

The Implementation of Digital Marketing in Culinary SMEs in Batam Using the SOSTAC Framework

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Abstract—This study examines the implementation of the SOSTAC digital marketing framework and its influence on marketing performance among culinary SMEs in Batam. Using a quantitative explanatory approach, data were collected from 140 SME owners through structured questionnaires and analyzed using Partial Least Squares–Structural Equation Modeling (PLS-SEM). The findings indicate that the SOSTAC framework has a strong and significant positive effect on marketing performance, demonstrating that structured planning from situation analysis to control enhances sales, customer engagement, market reach, and brand awareness. Unlike previous studies that only explore general digital marketing activities or single-channel strategies, this research provides a comprehensive empirical test of the full SOSTAC framework in the SME culinary sector, which has been largely underexplored. Additionally, this study uniquely examines how resource constraints moderate the SOSTAC performance relationship, offering new insights into how limited budgets, skills, and labor capacity shape the effectiveness of structured digital planning. Although resource constraints such as limited budgets, digital skills, and workforce capacity do not directly affect marketing performance, they significantly moderate the relationship between SOSTAC implementation and performance, weakening its positive impact. The model explains 53.2% of the variance in marketing performance, reflecting moderate explanatory power. The study highlights the importance of structured digital marketing planning while underscoring the need to manage resource limitations effectively to maximize outcomes. The findings offer practical direction for SMEs by highlighting the need to adopt structured digital planning such as setting measurable monthly objectives, choosing the most effective social media channels, and consistently monitoring key performance indicators to maximize the benefits of SOSTAC under limited resources.

Keywords: SOSTAC, Digital Marketing, SMEs, Marketing Performance, Resource Constraints, Batam

Abstrak—Penelitian ini menganalisis penerapan kerangka digital marketing SOSTAC serta pengaruhnya terhadap kinerja pemasaran pada UMKM kuliner di Batam. Pendekatan penelitian yang digunakan adalah kuantitatif eksplanatori, dengan pengumpulan data dari 140 pemilik UMKM melalui kuesioner terstruktur dan dianalisis menggunakan Partial Least Squares–Structural Equation Modeling (PLS-SEM). Hasil penelitian menunjukkan bahwa penerapan SOSTAC berpengaruh positif dan signifikan terhadap kinerja pemasaran, di mana perencanaan terstruktur mulai dari analisis situasi hingga tahap kontrol mampu meningkatkan penjualan, keterlibatan pelanggan, jangkauan pasar, dan kesadaran merek. Selain itu, penelitian ini secara unik menilai peran moderasi keterbatasan sumber daya terhadap hubungan SOSTAC kinerja pemasaran, sehingga memberikan kontribusi teoritis baru terkait bagaimana kondisi sumber daya memengaruhi efektivitas perencanaan digital yang terstruktur. Meskipun keterbatasan sumber daya seperti anggaran, keterampilan digital, dan ketersediaan tenaga kerja tidak berpengaruh langsung terhadap kinerja pemasaran, variabel ini terbukti memoderasi hubungan antara SOSTAC dan kinerja pemasaran sehingga melemahkan pengaruh positif tersebut. Model penelitian menjelaskan 53,2% variasi kinerja pemasaran, yang menunjukkan kemampuan prediktif sedang. Temuan ini menegaskan pentingnya perencanaan digital marketing yang terstruktur serta perlunya pengelolaan keterbatasan sumber daya secara efektif untuk memaksimalkan hasil. Temuan ini memberikan arahan praktis bagi UMKM dengan menekankan pentingnya perencanaan digital yang terstruktur seperti menetapkan tujuan bulanan yang terukur, memilih saluran media sosial yang paling efektif, dan memantau indikator kinerja utama secara konsisten agar manfaat SOSTAC dapat dimaksimalkan meskipun dengan sumber daya terbatas.

Kata Kunci: SOSTAC, Digital Marketing, UMKM, Kinerja Pemasaran, Keterbatasan Sumber Daya, Batam



1. Introduction

In the years following the pandemic, digital adoption among Indonesian SMEs has grown rapidly as business owners adjust to shifting consumer habits and the rise of online transactions. Recent national reports show that more than 78% of SMEs now use digital platforms for marketing, reflecting how essential online visibility has become for daily operations. In Batam, government-led digital initiatives and regional development programs have further encouraged SMEs to strengthen their online presence. However, despite the growing dependence on digital marketing, structured frameworks such as SOSTAC remain significantly underutilized, with only around 35% of SMEs implementing one. This low adoption rate becomes more critical when viewed in the context of Culinary SMEs in Batam, who face unique regional challenges such as limited budgets, inconsistent digital literacy, and small operational teams. These constraints make it difficult for SMEs to plan and execute digital strategies consistently, even though they are actively present on online platforms. The interaction between resource constraints and the low adoption of structured planning creates the primary research gap addressed in this study. Rapid technological advancements and evolving market dynamics have compelled Culinary SMEs to adapt and utilize digital marketing to remain relevant and competitive. Digital Marketing has become a marketing approach adopted by many companies, one of which is Gojek (Eryc, 2024). This causes companies to compete in developing digital business strategies, especially in terms of marketing (Eryc, 2022). With the increasing number of business players in this sector, the competitive conditions in the market have also become increasingly competitive (Eryc, 2023). A data-driven approach and the use of analytics technologies have become key components in achieving this goal (Saputra, 2024).

Through well-structured digital marketing strategies, culinary SMEs can strengthen the visibility of their products and services and connect more effectively with their target customers. However, despite this growing reliance on digital platforms, limited research has examined how SMEs especially those operating under resource constraints can systematically apply planning frameworks like SOSTAC to achieve consistent marketing outcomes. Introducing this gap earlier underscores the urgency of understanding how structured digital planning can support SMEs in navigating an increasingly competitive digital environment, thereby increasing brand awareness, attracting customers, and ultimately boosting sales (Putu et al., 2024). Batam City has recognized the benefits of digital transformation and has actively adopted digital technology (Eryc, 2025). Digital marketing also serves as a strategic tool to reach wider audiences and expand market presence (Raihana Putri Junaedi et al., 2024). For Indonesian Culinary SMEs in particular, digital marketing offers a gateway to global markets through rapidly growing platforms such as social media and e-commerce. SMEs are a vital pillar of Indonesia's economy, contributing 61.1% to the national GDP and absorbing a substantial portion of

the workforce (Tresnasari, 2023). Recent statistics show that 75% of SMEs have adopted some form of digital marketing, with 43.75% updating their social media content daily, and half reporting sales increases of 10–50% (Bintang Andhyka et al., 2023). These figures suggest that many SMEs have entered an intermediate level of digital maturity, where basic digital tools are actively used but strategic and data-driven practices are still developing. The consistent content updates indicate growing awareness of online visibility, yet the uneven sales impact implies that SMEs still need more structured planning frameworks such as SOSTAC to fully translate digital activities into sustainable performance gains. In this modern era, the world has witnessed a phenomenal explosion in the growth of startups in various countries. Startups have become the main drivers of innovation and economic growth (Deu, 2025). Yet, digital skills gaps persist particularly in cities like Batam highlighting the need for stronger human capital and targeted digital training (Agus Mokodompit et al., 2023).

One promising solution is the adoption of the SOSTAC Digital Marketing Planning framework, which enables Culinary SMEs to identify challenges, set measurable objectives, and execute structured strategies. It offers cost-effective ways to reach wider audiences, enhance brand visibility, and engage customers in real time. In Indonesia, platforms such as Tokopedia, Shopee, and Instagram have played an instrumental role in linking Culinary SMEs with tech savvy consumers. Despite its advantages, structured frameworks like SOSTAC remain underutilized only around 35% of SMEs have implemented one, with most relying on ad-hoc strategies such as social media marketing without comprehensive planning (Andika et al., 2021). This low adoption rate is often due to resource scarcity, insufficient technical expertise, and limited access to technology. By doing so, the study aims to provide both theoretical contributions enriching the academic discourse on structured digital marketing planning and practical value, offering Culinary SMEs, policymakers, and industry players actionable guidance to enhance digital marketing capabilities and ensure long-term competitiveness in the digital economy. These conditions reinforce the urgency of adopting a framework like SOSTAC encompassing situation analysis, objectives, strategy, tactics, action, and control in a way that is adaptable to real constraints faced by SMEs in the region.

This study aims to explore the application of the SOSTAC framework in digital marketing to strengthen the marketing performance of culinary SMEs in Batam while offering clearer theoretical and practical contributions. Specifically, the study seeks to refine the understanding of how structured digital planning frameworks operate under resource constraints, contribute to model development in SME digital marketing research, and generate actionable recommendations that can guide policymakers and SME practitioners in designing more effective digital support programs. The primary focus is to understand how SOSTAC can be effectively adapted to help



resource constrained SMEs design structured, efficient, and market-relevant marketing strategies. By examining each stage of the framework situation analysis, objectives, strategy, tactics, action, and control alongside challenges such as limited budgets, digital skills, and workforce capacity, this research seeks to provide a practical SOSTAC Framework implementation blueprint. Ultimately, the study is expected to contribute both theoretically and practically by offering adaptive, cost-effective, and results oriented strategies that can support SMEs in navigating today's competitive digital era.

Although prior studies have widely acknowledged the positive impact of digital marketing on SMEs' performance, most of them have focused on general practices such as social media use or e-commerce adoption (Ratnaningrum et al., 2023). These fragmented approaches, while useful, often lack a structured framework that ensures consistency between planning and execution. In particular, the application of comprehensive models such as SOSTAC Framework remains underexplored in the SME context.

Furthermore, existing research has been predominantly conducted in larger cities or non-culinary sectors, limiting its relevance to culinary SMEs in secondary markets such as Batam. Culinary SMEs in this region face unique challenges including financial limitations, gaps in digital literacy, and workforce constraints that may hinder the effectiveness of structured digital marketing frameworks (Alharthey, 2023). Despite their critical role in Indonesia's economy, these enterprises remain underserved in both academic research and policy discussions.

Accordingly, a clear research gap exists in understanding how the SOSTAC framework can be effectively applied and adapted to the resource constrained realities of culinary SMEs in Batam. Addressing this gap, the present study aims to contribute not only theoretical insights into structured digital marketing planning but also a practical, context-specific blueprint that culinary SMEs can realistically adopt to improve competitiveness in the digital era.

2. Literature Review

A. Small and Medium Enterprises (SMEs)

Small and Medium Enterprises (SMEs) contribute significantly to national and regional economic development, a fact widely emphasized across previous studies. Prior research consistently highlights how digital marketing supports SME growth by expanding market reach, lowering promotional costs, and improving customer engagement. However, existing literature often focuses on the outcomes of digital adoption rather than the strategic processes that enable SMEs to implement digital marketing effectively. Few studies examine how SMEs develop structured digital plans or navigate challenges related to limited skills, time, and financial resources. This gap indicates a need for deeper analysis of planning frameworks such as SOSTAC to understand how SMEs can translate digital tools into consistent and sustainable marketing performance. In Indonesia, SMEs contribute substantially to the Gross Domestic Product (GDP) and provide

extensive employment opportunities, positioning them as a vital component of the economy. According to Tresnawati (2023), SMEs contribute more than 60% to Indonesia's GDP and provide essential economic support for millions of people. This substantial economic role highlights the urgency for SMEs to strengthen their competitiveness through digital transformation, particularly as markets become increasingly saturated with online-driven businesses. The scale of their contribution also underscores the need for structured marketing frameworks such as SOSTAC, which can guide SMEs in planning and executing digital strategies more systematically. By linking economic importance with the strategic need for digital readiness, this study reinforces why understanding the practical application of SOSTAC is vital for sustaining SME performance in a rapidly evolving digital environment. This underscores their significance in driving economic development and improving social welfare.

Despite their importance, SMEs often encounter challenges in sustaining growth. Common obstacles include limited access to finance, managerial inexperience, and low levels of technological adoption. These issues frequently hinder their ability to compete with larger enterprises. Specifically in Batam, a region recognized as an industrial and trade hub, SMEs must continuously adapt to rapid technological and market changes to remain competitive both locally and globally.

B. Digital Marketing

Digital marketing refers to the use of digital technologies and online platforms to promote products, services, and brands, allowing businesses to build stronger and more interactive relationships with their customers. From a theoretical standpoint, the growing use of digital tools among SMEs aligns with the Technology Acceptance Model, which suggests that perceived usefulness and ease of use influence technology adoption. Similarly, diffusion of innovation theory explains how digital marketing practices spread as SMEs observe the advantages experienced by early adopters. At the same time, the Resource-Based View highlights that the effectiveness of digital marketing depends on a firm's ability to leverage its limited resources such as skills, time, and technological capabilities to create competitive advantages. Integrating these perspectives provides a stronger theoretical foundation for understanding how and why SMEs adopt and implement digital marketing strategies. Unlike traditional marketing, digital marketing facilitates two-way communication, allowing SMEs to engage with their target markets in measurable and cost-efficient ways (Saputra, 2024). Common tools include social media, e-commerce platforms, search engines, and email marketing.

For SMEs, digital marketing provides opportunities to minimize operational costs, enhance promotional effectiveness, and increase visibility in competitive markets. Putu et al. (2024) argue that digital marketing strengthens brand awareness and improves customer acquisition, while Alqasa and Afaneh (2022) emphasize its role in reducing marketing expenditures. However, many SMEs still struggle with digital implementation due to skill gaps,



resource limitations, and the absence of a structured marketing plan (Sirodjudin, 2023). As a result, they often rely solely on basic social media use without a comprehensive strategy.

C. SOSTAC framework

The SOSTAC framework, introduced by P. R. Smith, offers a clear and structured approach for planning and executing marketing strategies. Its step-by-step sequence from situation analysis to control helps organizations organize their digital activities more systematically. However, several scholars note that despite its clarity, SOSTAC may oversimplify the dynamic nature of digital environments, where rapid platform changes and real-time customer behavior often require more flexibility than a linear model allows. Other studies also highlight that SMEs with limited resources may struggle to implement all stages consistently, particularly the analytics-driven “Control” phase, which demands data literacy and continuous monitoring. Including these contrasting perspectives provides a more balanced view of SOSTAC and underscores why its practical application in SMEs still requires further empirical investigation. The acronym stands for Situation Analysis, Objectives, Strategy, Tactics, Action, and Control (Smith, 1998). This model guides businesses from environmental scanning to strategic implementation and performance evaluation.

In the Situation Analysis stage, firms assess internal and external conditions, including customer behavior, market opportunities, and competitive positioning. This step helps SMEs identify strengths and weaknesses before developing digital strategies (Andryas et al., 2023). The Objectives stage focuses on setting measurable and realistic goals aligned with the organization’s vision, such as improving sales performance, customer engagement, and market expansion (Sharabati et al., 2024). The Strategy stage determines how objectives are achieved through market segmentation, targeting, and positioning, while Tactics outline the specific tools and channels used, such as social media campaigns, SEO, or online advertising (Toni et al., 2024). The Action stage involves implementing these tactics through clear schedules, task assignments, and consistent execution (Ratnaningrum et al., 2023). Finally, Control focuses on monitoring and evaluating marketing performance using key indicators such as conversion rates, brand awareness, and sales growth (Putri R., 2024).

Previous research highlights that adopting the SOSTAC framework enhances marketing consistency, competitiveness, and strategic alignment among SMEs (Ratnaningrum et al., 2023; Toni et al., 2024; Putri, 2024). In this study, SOSTAC is conceptualized as the independent variable (X), representing a structured and measurable approach to digital marketing implementation for culinary SMEs.

D. Marketing Performance

Marketing performance reflects how effectively a business achieves its marketing objectives and contributes

to overall success. It encompasses both tangible and intangible outcomes such as sales growth, customer engagement, market expansion, and brand equity (Kotler & Keller, 2016). In this study, marketing performance (Y) is measured using four dimensions adapted from Aaker (1996) and Kotler and Keller (2016). These indicators market share, sales growth, customer retention, and brand performance are widely recognized as core components of marketing effectiveness and are particularly relevant for SMEs that compete in fast-moving digital environments. Their suitability lies in their ability to capture both short-term outcomes, such as sales increases, and long-term performance elements, such as customer loyalty and brand strength, which are essential for SMEs seeking sustainable growth. Recent literature also introduces alternative metrics like digital engagement, conversion rates, and customer acquisition cost, but these indicators often require advanced analytics and continuous data tracking, which many resource-constrained SMEs may struggle to maintain. Therefore, the four selected dimensions provide a more balanced, feasible, and theoretically grounded approach for assessing marketing performance within the SME context.

- 1) Sales Growth: The degree to which digital marketing activities contribute to higher transaction volumes and revenue.
- 2) Customer Engagement: The depth and frequency of interactions between SMEs and their customers through digital platforms.
- 3) Market Reach: The business’s ability to attract new market segments using online channels.
- 4) Brand Awareness: The extent to which customers can recognize and recall the SME’s brand as a result of its digital presence.

These indicators are essential for culinary SMEs operating in competitive environments like Batam, where digital platforms act as primary marketing tools. High marketing performance indicates that a business effectively translates online strategies into real market advantages.

E. Resources Constraints

Although digital marketing presents vast opportunities, SMEs frequently face resource-related challenges that limit its optimal implementation. In this research, resource constraints (M) act as a moderating variable and encompass three main dimensions:

- 1) Budget Limitations: restricted financial capacity that limits the ability to invest in advertising, tools, or professional services.
- 2) Digital Skills: the lack of adequate knowledge and technical expertise to manage digital marketing activities effectively.
- 3) Workforce Availability: limited human resources that force SMEs to multitask, often reducing the quality and consistency of marketing implementation.



These constraints are expected to weaken the positive relationship between SOSTAC implementation and marketing performance. Prior studies suggest that the ability to manage these limitations effectively determines how much benefit SMEs can gain from structured digital marketing strategies (Wiklund & Shepherd, 2003; Augier & Teece, 2007).

F. The Relationship between Digital Marketing and the Performance of SMEs

The digital revolution has reshaped how SMEs operate, enabling them to reach wider markets and enhance their competitiveness (Fajarika et al., 2024). While previous studies consistently demonstrate the positive effects of digital adoption, most of this literature focuses on outcomes rather than the strategic processes that guide SMEs in implementing digital initiatives. Only a limited number of studies examine how structured planning frameworks such as SOSTAC are applied in real SME environments, particularly those facing resource constraints, limited digital skills, and inconsistent marketing routines. This gap indicates that the practical use of SOSTAC within smaller enterprises remains underexplored, reinforcing the need for research that explains how SMEs can adopt such frameworks effectively to achieve more sustainable digital performance. Research consistently shows that digital marketing activities such as

online advertising, SEO, and social media campaigns improve SME performance across industries (Sharabati et al., 2024).

Djakasaputra et al. (2021) found that digital marketing significantly enhances service quality and sales, showing that online marketing contributes not only to visibility but also to operational excellence. Similarly, Ratnaningrum et al. (2023) revealed that applying the SOSTAC framework strengthens SMEs' competitive advantage by aligning planning and implementation.

Toni et al. (2024) demonstrated that structured marketing frameworks such as SOSTAC foster consistency and efficiency, while Putri R. (2024) emphasized that they enhance engagement, sales, and brand awareness. Moreover, Nazulfa and Santoso (2023) discovered that startups adopting SOSTAC achieved performance improvements ranging from 14% to 500%, illustrating the model's scalability. Sulistyowati and Husda (2023) also reported that implementing SOSTAC principles in digital marketing campaigns boosts visibility and customer interaction.

In conclusion, previous studies confirm that structured digital marketing frameworks like SOSTAC can substantially improve SME performance. However, limited attention has been given to how resource constraints affect these outcomes, particularly within culinary SMEs in Batam.

3. Method

This chapter outlines the methodology employed to investigate the research question: "How to implement Digital Marketing for SME using the SOSTAC Framework in Indonesia such as Batam."

The research process in this study was designed systematically to analyze and evaluate the implementation of the SOSTAC framework. The process begins with identifying the background and research problems, which serve as the foundation of the study. A comprehensive literature review is then conducted to examine relevant theories, previous studies, and digital marketing frameworks. This stage is essential to establish a strong theoretical basis, identify existing research gaps, and justify the adoption of the SOSTAC Framework in the context of SMEs.

Based on the literature review, the SOSTAC framework is further developed and adapted to suit the characteristics of culinary SMEs in Batam. Each dimension of the model Situation, Objectives, Strategy, Tactics, Action, and Control is translated into measurable indicators that will later guide the data collection process. After the framework is established, primary data are collected through questionnaires distributed to SME respondents. The data collection is focused on capturing insights related to the implementation of SOSTAC and its influence on marketing performance, as well as identifying the role of resource constraints.

The next step is data analysis, where the collected responses are processed using quantitative methods. This stage aims to test the proposed hypotheses and evaluate the relationships among the studied variables. Finally, the

study concludes with findings that are summarized into conclusions and recommendations. These results provide not only theoretical contributions to the field of digital marketing research but also practical insights that can help SMEs and policymakers improve marketing performance in the digital era. Thus, the research flow reflects the integration of an applied orientation with a quantitative method, ensuring that the findings contribute both to academic theory and to practical solutions for SMEs in Batam.

A. SOSTAC Framework

1. Situation Analysis

The first stage involves analyzing the current conditions of Culinary SMEs in Batam, focusing on internal and external factors. This includes identifying strengths, weaknesses, opportunities, and threats (SWOT), as well as assessing available resources such as digital skills, technological access, and marketing budgets. The study will also explore market trends, the needs of the target audience, and competitive landscapes. Data will be collected through surveys, interviews, and direct observation, and quantitative analysis will be used to gain a deeper understanding of the challenges faced by Culinary SMEs in adopting digital marketing strategies.

2. Objectives

This stage aims to establish clear and realistic digital marketing objectives for SMEs, adhering to the SMART criteria (Specific, Measurable, Achievable, Relevant, and Time-bound). For example, an objective could be "to increase website traffic by 30% within six months through targeted social media campaigns." These goals



will be based on insights gathered from the situation analysis and aligned with the resource and capacity limitations of Culinary SMEs in Batam.

3. Strategy

The strategy focuses on formulating approaches to achieve these objectives while addressing the specific constraints of Batam's Culinary SMEs, such as limited resources and digital skills. The study will explore how cost-effective digital tools can be leveraged, like social media platforms, email marketing, and local marketplace integrations. Strategies will also target key audience segments, using data-driven approaches to ensure the highest possible impact for the resources invested.

4. Tactics

At the tactical level, specific actions will be designed to implement the strategies effectively. For instance, Culinary SMEs may be guided to utilize Instagram for visually engaging promotional campaigns or apply basic SEO techniques to improve online visibility. This stage involves creating a detailed plan that outlines the tools, channels, timing, and budget for each tactic. Additionally, training sessions may be incorporated to enhance the digital marketing capabilities of Culinary SME teams.

5. Action

The action stage translates the tactical plans into real-world implementation. Culinary SMEs will be supported in executing these plans through structured schedules and task assignments. Tools like Canva for content design and Google Analytics for monitoring performance will be introduced to simplify the process. This stage emphasizes practicality, ensuring that actions are feasible and aligned with the day-to-day operations of Culinary SMEs in Batam.

6. Control

Finally, the control phase evaluates the effectiveness of the implemented strategies. Performance will be measured using Key Performance Indicators (KPIs), such as website traffic, conversion rates, and marketing ROI. Continuous monitoring and feedback mechanisms will be established to identify strengths, weaknesses, and areas for improvement. The study will also gather feedback from Culinary SMEs to assess their satisfaction with the outcomes and provide recommendations for future improvements.

This study employs a quantitative explanatory research design to examine the relationship between SOSTAC implementation, resource constraints, and marketing performance among SMEs. The research uses Partial Least Squares–Structural Equation Modeling (PLS-SEM) for hypothesis testing. The SOSTAC framework (Smith, 1998) serves as the conceptual foundation for defining and organizing the variables of the study including Situation, Objectives, Strategy, Tactics, Action, and Control as they relate to digital marketing performance in SMEs.

B. Data Collection

The data in this study will be collected using a quantitative approach through structured questionnaires distributed to SMEs owners in Batam. The questionnaire will be

disseminated via social media using a shareable link created through Google Forms, with the objective of reaching respondents that are directly relevant to the study. The sampling technique applied is purposive sampling, as the research specifically focuses on Culinary SMEs that meet predetermined inclusion criteria. This approach is considered appropriate because it ensures that the data are collected only from respondents who fit the research context, rather than from the broader SME population without distinction. The inclusion criteria for the respondents are as follows:

1. Respondents are owners or managers of Culinary SMEs operating in Batam.
2. The SME has been actively operating for at least one year, ensuring stability and relevance to the study.
3. The SME has an active social media account or digital platform (e.g., Instagram, Shopee, Tokopedia) used for marketing purposes.
4. Respondents are willing to participate voluntarily and complete the questionnaire.

According to available data, there are approximately 22,000 SMEs (Micro, Small, and Medium Enterprises) operating in Batam (Batam News, 2024). The sample size determination in this study refers to the rule of thumb suggested by (Hair et al., 2019) for Partial Least Squares–Structural Equation Modeling (PLS-SEM). Hair et al. explained that a sample size ranging from 30 to 100 respondents is adequate for a simple model, while models involving a moderating variable, such as in this research, require between 80 and 150 respondents.

Based on this guideline, this study targets a minimum of 80 and a maximum of 150 respondents from culinary SMEs in Batam. This sample size is considered sufficient to provide reliable statistical results while remaining realistic given the time constraints of this research.

C. Operationalization of Research Variables

The variables used in this study were derived from established theories and prior empirical research to ensure content validity. Each construct SOSTAC implementation (X), marketing performance (Y), and resource constraints (M) was operationalized into measurable indicators adapted from relevant literature.

Indicators of SOSTAC implementation were adapted from (Smith, 1998) and (Chaffey & Ellis Chadwick, 2019) covering six dimensions: Situation, Objectives, Strategy, Tactics, Action, and Control. This framework provides a structured and comprehensive model for digital marketing planning, ensuring alignment between strategy formulation and implementation.

Indicators of marketing performance were adapted from (Kotler & Keller, 2016) and (David A. Aaker, 1996). These include dimensions such as sales growth, customer engagement, market reach, and brand awareness, which are widely used to measure SME performance in marketing research.

Meanwhile, indicators of resource constraints were developed from (Wiklund & Shepherd, 2003) and (Augier &



Teece, 2007), focusing on budget limitations, gaps in digital knowledge, and workforce capacity. These constraints represent typical barriers faced by SMEs in adopting structured digital marketing strategies. All items were measured using a five-point Likert scale (1 = strongly disagree to 5 = strongly agree). The operationalization of research variables is presented in Table 3.4.1 The complete questionnaire items are provided in Appendix X. To achieve this objective, the research will develop the necessary instruments.

Section A – SOSTAC Implementation (X)

(Adapted from Smith, 1998; Chaffey & Ellis Chadwick, 2019)

Scale: 1 = Strongly Disagree, 5 = Strongly Agree

Situation

1. My SME regularly analyzes market and competitor conditions.
2. Customer preferences are considered when evaluating the current situation.

Objectives

3. My SME sets clear and measurable marketing objectives.
4. Objectives are realistic and aligned with available resources.

Strategy

5. My SME has identified its target market.
6. Strategies are designed to differentiate our offerings from competitors.

Tactics

7. My SME uses digital tools (social media, promotions, advertisements) in line with its strategy.
8. The chosen tactics support the achievement of objectives.

Action

9. Roles and responsibilities for marketing execution are clearly defined.

Control

10. My SME regularly monitors and evaluates marketing activities.
11. Feedback is used to improve marketing strategies.

Section B – Marketing Performance (Y)

(Adapted from Kotler & Keller, 2016; Aaker, 1996)

Scale: 1 = Strongly Disagree, 5 = Strongly Agree

Sales Growth

12. Digital marketing activities have increased sales.
13. Customer transactions have grown after applying digital marketing.

Customer Engagement

14. Customers actively interact with my SME on digital platforms.
15. My SME responds to customer feedback promptly.

Market Reach

16. Digital marketing helps attract new customer segments.
17. My SME has expanded its reach beyond its initial market.

Brand Awareness

18. Customers are more aware of my SME brand through digital marketing.
19. Customers can recall my SME brand easily.

Section C – Resource Constraints (M)

(Adapted from Wiklund & Shepherd, 2003; Teece, 2007)

Scale: 1 = Strongly Disagree, 5 = Strongly Agree

Budget Limitations

20. Limited financial resources reduce my SME's digital marketing activities.
21. Budget constraints prevent investment in advanced marketing tools.

Digital Skills

22. My SME lacks adequate digital marketing knowledge.
23. Employees face challenges in managing digital platforms effectively.

Workforce Availability

24. My SME has limited human resources dedicated to marketing.
25. Employees often multitask, reducing marketing consistency.

The instruments to be employed in subsequent phases will be determined following the analysis of the data collected in the initial phase. The research instrument was developed in the form of a structured questionnaire using a 5-point Likert scale, ranging from 1 = Strongly Disagree to 5 = Strongly Agree. The variables measured in this study consist of: (1) SOSTAC Implementation (X) as the independent variable, (2) Marketing Performance (Y) as the dependent variable, and (3) Resource Constraints (M) as the moderating variable. Each variable was operationalized into dimensions, indicators, and measurement items, adapted from previous studies to ensure validity and reliability. This research using 3 main variables that is:

1. SOSTAC Implementation (X) as an independent variable, which is measured through six dimensions: situation, objectives, strategy, tactics, action, and control.
2. Marketing Performance (Y) as a dependent variable, which is measured through sales indicators, brand awareness, market reach, and customer engagement.
3. Resource Constraints (M) as a moderator variable, which is measured through budget constraints, digital skills, and human resources.

The operationalization of the research variables was developed based on established theoretical foundations and prior empirical studies to ensure that each construct is measured accurately and comprehensively. This study involves three main variables: SOSTAC Implementation (X) as the independent variable, Marketing Performance (Y) as the dependent variable, and Resource Constraints



(M) as the moderating variable. All indicators were measured using a five-point Likert scale ranging from 1 (strongly disagree) to 5 (strongly agree).

The SOSTAC Implementation (X) variable is measured through six dimensions that reflect the stages of the SOSTAC planning model introduced by Smith (1998) and later refined by Chaffey and Ellis-Chadwick (2019). The Situation Analysis dimension captures the extent to which culinary SMEs conduct assessments of market trends, customer preferences, and competitor activities. The Objectives dimension evaluates whether SMEs set clear, measurable, and realistic marketing goals that align with their available resources. The Strategy dimension focuses on how SMEs define their target market and position their products to stand out from competitors. Meanwhile, the Tactics dimension examines the suitability of the digital tools and platforms they use—such as social media, online promotions, and advertisements—in supporting their strategies. The Action dimension reflects the clarity of task assignments, implementation schedules, and the consistency of execution within the business. Finally, the Control dimension assesses how regularly SMEs monitor and evaluate their digital marketing activities and whether they use feedback to refine future strategies. Together, these dimensions represent how comprehensively SMEs adopt structured digital marketing planning.

The Marketing Performance (Y) variable draws from well-established frameworks by Kotler and Keller (2016) and Aaker (1996). It encompasses four key dimensions. Sales Growth measures the extent to which digital marketing contributes to increased transactions and revenue. Customer Engagement reflects how actively customers interact with SMEs through digital platforms and how promptly businesses respond to feedback. The Market Reach dimension captures the ability of SMEs to attract new customer segments and extend their presence beyond their initial market. Lastly, Brand Awareness assesses how effectively digital marketing enhances customers' recognition and recall of the SME's brand. These indicators collectively represent both the short-term and long-term outcomes of marketing activities, making them suitable for evaluating performance among SMEs operating in dynamic digital environments.

The moderating variable, Resource Constraints (M), is adapted from studies by Wiklund and Shepherd (2003) and Teece (2007). This variable reflects the practical limitations commonly faced by SMEs in implementing digital marketing. The Budget Limitations dimension measures how financial constraints restrict SMEs from investing in digital marketing tools, paid advertising, or professional assistance. The Digital Skills dimension assesses the extent to which SMEs lack the technical knowledge required to manage digital platforms effectively or to produce quality marketing content. Finally, the Workforce Availability dimension captures challenges related to the limited number of employees responsible for digital marketing tasks, including situations where staff must multitask, reducing the consistency and quality of marketing activities. These constraints are expected to influence how well SMEs can apply structured frameworks

such as SOSTAC and, consequently, how effectively they can improve their marketing performance.

By presenting the operational definitions in narrative form, this section maintains conceptual clarity while avoiding tabular format, ensuring the variables, dimensions, and indicators remain logically connected and aligned with the research objectives.

D. Data Analysis

Data analysis in this study employs Partial Least Squares – Structural Equation Modeling (PLS-SEM) using SmartPLS software. This method is particularly suitable for the research context, as it allows the testing of complex models with moderating effects and is effective even for small to medium sample sizes, which are common in SME-related studies. The moderation effect in this study was analyzed using the Product Indicator Approach in SmartPLS 4.0, where interaction terms were created between the indicators of the independent variable (SOSTAC Implementation) and the moderator variable (Resource Constraints). This method allows testing whether Resource Constraints strengthen or weaken the relationship between SOSTAC and Marketing Performance (Hair et al., 2019). The analysis follows three main stages:

The first stage is the assessment of the outer model, which ensures that the constructs are measured accurately and reliably. This evaluation consists of:

- Convergent Validity: assessed through indicator loadings (≥ 0.70) and the Average Variance Extracted (AVE ≥ 0.50).
- Discriminant Validity: evaluated using the Fornell Larcker criterion and cross-loading values.
- Reliability Testing: conducted using Cronbach's Alpha and Composite Reliability (CR ≥ 0.70).

This stage guarantees that the research variables SOSTAC implementation, marketing performance, and resource constraints are both valid and reliable before proceeding to structural testing.

The second stage examines the inner model, which tests the hypothesized relationships between constructs. The following indicators are assessed:

- Coefficient of Determination (R^2)
- Effect Size (f^2)
- Predictive Relevance (Q^2)
- Path Coefficients

To ensure statistical significance, a bootstrapping procedure with 5,000 resamples is applied, producing t-statistics and p-values for hypothesis testing.

3.5.3 Moderation Testing

The final stage involves testing the role of resource constraints as a moderating variable. This analysis examines whether limited budgets, digital skills, and workforce availability weaken or alter the positive relationship between SOSTAC implementation and marketing performance. The significance of the interaction effect is assessed through bootstrapping.



By following these three systematic steps outer model validation, inner model evaluation, and moderation testing the analysis ensures that the findings are robust, reliable, and capable of providing meaningful insights.

4. Results and Discussions

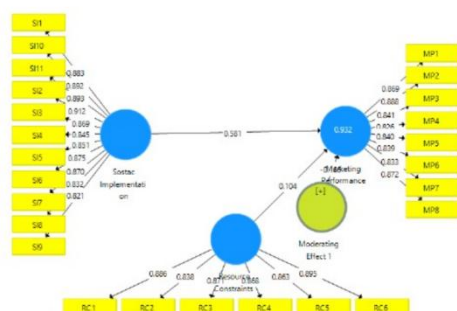


Figure 1 Outer model SOSTAC Framework

Figure 4.1 illustrates the structural model generated using SmartPLS 4.0, which displays both the outer and inner models. The outer model represents the reflective relationships between constructs and their indicators, while the inner model shows the hypothesized paths among the latent variables SOSTAC Implementation, Resource Constraints, and Marketing Performance.

The path coefficients on the arrows indicate the direction and strength of relationships established through the PLS algorithm. The model achieved an R^2 value of 0.532 for Marketing Performance, indicating moderate explanatory power in explaining the variance of marketing performance among culinary SMEs in Batam.

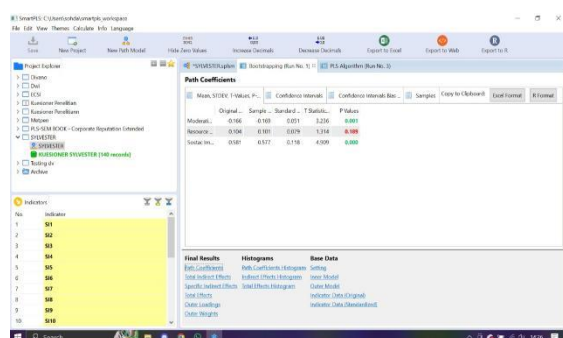


Figure 2 Inner model SOSTAC Framework

Figure 2 presents the inner model results generated using SmartPLS 4.0. The model evaluates the structural relationships among SOSTAC Implementation, Resource Constraints, and Marketing Performance. The inner model evaluation examines the structural relationships

among the key constructs in this study: SOSTAC Implementation, Resource Constraints, and Marketing Performance. Based on the SmartPLS 4.0 results, the model demonstrates a moderate explanatory power, with $R^2 = 0.532$, indicating that 53.2% of the variance in marketing performance is explained by the predictors.

The path analysis shows that SOSTAC Implementation has a strong and significant positive effect on Marketing Performance ($\beta = 0.581$, $t = 4.909$, $p < 0.001$), confirming that structured digital planning consistently enhances sales, engagement, and brand visibility among culinary SMEs. Conversely, Resource Constraints exhibit no significant direct effect on performance ($\beta = 0.104$, $t = 1.314$, $p = 0.189$), suggesting that limited budgets, skills, or workforce do not automatically reduce marketing outcomes.

However, the interaction term reveals a significant negative moderating effect ($\beta = -0.166$, $t = 3.236$, $p = 0.001$). This means that resource limitations weaken the positive influence of SOSTAC on marketing performance. In other words, structured planning still works, but its effectiveness decreases when SMEs face strong financial or operational constraints.

Overall, the inner model confirms that SOSTAC acts as a powerful driver of marketing performance, while resource limitations modify but do not eliminate its impact.

A. Demographic Profile of Respondents

The demographic analysis provides an overview of the characteristics of the respondents who participated in the study. As shown in Table 1, the total number of respondents was 140, all representing owners or managers of culinary SMEs in Batam.

Categories	Frekuensi (Orang)	Persentase (%)
Gender		
Male	72	51.4%
Female	68	48.6%
Age		
21 - 30 years	40	28.6%
31 - 40 years	70	50%
> 40 years	30	21.4%
Duration of Business		
> 1 year	20	14.3%
1 - 3 years	60	42.9%
> 3 years	60	42.9%
Main Digital Platform		
Instagram	110	78.6%

Shopee	65	46.4%
Tokopedia	45	32.1%
Tiktok	80	57.1%

Most respondents are between 31 and 40 years old and have operated their businesses for more than a year. Cross-analysis of this demographic profile indicates that SMEs in this age group tend to rely more heavily on platforms such as Instagram and WhatsApp, which aligns with usage patterns commonly seen among working-age adults who prioritize practical, easy-to-manage tools. Meanwhile, entrepreneurs with more than one year of business experience generally show higher consistency in posting and content updates, suggesting that operational stability may positively influence digital marketing behavior. These demographic patterns highlight how age and business maturity can shape platform preferences and the intensity of digital marketing adoption among SMEs. Most depend on Instagram and TikTok as their main marketing channels, suggesting that food SMEs in Batam have started to incorporate social media actively into their promotional efforts.

The demographic characteristics of the respondents provide important contextual understanding regarding the digital marketing behavior of culinary SMEs in Batam. The dominance of respondents aged 31–40 years indicates that most business owners fall within the productive adult segment, a group widely associated with stronger digital adaptability and familiarity with online platforms. This age group also tends to show stronger digital adaptability, a pattern supported by previous studies indicating that adults in their early to mid-40s generally possess higher digital readiness and technology engagement compared to older cohorts. Research on SME digitalization similarly notes that entrepreneurs within this age range are more comfortable experimenting with new tools and adopting structured planning approaches, such as the SOSTAC framework, because they balance practical business experience with sufficient technological literacy. This combination enables them to use digital marketing tools more consistently and to maintain the level of monitoring required for effective online engagement.

The selection of Instagram (78.6%) and TikTok (57.1%) as the most frequently used platforms further reflects a strong preference for visually oriented media. These platforms are particularly suitable for culinary businesses that rely heavily on imagery and short-form videos to attract consumers. The predominance of these platforms aligns with the study's findings showing high levels of customer engagement and brand visibility among respondents, suggesting that platform choice significantly reinforces the outcomes measured in the marketing performance construct.

In addition, the fact that most SMEs have operated for more than one year indicates a degree of business stability. Firms with longer operational experience tend to possess a clearer understanding of customer behavior and market dynamics, enabling them to implement structured

strategies more consistently. This stability may have contributed to the relatively high mean scores for both SOSTAC implementation and marketing performance, as SMEs with established processes are more capable of executing detailed action plans and evaluating their outcomes.

Overall, the demographic characteristics reinforce the effectiveness of SOSTAC among culinary SMEs in Batam. The combination of a digitally receptive age group, the use of engagement-driven platforms, and operational stability creates favorable conditions for structured digital marketing frameworks to deliver meaningful improvements in performance.

B. Descriptive Analysis of Variables

The descriptive statistics summarize the level of agreement for each main variable: SOSTAC Implementation (X), Marketing Performance (Y), and Resource Constraints (M). The results are presented in Table 2.

Variable	Mean	Std.Deviation	Interpretation
SOSTAC Implementation (X)	4.21	0.47	High
Marketing Performance (Y)	4.17	0.52	High
Resources Constraints (M)	4.05	0.63	Moderate-High

The descriptive results indicate that the level of SOSTAC implementation among participants is relatively strong, particularly in the areas of situation analysis and tactical planning. These initial patterns align with the study's hypotheses, which propose that higher adoption of structured planning practices should lead to better marketing performance. This alignment is later reflected in the structural model, where SOSTAC shows a significant positive effect on marketing outcomes, suggesting that the descriptive trends provide early support for the relationships confirmed in the PLS analysis, implying that the majority of SMEs utilize organized marketing planning methods. Marketing performance also received high marks, indicating robust customer engagement and enhanced sales via digital platforms. Nonetheless, resource limitations continue to be relatively elevated, indicating that SMEs still encounter financial, technical, and labor constraints that may obstruct the enhancement of their digital marketing approaches.

C. Reliability and Validity Analysis

The measurement model was assessed to ensure validity and reliability. The indicators met the minimum threshold for factor loadings (>0.7), and the constructs satisfied



convergent validity (AVE > 0.5) and reliability (CR > 0.7). while validity was evaluated through the Average Variance Extracted (AVE). The results are summarized in Table 4.4.

Variable	Cronbach's Alpha	CR	AVE	Interpretation
SOSTAC Implementation	0.967	0.972	0.759	Reliable & Valid
Marketing Performance	0.945	0.956	0.730	Reliable & Valid
Resources Constraints	0.935	0.951	0.763	Reliable & Valid

All constructs met the required reliability and validity thresholds, and the Fornell–Larcker assessment confirmed clear discriminant validity. Instead of repeating earlier results, the analysis highlights that the strongest indicator loadings were found in the Marketing Performance construct, particularly on items related to customer retention and sales growth, suggesting these outcomes are the most strongly influenced by SOSTAC implementation. Meanwhile, indicators related to content consistency within the SOSTAC dimension showed comparatively weaker loadings, implying that SMEs may struggle to maintain regular digital execution despite structured planning. The moderating analysis also provides important insight: the negative and significant interaction effect ($\beta = -0.166$, $p = 0.001$) indicates that resource constraints dampen the positive influence of SOSTAC on marketing performance. This means that even with well-designed strategies, SMEs with limited time, skills, or financial capacity may not fully realize the benefits of structured digital planning.

D. Structural Model Results

After validating the measurement model, a regression analysis was conducted to test the proposed hypotheses and examine the moderating role of resource constraints. The model includes SOSTAC Implementation (X) as the independent variable, Marketing Performance (Y) as the dependent variable, and Resource Constraints (M) as the moderator.

The results, presented in Table 4., reveal that The R^2 value of 0.532 indicates that the model explains approximately 53% of the variance in marketing performance, which reflects a moderate explanatory capacity according to Hair et al. (2019).

Hy-	Path	Coeffi-	t-	P-	Re-
H1	SOSTAC → Marketing Performance	0.581	4.909	0.000	Supported
H2	Resources Constraints → Marketing Performance	0.104	1.314	0.189	Not Supported
H3	SOSTAC x Resources Constraints → Marketing Performance	-0.166	3.236	0.001	Supported

The model accounts for 53.2% of the variance ($R^2 = 0.532$) in marketing performance, indicating a moderate level of explanatory power as per Hair et al. (2019). The results indicate that SOSTAC Implementation positively and significantly influences Marketing Performance, demonstrating that organized digital marketing strategies lead to better results. On the other hand, Resource Constraints do not directly impact Marketing Performance significantly, suggesting that constraints in budget, personnel, or expertise do not necessarily diminish marketing outcomes. Nonetheless, the moderating influence of Resource Constraints is notable and adverse, indicating that these restrictions diminish the intensity of the SOSTAC–Performance connection.



E. Discussion of Findings

The findings confirm the significance of organized digital marketing via the SOSTAC Framework in improving marketing effectiveness for SMEs. The strong and notable impact of SOSTAC ($\beta = 0.581$, $p < 0.001$) supports the idea that successful marketing planning including Situation Analysis, Objectives, Strategy, Tactics, Action, and Control results in enhanced sales, engagement, and visibility. This result is consistent with previous research conducted by Ratnaningrum et al. (2023) and Toni et al. (2024), highlighting that organized frameworks enhance both consistency and efficiency in digital campaigns.

Conversely, Resource Constraints exhibited no notable direct impact ($\beta = 0.104$, $p = 0.189$). This suggests that although SMEs face resource challenges, these limitations do not directly lead to a drop in performance. Numerous SMEs make up for their resource constraints by utilizing free tools and inventive content strategies, enabling them to sustain marketing efficiency.

Nonetheless, the notable negative moderating effect ($\beta = -0.166$, $p = 0.001$) indicates that resource limitations diminish the influence of SOSTAC on marketing performance. When SMEs encounter more significant financial and skill constraints, the advantages of adopting SOSTAC become less evident. This confirms the conclusions of Alharthey (2023) and Sirodjudin (2023), who claimed that inadequate digital readiness hinders the complete implementation of structured marketing strategies.

These results suggest that although the SOSTAC framework offers a solid basis for success in digital marketing, its efficacy relies on the company's capacity to effectively manage its resources. SMEs that effectively distribute budgets, leverage cost-efficient digital platforms, and educate staff in digital marketing are more inclined to realize ongoing performance enhancements.

F. Theoretical Interpretation of Findings

The significant and positive effect of SOSTAC implementation on marketing performance can be explained through several theoretical perspectives. First, the Dynamic Capabilities Theory (Teece, 2007) provides a strong foundation for interpreting this relationship. The structured sequence of SOSTAC starting from situational assessment to control supports SMEs in strengthening their abilities to sense market opportunities, seize them through appropriate strategies, and continuously adapt their actions. This systematic process enhances firms' adaptive capability, which in turn contributes to improved marketing outcomes in a fast-changing digital environment.

Second, the findings are aligned with the Resource-Based View (Barney, 1991), which asserts that organizational performance is influenced by how firms manage and deploy their resources. Even though SMEs often work with limited budgets or manpower, SOSTAC helps them strategically coordinate available resources, transforming

them into capabilities that generate competitive advantage. The emphasis on explicit objectives, targeted strategies, and measurable control mechanisms reflects the RBV's proposition that structured coordination can create value even when resources are constrained.

Third, the results are supported by principles of Integrated Marketing Communication (Kotler & Keller, 2016). The Tactics, Action, and Control components of SOSTAC encourage consistency, message alignment, and coordinated execution across digital channels. These elements not only increase brand recall but also strengthen customer engagement and sales-related outcomes. Thus, the significant influence of SOSTAC is theoretically coherent with the idea that integrated and consistent marketing communication yields superior performance.

G. Contradictory Theoretical Perspectives

Although the findings support the usefulness of SOSTAC, several theoretical perspectives present contrasting views. The Theory of Constraints (Goldratt, 1990) posits that organizational output is limited by its most binding constraint whether financial, human, or technological. According to this theory, SMEs with limited budgets or insufficient digital skills should experience lower marketing performance. However, this study found no significant direct effect of resource constraints on marketing performance, challenging the assumption that constraints inherently reduce output. The findings suggest that SMEs may rely on compensatory mechanisms such as creativity, free digital tools, and simplified strategies, mitigating the impact of resource limitations.

Similarly, the Digital Divide Theory argues that differences in digital capability and access directly affect performance outcomes. Yet, the non-significant direct influence of resource constraints contradicts this theoretical premise. Although skill and access limitations exist, SMEs in this study appear able to maintain marketing performance through easy-to-use platforms (e.g., Instagram and TikTok) and experiential learning. These results indicate that digital capability gaps do not necessarily translate into immediate performance disadvantages when supported by intuitive platforms and structured planning frameworks.

H. Comparison with Previous Studies

A comparison with prior research shows substantial alignment with the current findings. Ratnaningrum et al. (2023) concluded that structured digital marketing frameworks enhance campaign consistency, which corresponds with the significant impact of SOSTAC found in this study. Similarly, Toni et al. (2024) emphasized that digital strategies improve efficiency and competitive advantage, supporting the argument that SOSTAC's systematic nature contributes to more effective marketing execution.

The findings also resonate with Djakasaputra et al. (2021), who reported that digital marketing activities positively influence sales performance and customer engagement two components reflected in the marketing performance indicators used in this study. In addition, Nazulfa



and Santoso (2023) demonstrated that SOSTAC contributes substantially to startup performance improvement, consistent with the moderate explanatory power ($R^2 = 0.532$) observed in the present model.

However, the study differs from Alharthey (2023), who found that digital skills and resource gaps directly worsen performance outcomes. The divergence may stem from contextual differences; SMEs in Batam rely heavily on intuitive digital platforms that require minimal technical expertise, allowing them to maintain performance even in the presence of constraints. This contextual nuance highlights that the influence of digital capability gaps may vary depending on platform design, industry characteristics, and user behavior.

I. Theoretical and Empirical Implications

The study offers several contributions to theory and practice. Theoretically, the results strengthen the argument that structured marketing planning such as SOSTAC serves as an effective capability-building mechanism for SMEs. The findings also provide additional empirical support for the Resource-Based View by demonstrating that strategic resource organization, rather than the abundance of resources, is more influential in shaping marketing performance. Furthermore, the moderating role of resource constraints offers new insight into how limitations interact with planning frameworks, advancing scholarly understanding of digital marketing adoption among SMEs.

From an empirical standpoint, the results suggest that SMEs can maintain strong marketing performance even under resource limitations, as long as planning and execution are structured. This is particularly relevant for culinary SMEs that rely on visually rich, low-cost platforms such as Instagram and TikTok. The findings also encourage policymakers and SME development institutions to incorporate SOSTAC-based training programs to enhance digital marketing capability. Additionally, practitioners can adopt simplified versions of SOSTAC such as monthly KPI dashboards or streamlined action plans to maintain strategic focus without overwhelming operational workloads.

J. Summary of the Chapter

This chapter has showcased the empirical findings of the research conducted through SmartPLS analysis. The results can be summarized as follows:

The application of the SOSTAC framework in culinary SMEs in Batam is prominent, particularly in the Strategy and Action phases.

The application of SOSTAC notably enhances marketing effectiveness ($\beta = 0.581$, $p < 0.001$).

Resource limitations do not have a notable direct effect on marketing performance ($\beta = 0.104$, $p = 0.189$).

Resource limitations notably influence the connection between SOSTAC and marketing performance ($\beta = -0.166$, $p = 0.001$), diminishing the beneficial impact of SOSTAC in conditions of high constraints.

The model accounts for 53.2% of the variance in marketing performance, demonstrating a moderate degree of explanatory strength.

The study emphasizes that utilizing the SOSTAC framework for organized digital marketing planning is essential for improving SME marketing performance. Nonetheless, the success of this framework relies on SMEs' capacity to address and surpass resource constraints via innovation, collaboration, and the advancement of strategic digital capabilities.

K. Managerial Implications

The results of this study carry meaningful insights for practitioners, particularly SME owners and marketing managers in the culinary sector. While the SOSTAC framework has proven effective in improving marketing performance, its implementation requires adaptation to the realities of limited resources commonly faced by small businesses.

First, SME owners are encouraged to adopt simplified and flexible versions of the SOSTAC framework. Instead of developing complex marketing plans, entrepreneurs can begin with concise monthly planning templates or Key Performance Indicator (KPI) dashboards that align with the six SOSTAC stages Situation, Objectives, Strategy, Tactics, Action, and Control. This approach allows business owners to maintain consistency and direction without being overwhelmed by technicalities.

Second, the findings suggest that resource limitations should not discourage SMEs from engaging in structured marketing planning. Even with financial or manpower constraints, SMEs can still sustain marketing effectiveness by leveraging affordable and accessible digital tools, such as free social media analytics, design platforms (e.g., Canva), or AI-based caption generators. The essence lies in consistency and creativity rather than high-cost campaigns.

Third, the non-significant direct influence of resource constraints implies that financial or operational limitations do not automatically hinder marketing outcomes. What matters more is the ability to optimize available resources. Therefore, SME managers should prioritize skill development and internal capability building for instance, training staff in social media content creation, basic SEO, or campaign analytics rather than focusing solely on expanding budgets or acquiring new technologies.

Fourth, collaborative marketing initiatives can help overcome individual limitations. SMEs can strengthen performance by partnering with local influencers, delivery platforms, or nearby businesses to share audiences and marketing efforts. Such collaborations not only reduce costs but also foster community-based marketing ecosystems that can amplify visibility.

Finally, policymakers and business development institutions should consider using the SOSTAC model as a framework for digital marketing mentorship programs. By offering structured workshops or toolkits that mirror the SOSTAC process, government and private agencies



can empower SMEs to plan, execute, and evaluate their digital marketing activities more systematically.

In essence, these managerial implications emphasize that the success of digital marketing among SMEs does not rely solely on the availability of resources but rather on how effectively those resources are planned, managed, and optimized through structured frameworks like SOSTAC. When resource constraints are addressed strategically through creativity, collaboration, and consistent planning they cease to be barriers and instead become drivers of innovation and adaptability in the digital marketplace. SME owners should adopt simple planning templates from SOSTAC (e.g., monthly KPI dashboards) to improve consistency under limited resources. This study is limited by its focus on Batam SMEs; future research should include other sectors or qualitative validation.

5. Conclusion

This study set out to examine how the implementation of the SOSTAC digital marketing framework influences marketing performance among culinary SMEs in Batam, as well as how resource constraints affect and moderate this relationship. The analysis was conducted using Partial Least Squares–Structural Equation Modeling (PLS-SEM) on 140 valid responses collected from SME owners and marketing practitioners.

The findings provide several key conclusions. First, the SOSTAC framework was found to have a strong and significant positive effect on marketing performance ($\beta = 0.581$, $p < 0.001$). This confirms that SMEs adopting structured digital marketing processes beginning from clear situation analysis, strategy formulation, tactical planning, and control tend to achieve higher levels of engagement, customer retention, and sales performance.

Second, resource constraints did not show a significant direct effect on marketing performance ($\beta = 0.104$, $p = 0.189$). This suggests that while SMEs face limitations in financial and human resources, these constraints do not automatically reduce marketing outcomes. Many businesses can still perform effectively by optimizing available tools, creativity, and social media presence.

Third, resource constraints significantly moderated the relationship between SOSTAC implementation and marketing performance ($\beta = -0.166$, $p = 0.001$). This indicates that resource limitations weaken the effectiveness of structured marketing planning. In other words, when SMEs lack sufficient resources, the positive impact of SOSTAC on marketing performance becomes less pronounced.

Overall, the model explained 53.2% ($R^2 = 0.532$) of the variance in marketing performance, representing a moderate explanatory power. The findings underscore the importance of structured marketing planning while highlighting the need to manage limited resources strategically to sustain digital marketing success.

A. Managerial Implications

The results of this study offer valuable implications for SME managers, practitioners, and policymakers.

SME owners are encouraged to adopt simplified planning templates derived from the SOSTAC framework such as monthly KPI dashboards or brief action plans to maintain consistency in their marketing activities. Structured planning helps ensure that digital marketing efforts remain goal-oriented even when resources are limited.

Moreover, business owners should leverage affordable and accessible digital tools (e.g., Canva, ChatGPT, Meta Business Suite, or Google Analytics) to execute and monitor marketing campaigns efficiently. This study also emphasizes that developing human skills such as social media management, digital content creation, and campaign evaluation is often more valuable than increasing marketing budgets alone.

Collaboration and partnership are equally important. SMEs can collaborate with local influencers or other small businesses to share costs and expand market reach. Lastly, government agencies and business associations should provide continuous support through digital marketing training programs that incorporate frameworks like SOSTAC, ensuring that SMEs remain adaptive, competitive, and digitally literate.

B. Research Limitations

Although this study contributes to the understanding of digital marketing implementation in SMEs, several limitations should be acknowledged. First, the research was conducted exclusively among culinary SMEs in Batam, which may limit the generalizability of the findings to other sectors or regions. Second, the data were collected through self-reported questionnaires, which could introduce response bias. Third, the model focused on three main constructs SOSTAC Implementation, Resource Constraints, and Marketing Performance while other potentially relevant variables (such as innovation capability, digital literacy, or customer satisfaction) were not included.

Future research should expand the sample to different industries and geographic locations, incorporate longitudinal designs to observe performance over time, and integrate additional constructs that could enrich the understanding of digital marketing success factors in SMEs.

C. Recommendations for Future Research

Based on these limitations, several recommendations can be proposed:

- 1) Broaden the research context by including SMEs from various industries (e.g., fashion, retail, or services) to test whether the SOSTAC framework remains universally applicable.
- 2) Include mediating variables, such as innovation capability or customer engagement, to better understand the mechanisms linking SOSTAC implementation to performance outcomes.
- 3) Employ a mixed-method approach, combining surveys with in-depth interviews to capture richer insights into SME marketing practices.



4) Assess longitudinal performance changes by measuring how digital marketing planning impacts growth and brand loyalty over time.

By expanding and refining future research, scholars can provide a more comprehensive understanding of how structured marketing frameworks like SOSTAC can empower SMEs to compete effectively in digital markets.

D. Closing Remarks

In conclusion, this study reaffirms that strategic and structured digital marketing planning—as represented by the SOSTAC framework plays a vital role in improving SME marketing outcomes. However, success in digital marketing does not depend solely on planning, but also on how effectively SMEs manage and optimize their limited resources.

The insights from this research are expected to guide both practitioners and policymakers in developing targeted strategies and support systems for SMEs, enabling them to sustain growth and competitiveness in an increasingly digital business environment.

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