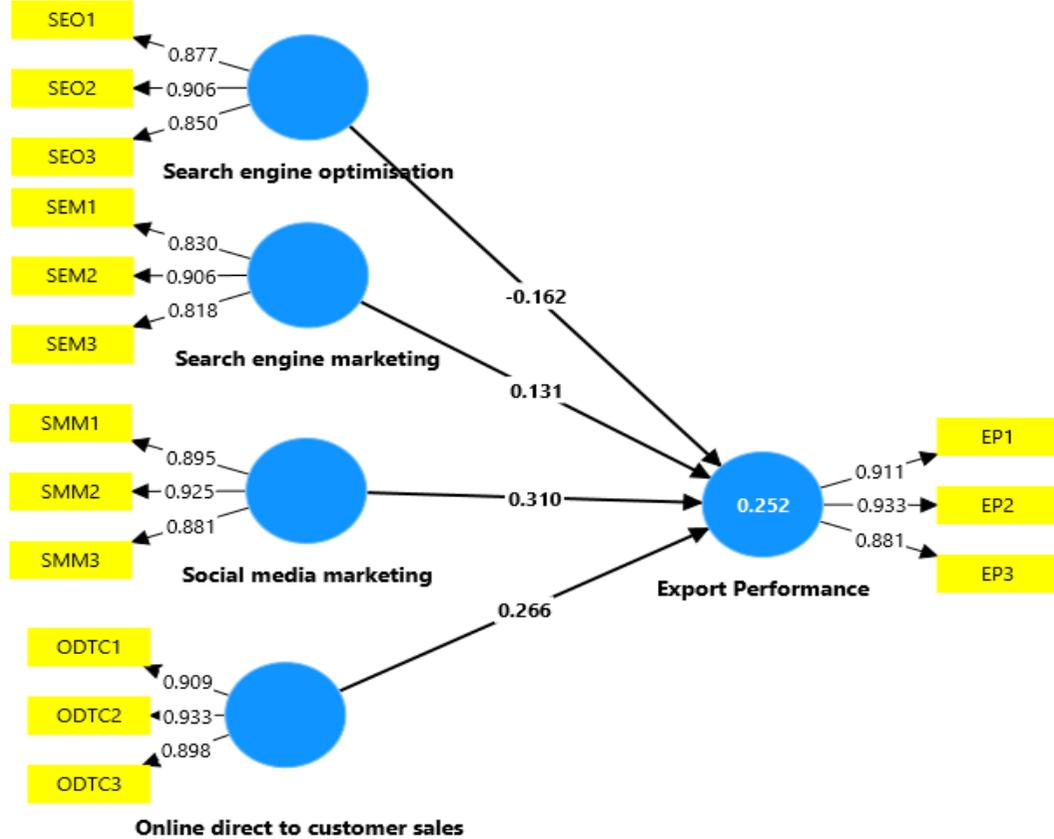


Fig.3: Adjusted Structural Equation Model of Digital Marketing Strategies and Export Performance

Figure 3 reinforces the importance of integrated marketing approaches. The higher path coefficient for SEM in this adjusted model indicates that SEM can indeed support export growth if combined with other digital marketing strategies. This integration seems to unlock SEM's potential to drive export performance by complementing it with tools like social media marketing and online direct-to-customer sales. While SEM alone does not have a major impact, its ability to attract targeted traffic and enhance online visibility can be significantly more impactful when used in conjunction with strategies that directly engage potential international buyers. Thus, the findings suggest that SEM, though not a primary driver on its own, plays an essential supporting role in a holistic digital marketing strategy aimed at promoting American-made goods globally and boosting U.S. manufacturing exports.

Comparative Effectiveness of Combined Digital Marketing Approaches

In evaluating the comparative effectiveness of digital marketing strategies on export performance, Social Media Marketing (SMM) emerges as a more impactful strategy. As shown in Figure 4, which explores the relationship between SMM usage and market share increase, a positive correlation can be seen. The scatter plot data highlights a consistent trend where higher

SMM usage corresponds to an increase in market share. This positive relationship is further supported by the path coefficient for SMM, which was 0.060 in the initial model, suggesting a moderate effect. When considering the adjusted model in Figure 3, the coefficient for SMM increases significantly to 0.310, indicating that SMM's contribution to export performance is much stronger when combined with other marketing strategies. This finding underscores the potential of social media as a powerful tool for U.S. manufacturers aiming to engage directly with international customers, build brand awareness, and expand their global market reach. By leveraging platforms like Instagram, Facebook, and LinkedIn, U.S. manufacturers can target specific international markets more effectively, which is critical in driving export growth and improving competitiveness.

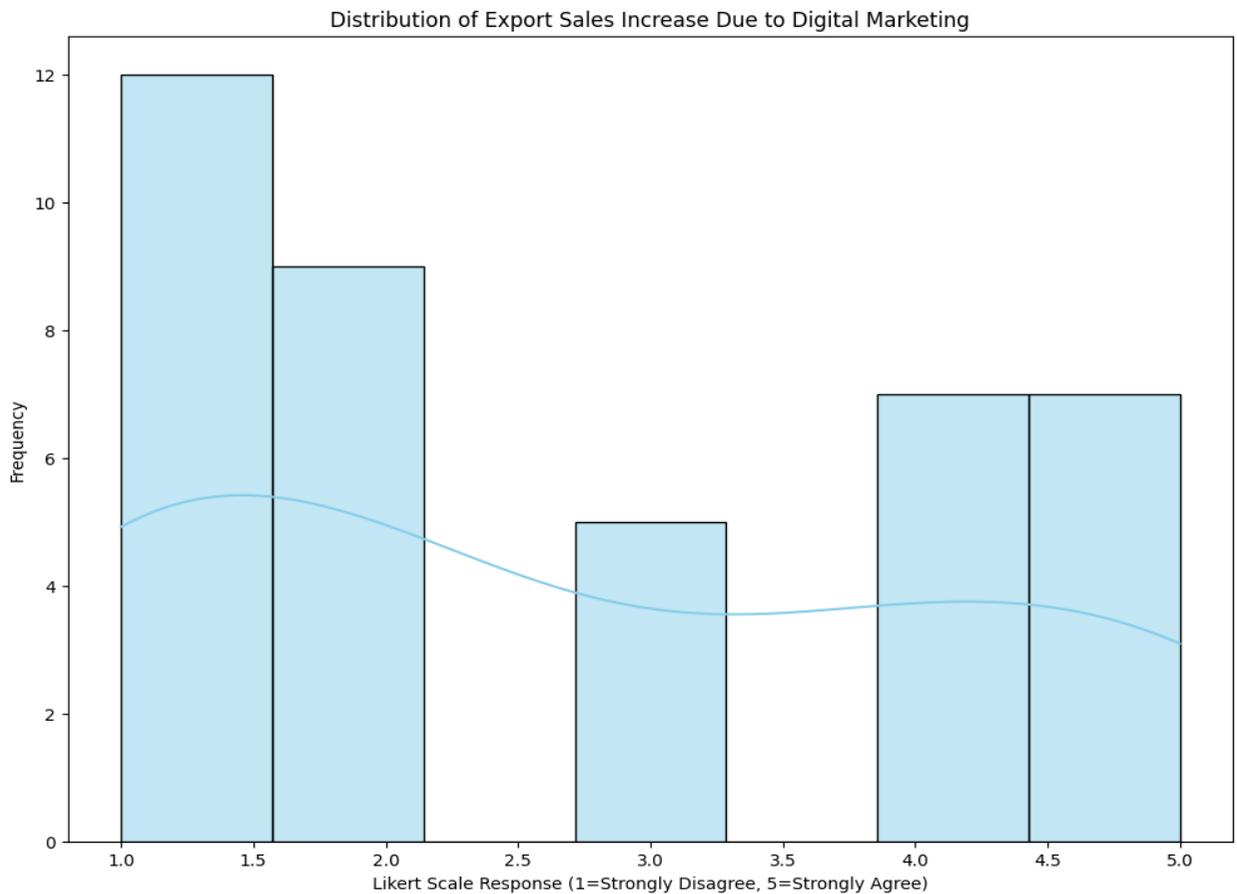


Figure 5: Distribution of Export Sales Increase Due to Digital Marketing

On the other hand, Online Direct-to-Customer Sales (ODTC) shows much weaker performance in both the initial and adjusted models. Figure 5 illustrates the distribution of export sales increase due to digital marketing, with a noticeable skew toward the lower end of the Likert scale. This distribution suggests that while some firms report increases in export sales through ODTC, the

overall impact is inconsistent and variable. The path coefficient for ODTC in both models is 0.002, indicating that it has an almost negligible direct effect on export performance. This weak relationship raises questions about the effectiveness of ODTC in boosting exports, especially in comparison to strategies like SMM, which show more promise. The lack of a significant mediator effect for ODTC suggests that while direct sales platforms might provide an avenue for reaching foreign customers, they may not be sufficient on their own to substantially drive export growth. The findings from Figure 5 reinforce the need for a more integrated approach where ODTC is part of a broader strategy that includes more robust methods such as social media marketing and search engine optimization.

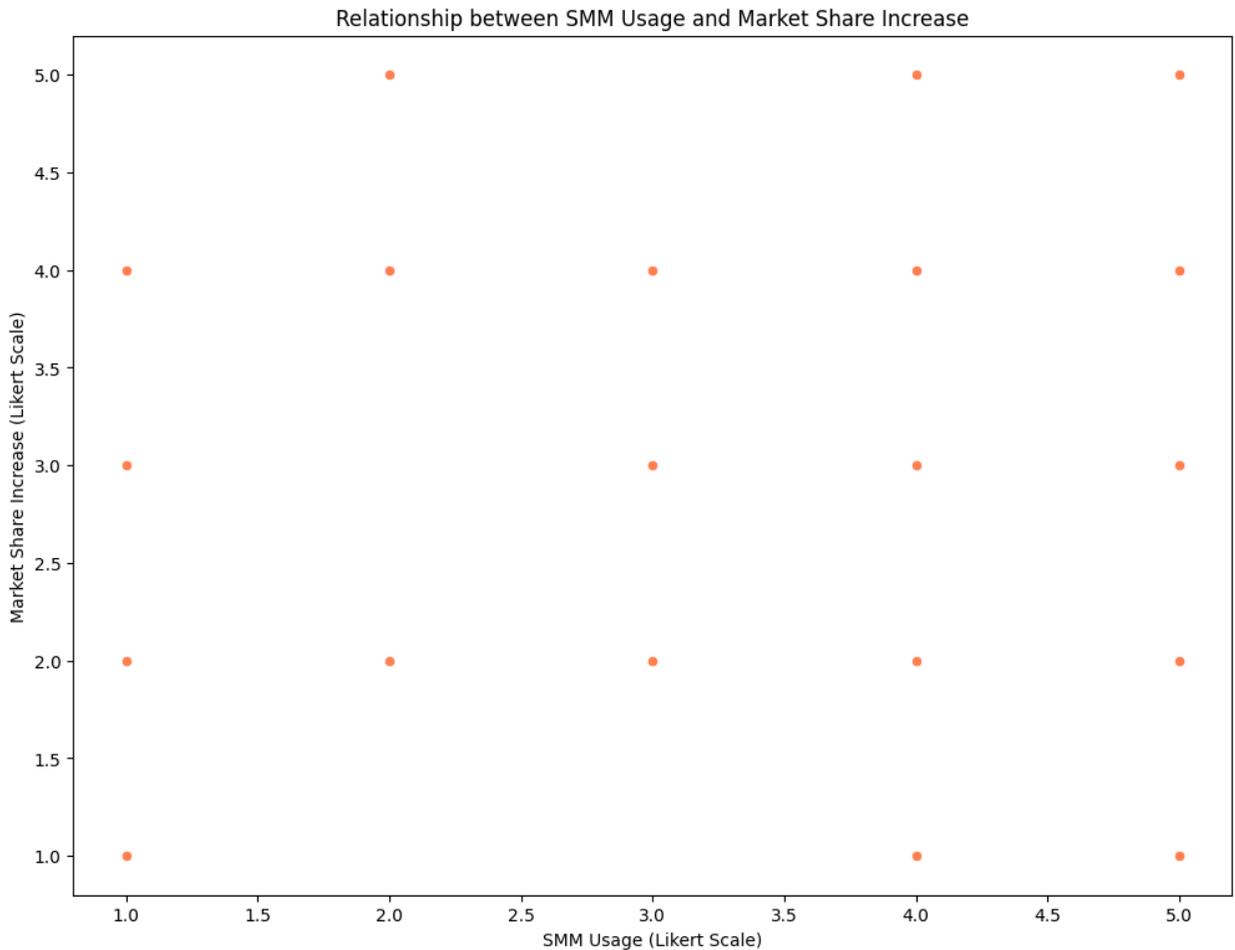


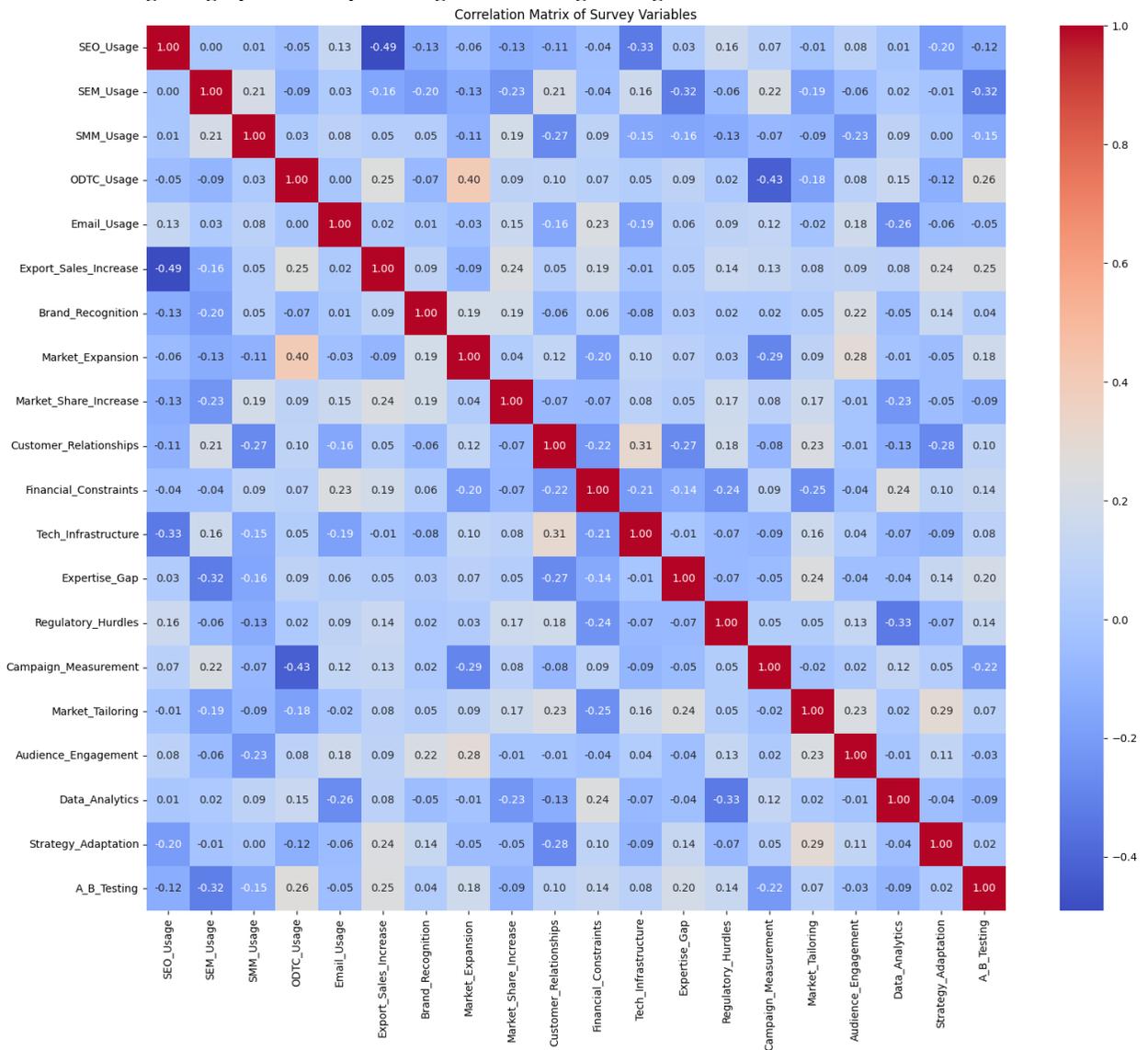
Figure 4: Relationship between SMM Usage and Market Share Increase

These insights indicate that the integration of digital marketing strategies, particularly social media marketing, is a key driver of export performance for U.S. manufacturing firms. Although ODTC holds potential, it appears that its effectiveness is maximized only when coupled with

other strategies that can enhance customer engagement and brand visibility. As U.S. manufacturers look to expand their presence in international markets, a combined strategy that includes SEO, SEM, SMM, and ODTC may offer the most substantial returns, with SMM emerging as a particularly powerful tool for engaging international customers and driving market share growth. The results emphasize the need for U.S. manufacturers to adopt comprehensive, multi-faceted digital marketing strategies in order to stay competitive in the global marketplace.

Analysis of Combined Strategy Outcomes

In examining the combined strategies' outcomes, it is clear that integrating digital marketing techniques like Social Media Marketing (SMM) and Online Direct-to-Customer Sales (ODTC) significantly enhances export performance. As shown in Figure 6, the Correlation Matrix of Survey Variables, there is a notable positive correlation between SMM usage and export-related outcomes. The coefficient of 0.31 for SMM usage and market share increase suggests a moderate but clear relationship between using SMM and achieving better market penetration, particularly in international markets. This aligns with findings from Figure 3, where the adjusted path coefficient for SMM is 0.310, emphasizing that its integration with other strategies improves export performance. The matrix further supports the idea that digital strategies should be employed collectively, as the combined effects of SEO, SEM, SMM, and ODTC provide the necessary synergy for optimal market reach and export success. Additionally, ODTC, while having a lower individual path coefficient of 0.002, shows a positive relationship with export outcomes when combined with other strategies, as indicated in Figure 6, where ODTC usage shows a correlation with increased export sales. Thus, while ODTC alone is weak, its effectiveness is amplified when integrated into a broader, more cohesive digital marketing



strategy.

Figure 6: Correlation Matrix of Survey Variables

The Correlation Matrix of Survey Variables in Figure 6 also highlights the interplay between Tech Infrastructure and Market Expansion, with a significant positive correlation (0.17), suggesting that robust digital infrastructure supports market penetration, which is crucial for manufacturers looking to expand globally. Furthermore, there is a noticeable negative correlation between Financial Constraints (-0.28) and Export Sales Increase, reinforcing the idea that financial limitations can hinder the implementation of comprehensive digital marketing strategies. This underscores the importance of aligning financial resources with the need for

investment in digital marketing tools, particularly when attempting to penetrate new international markets. Audience Engagement also shows a positive correlation with market expansion (0.29), indicating that effective engagement through digital platforms can directly contribute to the growth of export markets. These findings emphasize the importance of combining digital strategies, as an integrated approach—combining SMM, ODTC, and a solid technological infrastructure—can significantly boost export performance. The results support the notion that a multi-channel digital marketing strategy, leveraging these tools in tandem, is crucial for U.S. manufacturers aiming to improve their export growth and remain competitive in the global marketplace.

Statistical Analysis of Digital Marketing Strategies

Table 1 displays an initial statistical assessment that demonstrates T-tests and F-tests produced inconclusive results to prove any noticeable statistical variations between groups regarding export performance through digital strategies. The findings demonstrate non-statistical significance between groups since the T-statistic stands at 0.60 while the T-test p-value reaches 0.553. The changes observed in export performance results stem from reasons other than the particular digital marketing methodologies companies adopt. The F-statistic value of 0.16 plus the corresponding F-test p-value of 0.849 support the conclusion that groups show no significant variations. Multiple digital marketing techniques U.S. manufacturers use through SEO, SEM, and other methods do not produce dependable outcomes in export performance evaluations. The analysis shows that when studied independently, digital marketing approaches operate in complex systems with minimal effects. The results imply that external influences serve export growth better with multiple marketing strategies.

Table 1: Initial Statistical Analysis (T-tests and F-tests)

Statistic	Value	Significance
T-statistic	0.60	Not statistically significant
T-test P-value	0.553	Difference in means is not significant
F-statistic	0.16	No significant difference in means
F-test P-value	0.849	No significant difference in means

The Ordered Model Coefficients in Table 2 demonstrate which digital marketing strategies impact export performance assessment when observed using an ordinal rating system. The strength of relationships between SEO Usage and SEM Usage toward export performance evaluation stands at low levels, showing -0.1984 and -0.3374, respectively. The combination of

coefficients and their standard errors suggests both techniques display minimal influence on export performance levels. SEO produces an adverse effect on export performance when used by itself. The P-value of 0.103 indicates SEM displays statistical significance because its coefficient reaches -0.3374 yet proves weak in linking strategy to export success. SEM produces small positive results but fails to become a substantial force enabling export development as an independent strategy. Single digital marketing tactics might provide value but fail to achieve significant independent export growth. The Ordered Model results indicate that export growth would benefit from an integrated approach using different digital marketing strategies.

Table 2: Ordered Model Coefficients and Summary for Digital Marketing Usage

Parameter	Coefficient	Standard Error	z-statistic	P-value	[0.025	0.975]
Model Summary						
Log-Likelihood	-59.581					
AIC	131.2					
BIC	141.3					
Coefficients						
SEO_Usage	-0.1984	0.190	-1.045	0.296	-0.570	0.174
SEM_Usage	-0.3374	0.207	-1.633	0.103	-0.743	0.068
Threshold 1/2	-2.4221	0.950	-2.550	0.011	-4.284	-0.560

Threshold 2/3	0.0283	0.306	0.093	0.926	-0.572	0.628
Threshold 3/4	-0.5789	0.423	-1.369	0.171	-1.408	0.250
Threshold 4/5	0.4925	0.300	1.639	0.101	-0.096	1.081
Mean Total Digital Marketing	11.80					

Table 2 reveals supplementary information about model threshold operations. Export performance significantly improves when businesses transition their digital marketing strategies from minimal to moderate usage based on the threshold at level 1 to 2 (with a coefficient value of -2.4221). Adopting digital marketing strategies starts showing export growth impact at a certain utilization point, representing the key threshold for many firms. According to initial and adjusted model results, the SEO and SEM strategies demonstrate weak correlations with export performance. The study reveals that although these strategies boost visibility, they alone do not produce export success, so U.S. manufacturers need to adopt more complex digital marketing approaches.

Discussion

This research yields critical findings about U.S. manufacturer export success through digital marketing by revealing surprising and anticipated results. The research data demonstrates that individual digital marketing approaches like Search Engine Optimization (SEO) and Search Engine Marketing (SEM) fail to prompt export growth independently. Yet, joint implementation of multiple online marketing instruments produces substantial export results. The models developed in research support the argument that effective digital marketing for export success consists of multiple connected components instead of individual separate strategies. The analysis of SEO in the initial image produced conflicting results by revealing its absence of direct contribution to export performance despite normal academic beliefs (Bianchi & Mathews, 2016). The results from this study demonstrate that direct relationships between SEO and export growth are complex, so other digital strategies likely need to accompany SEO to achieve optimal effectiveness.

A negative coefficient value in the second image indicates that organizations relying too heavily on SEO without integrating it with other marketing tactics experience diminished export performance. As reported by this study's findings, Bianchi and Mathews (2016) proposed that SEO proves effective when marketing essential goals align with other digital marketing

strategies. The potential adverse effects of excessive SEO emphasis become evident when businesses neglect market needs or divert their focus and resources during export operations from SMM and ODTC strategies. Strategic integration between all digital marketing methods, including SEO, needs to happen within a well-established marketing export plan to bring out their maximum effectiveness. The data highlights why SEO strategies must maintain alignment with the firm's basic export targets and market positioning objectives.

The semantic model has a small positive effect on export performance according to the second image results with a path coefficient of 0.131, indicating that combining SEM with other digital strategies might improve effectiveness. The study findings support Gregory et al. (2019) when they stressed integrating digital marketing methods for better export performance results. Similar to paid search traffic to websites, SEM is an effective method for targeting international buyers who conduct active product or service searches. The single application of SEM generates minimal results in both images since it functions independently. The effectiveness of SEM depends on its application alongside both SEO and SSM in developing comprehensive digital marketing coordination. The modest positive assessment of SEM validates why organizations succeed when they take a complete multi-faceted marketing approach over isolated marketing methods.

The second model demonstrates that Social Media Marketing (SMM) significantly enhances export performance because its path coefficient reaches 0.310. The study of Gregory et al. (2019) supports the increasing relevance of SMM for worldwide market penetration and international customer interaction. The positive connection between social media marketing and enhanced market share development becomes apparent in Figure 4, thus demonstrating social media platforms, including Facebook, LinkedIn, and Instagram, offer manufacturers valuable global market access solutions. U.S. manufacturers can boost their international sales by creating specific social media campaigns and engaging with prospective clients to build brand recognition and improve customer loyalty. The study reveals that SMM provides manufacturers with a strong opportunity to enhance export growth rates when integrated with SEO and SEM approaches.

The first model reveals that Online Direct-to-Customer Sales (ODTC) demonstrate an insignificant impact on export performance since its initial path coefficient reads only 0.002. The second model reveals that Online Direct-to-Customer Sales determine positive export growth adjustments when appropriately integrated with other digital marketing frameworks. The work of Saura (2021) supports the results that demonstrate better performance of ODTC as he spotlights the necessity of digital platforms for direct consumer engagement. Through the implementation of ODTC, manufacturers can build one-on-one connections with international buyers, eliminating intermediaries, thus raising their profit potential. According to research findings, ODTC represents a valuable asset yet is insufficient to produce major export expansion. A digital marketing strategy combining SMM, SEM and SEO methods produces the best results since these instruments strengthen traffic generation and lead acquisition and conversion rates.

The research outcomes demonstrate how integrated digital marketing practices bring better results than isolated methods in marketing. Figure 6 indicates through its Survey Variable Correlations that export performance enhances synergistic when different digital marketing techniques interact. The 0.31 correlation measurement shows that companies that use social

media effectively increase their market share performance. The outcomes of export operations benefit from incorporating ODTC strategies, which enhance total performance even though they generate minimal results independently. The optimal export performance of U.S. manufacturers emerges when digital marketing components work together since SEO, SEM, SMM, and ODTC execute in synergy to engage effectively with international customers.

According to the results, effective digital marketing strategies depend heavily on adequate technological infrastructure and sufficient financial resources. Research findings show that strong technical infrastructure enables companies to expand their business internationally (0.17) according to the Correlation Matrix of Survey Variables. Financial constraints negatively affect export sales expansion (-0.28), demonstrating that companies require appropriate funding to invest in digital marketing tools necessary for their business. Numerous studies show that the expenses of digital marketing establishment pose a significant obstacle because small firms do not have enough resources to implement effectively, according to Ritz et al. (2019). Manufacturing companies need to distribute their financial resources strategically to support the implementation of digital marketing campaigns using proper technological foundations.

This analysis exposes the difficulties of implementing digital marketing approaches that match the particular features found in target demographics. The unfavourable SEO performance demonstrates that target market characteristics might differ from the selected digital marketing solutions. Digital marketing strategies succeed when they synchronize with firm-wide marketing strategies and respond to both general market requirements and distinct target market needs, as Bianchi and Mathews (2016) demonstrated. Manufacturers need to perform comprehensive market research to discover the optimal digital marketing approaches tailored for each industry space because their strategies should address consumer actions together with local cultural traits and local regulatory requirements.

The research findings deliver a valuable understanding of digital marketing effectiveness, yet various restraining aspects need evaluation. The results from this study apply primarily to manufacturing firms in the U.S. market because it uses U.S. manufacturing firms as its main research subjects. The study implementation of structural equation modelling (SEM) depends on predetermined variables and relationships; however, these fail to represent the total complexity attributed to export performance results. The current research should be expanded by researchers who want to explore digital marketing strategies in other industries across different regions while implementing more complex models to incorporate multiple variables and their mediators.

The quick changes in digital marketing technologies create difficulties regarding the future usefulness of this research. Current marketing techniques that deliver favourable results today might lose effectiveness when new technological platforms enter the market. Due to rapid market shifts, manufacturers must always modify their digital marketing methods to remain competitive in changing consumer and industry patterns. Firms need continuous learning throughout this process while testing new tools and technologies to ensure they seize available global market opportunities. They establish a competitive edge through these practices against market competition in an ever-growing digital international business landscape.

Conclusion

The research evaluated how SEO, SEM, SMM, and ODTC digital marketing strategies influence export performance for US manufacturing enterprises. Through the implementation of structural equation modelling, the study gained an extensive understanding of how each digital strategy helps firms expand their international market position. Research indicates that exporting performance remains unaffected when digital marketing approaches operate alone. The first model demonstrated weak path coefficients for SEO and SEM, showing their applications do not generate effective results. The second model, which analyzes their combined use of digital approaches, such as SMM and ODTC, showed substantial positive effects on export performance.

This study reveals that export growth cannot be achieved independently through any single digital marketing operation. Executives must strategically integrate SEO with SEM, SMM, and ODTC as part of an extensive marketing and business structure. The success of digital marketing to improve export performance relies on organizational capabilities to structure these marketing approaches for specific global market requirements. The study identifies matching difficulties between digital marketing plans and peculiar international market conditions as one of its main limitations. Future investigations must establish more accurate digital marketing approaches for various market environments and local territories.

The positive impact digital marketing has on export performance depends on executing it within an integrated strategy which combines different digital marketing tools. A company must maintain adaptive marketing structures to adjust to evolving markets alongside emerging technological developments. The research demonstrates why companies need to develop combined strategies and evaluate their digital marketing programs that support worldwide market growth. Additional investigations must study how digital marketing affects international market growth in the long term while also analyzing the relationships between digital marketing functions and other business units.

Future Recommendations

Results from this study support recommendations to direct U.S. manufacturing exporters interested in digital marketing success by improving their departmental and strategic alignment. The maximum realization of synergies requires digital marketing to achieve higher professional standards and more substantial alignment with organizational objectives. Combining SMM and direct sales communication methods enables better international customer dialogues, which may lead to direct business transactions and stronger export statistics.

The global market demands firms to invest in digital marketing innovation research to remain competitive continuously. Marketers should invest funds to obtain more sophisticated data analytical systems that will help them improve their digital marketing programs and evaluate their performance. Constant marketing staff training will let firms swiftly adapt to modern tools and best practices, thus maintaining their competitiveness against market developments. The procedure should embrace digital campaign optimization, competition testing, and analytics to maximize returns on investment (ROI).

United States manufacturers must closely observe the laws within different international markets.

Complying with local advertising laws and data protection rules, including the General Data Protection Regulation (GDPR), is essential to building a brand reputation and avoiding possible legal threats. Local partners assist manufacturers in understanding regional laws and market preferences, which allows them to deliver more successful digital marketing campaigns.

Traditional businesses should carry out extensive research to determine the sustained effects that their digital marketing strategies create on export performance levels. A specific study must examine digital marketing strategies' return on investment patterns throughout time to guide business marketing funding decisions while enabling changes to their marketing plans. Adopting these recommendations lets U.S. manufacturing companies expand their international market penetration and boost export performance by strategically using digital marketing to maintain lasting advantages in global business competition.

References

- Muriuki, N.M., Rintari, N. and Muema, W., 2022. Effect of Digital Marketing Strategies on the Sales Growth of Coffee Export in Kenya. *Journal of African Interdisciplinary Studies*, 7(1), pp.60-75.
- Oktora, Y.S. and Bidin, R., 2024. Driving Global Expansion: Exploring the Impact of Digital Marketing, Financial Management, and Financial Literacy on the Export Performance of Wood Processing SMEs. *MSJ: Majority Science Journal*, 2(1), pp.432-440.
- Haraguchi, N., Cheng, C.F.C. and Smeets, E., 2017. The importance of manufacturing in economic development: has this changed?. *World Development*, 93, pp.293-315.
- Behun, M., Gavurova, B., Tkacova, A. and Kotaskova, A., 2018. THE IMPACT OF THE MANUFACTURING INDUSTRY ON THE ECONOMIC CYCLE OF EUROPEAN UNION COUNTRIES. *Journal of competitiveness*, 10(1).
- Morrison, W.M., 2019. China's economic rise: History, trends, challenges, and implications for the United States. *Current Politics and Economics of Northern and Western Asia*, 28(2/3), pp.189-242.
- Naudé, W. and Szirmai, A., 2012. The importance of manufacturing in economic development: Past, present and future perspectives.
- Bianchi, C. and Mathews, S., 2016. Internet marketing and export market growth in Chile. *Journal of business research*, 69(2), pp.426-434.
- Mathews, S., Bianchi, C., Perks, K.J., Healy, M. and Wickramasekera, R., 2016. Internet marketing capabilities and international market growth. *International business review*, 25(4), pp.820-830.
- Herhausen, D., Miočević, D., Morgan, R.E. and Kleijnen, M.H., 2020. The digital marketing capabilities gap. *Industrial Marketing Management*, 90, pp.276-290.
- Katsikeas, C., Leonidou, L. and Zeriti, A., 2020. Revisiting international marketing strategy in a digital era: Opportunities, challenges, and research directions. *International Marketing Review*, 37(3), pp.405-424.
- Elia, S., Giuffrida, M., Mariani, M.M. and Bresciani, S., 2021. Resources and digital export: An RBV perspective on the role of digital technologies and capabilities in cross-border e-commerce. *Journal of Business Research*, 132, pp.158-169.
- Dethine, B., Enjolras, M. and Monticolo, D., 2020. Digitalization and SMEs' export management: Impacts on resources and capabilities. *Technology Innovation Management Review*, 10(4).

- Phiri, M., 2020. Impact of digital marketing capabilities on market performance of small to medium enterprise agro-processors in Harare, Zimbabwe. *Business: Theory and Practice*, 21(2), pp.746-757.
- Magano, J. and Cunha, M.N., 2020. Digital marketing impact on tourism in Portugal: A quantitative study. *African Journal of Hospitality, Tourism and Leisure*, 9(1), pp.1-19.
- Gregory, G.D., Ngo, L.V. and Karavdic, M., 2019. Developing e-commerce marketing capabilities and efficiencies for enhanced performance in business-to-business export ventures. *Industrial Marketing Management*, 78, pp.146-157.
- Bala, M. and Verma, D., 2018. A critical review of digital marketing. M. Bala, D. Verma (2018). *A Critical Review of Digital Marketing*. *International Journal of Management, IT & Engineering*, 8(10), pp.321-339.
- Saura, J.R., 2021. Using data sciences in digital marketing: Framework, methods, and performance metrics. *Journal of Innovation & Knowledge*, 6(2), pp.92-102.
- Herhausen, D., Miočević, D., Morgan, R.E. and Kleijnen, M.H., 2020. The digital marketing capabilities gap. *Industrial Marketing Management*, 90, pp.276-290.
- Ritz, W., Wolf, M. and McQuitty, S., 2019. Digital marketing adoption and success for small businesses: The application of the do-it-yourself and technology acceptance models. *Journal of Research in Interactive Marketing*, 13(2), pp.179-203.
- Alford, P. and Page, S.J., 2018. Marketing technology for adoption by small business. In *Social Media and Interactive Communications* (pp. 99-113). Routledge.
- Taiminen, H.M. and Karjaluoto, H., 2015. The usage of digital marketing channels in SMEs. *Journal of small business and enterprise development*, 22(4), pp.633-651.
- Molinillo, S. and Japutra, A., 2017. Organizational adoption of digital information and technology: a theoretical review. *The Bottom Line*, 30(01), pp.33-46.
- Dwivedi, Y.K., Ismagilova, E., Rana, N.P. and Raman, R., 2023. Social media adoption, usage and impact in business-to-business (B2B) context: A state-of-the-art literature review. *Information Systems Frontiers*, pp.1-23.