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THE IMPACT OF AUTOMATION-DRIVEN PERFORMANCE MAX CAMPAIGN, SMART BIDDING STRATEGIES, AND TENSCORE THIRD PARTY MARKETING AUTOMATION TOOL ON CONVERSION, ROAS, AND OTHER KPIs IN GOOGLE ADS PPC MANAGEMENT

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Dissertation

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NOVA Information Management School
Instituto Superior de Estatística e Gestão de Informação

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by
Okeke Moses

Master Thesis presented as a partial requirement for obtaining the Master's degree in Data-Driven Marketing, with a specialization in digital marketing and analytics.

Supervisor: Marlon Dalmoro

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STATEMENT OF INTEGRITY

I hereby declare having conducted this academic work with integrity. I confirm that I have not used plagiarism or any form of undue use of information or falsification of results along the process leading to its elaboration. I further declare that I have fully acknowledge the Rules of Conduct and Code of Honor from the NOVA Information Management School.

Okeke Moses
Lisbon, July 10th, 2023

DEDICATION

This thesis is dedicated to my beloved daughter - Treasure Chisom Okeke-Moses for her love and belief in me. This project will serve as a motivational piece that will propel her to attain a higher ground in any career ofher choice.

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ABSTRACT

Google ads PPC advertising is constantly evolving and becoming more dynamic by incorporating new tools to automatize marketing campaigns. Staying current with the latest trends can be challenging as all digital marketing channels are introducing new technological trends to help PPC advertisers meet their campaign goals. This study explores how a new automated campaign impacts key performance indicators, especially the ROAS and the number of conversions for e-commerce advertising on Google ads. The study found that the performance max campaign has a more positive impact on getting a greater number of conversions than the standard shopping campaign. Regarding the impact on ROAS, this study concludes that automated bidding strategy (target ROAS) is a key factor that influences the ROAS of a campaign and not the type of campaign involved. The study proposes further technological development for upgrading Google Ads standard shopping campaigns such that PPC managers can use smart bidding strategies on standard shopping campaigns during the campaign setup without waiting to get certain conversions before switching from manual to automated bidding strategies. The study also found that Tenscore, as a third-party MA, helps reduce the time involved in restructuring keywords and ad groups in search campaigns.

KEYWORDS

Google Ads, PPC, Marketing Automation, Performance Max campaign, ROAS, Conversions, Smart bidding strategy, Shopping campaign**,** Third-Party Marketing Automation.

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LIST OF ABBREVIATIONS AND ACRONYMS

MA	Marketing Automation
PPC	Pay Per Click
ROAS	Return on Ad Spend
AI	Artificial intelligence
ML	Machine Learning
CRM	Customer Relationship Management
NLP	Natural Language Program
SMES	Small and Medium Enterprises
GA4	Google analytic 4
CPC	Cost Per Click
ROI	Return on Investment
PMAX	Performance Max Campaign
SSC	Standard Shopping and Search Campaign
CTR	Click Through Rates
GML	Google Marketing Live
KPI	Key Performance Indicators
TCPA	Target Cost Per Acquisition
iROAS	Incremental ROAS
$ROAS^{MD}$	Return On Ad Spend from Manual Bidding
$ROAS^{STB}$	Return on Ad Spend Smart Bidding Strategy
$PMAX_{NC}$	Number of conversions from Pmaxx

1 INTRODUCTION

1.1 BACKGROUND

Digital marketing activities have been incorporating technologies to speed up processes that can handle repetitive and voluminous tasks with a view to scale up performance. However, digital marketing activities are massive for human functionality with increasingly large data processing requirements. This increase in data caused by evolving environmental changes and advancement in information technology led to improvement in digital marketing initiatives called marketingautomation (Silva et al., 2023). Marketers are turning to sophisticated marketing technologies to manage campaign planning and execution processes due to marketing channel complexity and customer fragmentation (Biegel, 2009). Global marketing trends suggest that digital advertisers are increasing investments in technologies that will help them optimize their campaigns effectively(Deligiannis et al., 2020). For that, Marketing Automation (MA hereafter is a powerful tool targeted to aid human input and speed up the digital marketing process to scaleup performance. MA is a process of automating personal marketing activities which involves the use of a single platform for tracking leads generations and detailed reporting to improve the effectiveness of marketing activities (Sweezey, 2014). MA utilizes multiple tools, resources, and interfaces, like machine learning, an Artificial Intelligence subset, to master these repetitive tasks without any need for pre-existing code (Verma et al., 2021). However, a challenge in applying tools like machine learning and Artificial intelligence for MA is integrating the tool with the marketing management task, like targeting consumers for a campaign, running advertising campaigns, and measuring their performance. To deal with this challenge, PPC automation has been adopted as a powerful tool to control ad campaigns through machine learning in digital environments like Google. PPC stands for pay-per-click and is a subset of digital marketing where advertisers pay publishers each time their ads are being clicked, and its fast-integrating new technological solutions that will enhance performance through automation (Desai, 2019). PPC automation can reduce human tasks, costs and improve marketing campaign performance once the online advertising runs on an automated platform and the company pays just for clicks.

Among the multiple PPC channels with in-house PPC automation tools, Google Ads is the one with

the greatest diffusion. Google Ads, formally Google AdWords, is an advertising program whose main ideais to display ads only to relevant audiences (Guerini et al., 2010). A recent study shows that Google Ads search engine PPC contributed to about 29% of global Ads spend in 2021 PPC digital advertising (Little, 2001). Google search engine has dominated search engine marketing with about 87% desktop market share and mobile share respectively (Statista, 2023). This enormous value placed Google Ads which is the PPC channel of Google as an outstanding marketing channel globally (Guerini et al., 2010). A report by competition and marketing authority showed that out of GBP14 billion spent on advertising in the UK in 2019, 50% of the revenue came from search ads, with Google taking 90% of the revenue to the tune of GBP7 billion (CMA Competition & Markets Authority, 2020). Google advertising network revenue jumped from 62 billion USD in the second quarter of 2021 to 69 billion in the same quarter of 2022 (Statista 2023). As one of the leading digital advertising channels, Google Ads is constantly improving its advertising algorithm to integrate the need touse in-Builth marketing automation for PPC management. In November of 2021, Google Ads launchedthe Performance Max campaign, which has MA features as a clear departure from the standard shopping campaigns. (Feedonomics, 2023). While the standard shopping campaign can be manually managed using negative keyword insertion and manual bidding strategy such as enhanced CPC and maximize clicks, the new machine learning-driven – campaign called “Performance Max campaign” is highly automated without any need to manually use keywords or negative keywords as Google AIuses its internal algorithm to define the needed search terms suitable to drive the marketing objectives. The Performance Max campaign has only smart bidding options, which can either be “maximize conversion” or “maximize conversion value,” otherwise known as “maximize ROAS.” Google Ads also developed optionally automatically created assets in the standard search campaign settings, which helps PPC managers automatically generate responsive ad copies and headlines using their web pages' contents.

Repetitive tasks in Google Ads PPC management include campaign creation, campaign tracking, updating audience lists, keyword research, negative keyword insertion, search term analysis, ad group setup, creating ad copies with high-quality headlines, and landing page optimization. These repetitive tasks and processes also involve tracking leads generations, responding to massive prospective customer inquiries, measuring transaction values for e-commerce marketing, and other tasks that cut

across the customer acquisition process in PPC management (Desai, 2019).

1.2 THIRD-PARTY MA OVERVIEW

Apart from Google Ads in-Builth MA, other third-party MA tools integrate with PPC advertising channels to automate repetitive tasks. MA has been defined as a software-supported method of automating marketing processes (Zumstein et al., 2021). According to Janus et al. (2020), third-party software is reusable software developed for a particular purposeand being supplied by another company for use by others. Hence, this study will recognize and define Third-party marketing automation as those MA tools that third-party vendors develop to assist other companies to automate their marketing processes or repetitive tasks with the aimof realizing their digital marketing objectives.

New tools are regularly introduced with the new consumer habits and the multiplication of data (Kenza, 2018). The selection and use of these tools will depend on many factors such as pricing, target campaign goal, availability of data, and the advertising channels. It is envisaged that MA will define how digital marketing will be shaped as most functions will be replaced by third-party automation tools which will become part of the digital business strategy for almost every second company in the future (Zumstein et al., 2021). A recent strategic expert opinion survey to understand the latest trends in PPC management indicated that changes to how campaigns are managed are greatly related to technological advances that enable greater campaign management automation (Search Engine Journals, 2023). The need to respond to large customers inquiries by online users has made chatbots very fashionable as they determine which inquiries are valid to be proceed and passed to humans' interactions.

The need to process large volumes of leads and determine the quality of leads that should be passed to the sales team for follow-up gives rise to lead scoring in MA tools. Using third-party automation for full lead-tracking capabilities and qualifying leads and passing them to sales when they are ready to begin a sales cycle is much easier to manage a lead funnel (Sweezey, 2014).

1.3 RESEARCH QUESTION

Past studies on MA have been carried out with the aim of investigating the impact of integrating

MA. on PPC management. However, most past studies rely on the materials supplied by marketing automation vendors, which, in most cases, influences the research outcome (Numni, 2013). the author further stated that most of the studies are being sponsored by private companies who might bring their conclusion to suit certain automation tools. Furthermore, some past research focused on secondary data with less empirical and primary data and less comparative research to analyze the impact of automated solutions on PPC management (Allazov, 2020). To add more, some studies on integrating MA into PPC management were done to serve as a promotional basis as they are being powered by automation companies (Act-on and Ascend, 2021). while others serve as lead magnets and form part of the agency lead Generation funnel with more effort towards promoting those companies than investigating the functionality of these tools (Maurice et al., n.d.; Junttila, 2022). Most studies on MA discuss only the micro aspect of MA while failing to include the holistic and systematic view regarding sales and MA, especially in the post-COVID era (Corsaro et al., 2021). It is also observed that there are little or no research that based their analysis on extracting data directly from existing Google Ads PPC campaign dashboard to form qualitative data and empirical analysis or through real-time split experiment over a longer period.

Hence, this research is intended to provide strategic analysis and academic insight that will seek to answer the following questions: **what is the impact of Google ads automation-driven performance max campaign on Conversion, ROAS, and other key performance indicators in B2C advertising**? **What is the impact of integrating tenscores third-party MA on carrying out repetitive tasks in campaign creation in Google ads**? These questions will be approached using data-driven decisions through a quantitative empirical study of performance metrics resulting from data harnessed from experimentation in the Google Ads interface integrated with a third-party MA tool.

1.4 KEY PERFORMANCE INDICATORS (KPI)

The evaluation of the success of any digital marketing tools on PPC campaigns is based on the key performance indicators of measurement referred to as metrics in the case of Google A ds channels. Therefore, the use of MA to automate repetitive tasks as mentioned in the previousparagraph of this study cannot be said to be effective if the performance metrics do not meet the campaign objective of

the digital advertising. Depending on the goal the advertiser wants to achieve with the integration of the MA such as brand awareness, sales, or leads generations are calculated by these metrics.

KPI henceforth referred are time series data because they consist of discrete time data metrics whose values change with time (Tappé & Müller, 2022). Hence, this study is aimed at investigating the effect of the impact of these automated tasks on key performance index of Google ads campaigns. According to Allazov (2020), key performance metrics are monitored to evaluate the efficiency of certain campaigns. The requirement for the use of MA is to see positive outcomes on the common performance metrics. This study will investigate the impact of both in-house and third-party MA on the following performance metrics: impressions, click-through rate (henceforth referred to as CTR), conversions, return on ad spend (henceforth referred as ROAS).

1.5 RESEARCH OBJECTIVES

From the beginning of the rise of the Internet or online marketing, PPC advertising has been an active segment in main marketing activities, merging four sides (Allazov, 2020). The four sides of PPC integrate the PPC channels (Google Ads, Bings Ads, Yahoo, Baidu, etc.), the PPC networks (display and search network), the PPC managers known as advertisers and the internet users who are the targets of PPC advertisings. The need for MA is to integrate these four media to achieve enhanced results for all four listed actors. For the advertisers, it is how to achieve their marketing objectivessuch as conversions, return on ad spend (ROAS hereafter) and other key performance metrics.

The users will be concerned about having good experiences while searching for the products and services of their interest. Hence the research objectives for this study are outlined as listed below:

a) To evaluate the impact of the implementation Google ads automated campaign with ML feature knownas “Performance Max Campaign”) on ROAS and Conversions plus other performance metrics in B2C PPC management;

b) To study the impact of integrating Tenscore third-party MA with Google Ads PPC on the ease of achieving repetitive tasks in Google Ads PPC management;

c) To evaluate the impact of Google ads’ smart bidding strategy – “maximize conversion value with target ROAS” on ROAS in B2C Campaign management;

This research will exploit these past research gaps. It will be based on the technological requirement to stay updated with the trending skills needed to drive emerging trends in digital marketing automation. It was embarked with the aim to have a real-time approach for the implementations and integration of third-party MA tools in Google Ads PPC management with a view of using the data derived from the study to make informed data-driven decisions for PPC managers who would like to investigate further on the need to integrate these automated features in their marketing strategies.

It will also provide academic insight for further research. Marketing strategists can benefit from academic marketing's thought leadership to learn how to transform these challenges into strategic opportunities for competitive advantage (Plangger et al., 2022). It is intended to provide primary insights drawn from the practical integration of Tenscore as a third-party MA. It will validate its task-relieving ability for creating Google ads PPC campaigns and the claim of improved quality score. Furthermore, the study will dive deep to establish the impact of implementing the Google ads automated campaign known as Performance Max campaign on ROAS in B2C against the manual standard shopping campaign in the Google Ads PPC platform.

2 LITERATURE REVIEW

A study on the prevailing trends in digital marketing established that the use of artificial intelligence and machine learning to drive digital marketing automation is the current prevailing trends in digital marketing (Kotane et al., 2019). Marketing automation tools have become an essential part of modern digital marketing strategies. These tools help businesses automate repetitive tasks, such as lead generation, email campaigns, social media management and PPC campaign management to improve their marketing efficiency and performance (Hammoud et al., 2019).

Third-party marketing automation tools integrate with various platforms, including Google Ads, to enhance their capabilities and target performance metrics. The integration of third-party marketing automation tools with Google Ads can significantly impact conversions and return on ad spend (ROAS) for businesses. This literature review aims to explore the impact of In-built MA features of the Google ads Performance Max campaign, Google Ads ROAS smart bidding strategy and the impact of integrating Tenscore third-party marketing automation tools with Google Ads with a view of studying their impact on conversions, ROAS and other performance metrics with attention to ease of doing repetitive tasks highlighting relevant research and findings.

This literature review will explore the current research on the impact of integrating third-party marketing automation tools with Google Ads on target performance metrics, with a focus on conversions and ROAS metrics in B2C. It will delve into technological innovation in AI driven automation processes in Google Ads PPC management.

The word 'Automation" as regards to digital space has been identified as a process to eliminate manual inputs. It works with data to execute repetitive tasks using a pre-defined set of rules (Anicca Webinars, 2023). Hence, Marketing automation refers to the use of technology to streamline and automate repetitive marketing tasks. It is aimed at helping businesses improve the efficiency and effectiveness of their marketing efforts and enables marketers to focus on higher-level strategies (Singh et al., 2018). It is the utilization of marketing technology to automate processes in digital marketing operations, such as the allocation of campaign budget, campaign creation, and generation of enhanced performance reports (Biegel, 2009).

Another definition of MA by past studies refers to it as the use of software and technology to automate repetitive marketing tasks such as email marketing, social media management, lead generation, and customer segmentation (Rosenberg & Czerniawski, 2016). This search made a strong reference to MAas a “software’ as many past studies have linked the phenomenon as such; this is further supported by another study which defines MA as a software platform that is built to provide individual and personalized content based on specific orders placed by users (Nilsson & Tsakmaki, 2019). MA has a large scope of capabilities, such as maintaining current and prospective customer databases, monitoring and analyzing customer behaviors on the website or on cross device interface and automation of PPC campaign management (Świeczak, 2019).

In this research, it is important to emphasize that MA is not only restricted to email marketing operation but should not be confused with CRM as both are not the same as many are made to believe (Hammoud et al., 2019). A study by Murphy (2018) on the readiness of SMEs for marketing automation found that 43% of respondents deployed MA on PPC advertising. The main goal of marketing automation is to increase the efficiency and effectiveness of marketing efforts, resulting in higher conversion rates, increased revenue, and improved customer engagement (Dwyer, Tanner, & Leichtweis, 2017). Marketing automation is also defined as software that automates basic marketing operations (Desai, 2019). It is a software solution that uses an internet facility in the form of software as a service (henceforth referred to as (SAAS) to automate marketing processes (Hamalainem, 2020).

The origin of the phrase ‘marketing automation’ can be traced to a paper presented by John DC Little at the 2001 Choice Symposium (Heimbach et al., 2015). According to Little (2001), MA refers to the use of internet-based automated marketing decision support. Little (2001) formulated the five frameworks of marketing automation to include: 1. data input collected by previous interaction of users (Semerádová & Weinlich, 2020), 2. real-time decision rules, 3. update of decision rules, 4. feedback to site management and, 5—strategy choice. Further arguments to make these frameworks possible suggested that advertisers must harness their customers' digital footprints and factor them into their conversion funnels (Heimbach et al., 2015; Little, 2001). Today, These digital footprints are referred to as customer’s data, and the use of it gravitates toward data-driven decision marketing. This makes the context of MA to center on the automation of repetitive marketing tasks and the automation

of data-driven decisions and strategies. According to Semerádová & Weinlich (2020), marketing automation has been gaining attention from marketing strategists and academics' circle, and its projected that the MA industry will see a rise in investment of up to $25billion by the end of 2023 (Murphy, 2018).

Marketing automation has several benefits for businesses. First, it allows companies to save time and resources by automating repetitive tasks, which frees up marketers to focus on more strategic activities. Second, it helps companies improve their lead-generation efforts by tracking customers' behaviors providing targeted messaging and personalized content to potential customers (Corsaro et al., 2021).

The two aspects of automation of repetitive task and tracking of consumer behaviors leads to efficient marketing strategies that results in growing sales and profitability (Corsaro et al., 2021). Third, it allows companies to nurture leads over time through automated workflows, resulting in higher conversion rates and increased customer loyalty (Nilsson & Tsakmaki, 2019).

The leads scoring function aspect of the MA involves automatic assigning of points grades to website visitors depending on the various pages visited such as any valuable lead funnels (Semerádová & Weinlich, 2020). Marketing automation according to a study has been proven to affectbuyers' decision-making process through brand awareness (Nilsson & Tsakmaki, 2019). Finally, marketing automation provides valuable insights into customer behavior and preferences, enabling companies to make data-driven decisions and improve their overall marketing strategy (Nair & Gupta, 2020).

Marketing automation and its implementation have limitations, especially among middle- and small-scale businesses. These challenges range from customer data collection and the expertise needed to implement and integrate the MA ((Semerádová & Weinlich, 2020).

While marketing automation has many benefits, there are also several challenges that companies may face when implementing it. One of the biggest challenges is ensuring the technology is properly integrated with existing systems and processes, which can require significant time and resources (Chen, Chen, & Hsiao, 2019). In addition, companies must ensure that their data is accurateand up to date to target effectively and segment customers. Another challenge is avoiding over-automation, which can lead to impersonal or irrelevant messaging and result in lower engagement rates (Rosenberg &

Czerniawski, 2016).

Companies should follow several best practices to ensure that marketing automation efforts are successful. First, they should start by clearly defining their marketing goals and objectives, and then select the appropriate automation tools and platforms to achieve them (Nilsson & Tsakmaki, 2019). Second, companies should focus on providing personalized and relevant content to customers based on their preferences and behavior, rather than simply sending generic messaging (Kim, Lee, & Yoon, 2018). Third, companies should regularly analyze their data and metrics to optimize their marketing efforts and make data-driven decisions (Nair & Gupta, 2020).

Marketing automation has become an integral part of digital marketing and it's widely used to streamline and optimize various marketing activities. It has been seen as a marketing ideology to deliver personalized marketing and increase conversion rates (Rae, 2016). One of the areas where MA has made a significant impact is PPC management. According Anicca Webinar (2023).

MA is used in PPC to streamline processes such as account setup and management but requires some level of human interventions to set up. PPC (pay-per-click) digital advertising has become increasingly popular in recent years as a way for businesses to reach and target specific audiences online. PPC advertising allows businesses to create and display ads on different platforms, such as search engines, social media, and websites, and only pay publishers only when a user clicks on them (Desai, 2019).

Studies have shown that PPC advertising can effectively increase website traffic, generate leads, and boost sales (Murphy, 2018; Smith, 2019). One of the primary justifications of using PPC in digital marketing is its ability to deliver highly targeted traffic to a website. This is achieved using keywords and ad placement targeting, which allow advertisers to target specific demographics and interests. According to a study by Google, PPC visitors are 50% more likely to make apurchase than organic visitors. PPC metrics are easier to measure than SEO, which makes it easier to track ROI and budget allocation (Valve Meter, 2023).

However, businesses need to have a well-planned and executed strategy to see the desired results (Plangger et al., 2022). A study by Szymanski & Lipinski (2018) examined the factors that influence the effectiveness of PPC ads. The researchers found that ad relevance, ad position, andad format were the

most significant factors in determining the success of a PPC campaign. Additionally, the study found that targeted keywords and ad copy also played important roles in the success of a campaign. Pay-per-click (PPC) advertising has become a popular marketing channel for businesses of all sizes due to its targeted and measurable nature. In a study by Rutz et al. (2009), the authors examined the impact of ad copy and landing page design on PPC campaign performance.

The researchers found that a combination of compelling ad copy and an effective landing page could significantly improve the conversion rate of a PPC campaign. The study also suggested that testing different ad copy and landing page designs can help advertisers identify the most effective combinations. Another factor that affects PPC advertising is the digital audience targeting which can be harnessed with digital analytics (Kabiraj & Joghee, 2023). The authors examined the impact of audience targeting on PPC campaign performance. The researchers found that targeting specific audiences can improve campaign performance by increasing relevance and engagement.

The study also suggested that using data from previous campaigns to identify high-performing audience segments can help advertisers achieve greater success in future campaigns. Effective PPC management is crucial for achieving success in digital advertising. The studies reviewed in this literature review highlight the importance of factors such as ad relevance, ad copy, landing page design, machine learning, and audience targeting in improving campaign performance. Advertisers should continuously monitor and optimize their PPC campaigns to achieve the best results. All these factors when integrated can lead to an enhanced PPC performance in relation to target KPIs.

However, managing a successful PPC campaign can be time-consuming and complex. To help marketers optimize their PPC campaigns and achieve their desired return on ad spend (ROAS), various tools and strategies have been developed, including marketing automation and various bidding strategies such as ROAS bidding. A study by Miklosik et al. (2019) estimated that 2.5 quintillion of data are being generated on a daily basis over the internet and the research explored the use of machine learning techniques in PPC management as an automated prediction tool in digital advertising. The authors found that machine learning algorithms can be used to optimize bidding strategies and ad targeting, resulting in improved campaign performance. The study also highlighted the importance of incorporating historical campaign data into machine learning models for optimal performance, where

both inbuilt and third-party MA are found to be very eventful. Thus, machine learning is a key function that empowers PPC campaign optimization through automation (Hall, 2022). Thus, in the research conclusion made by Miklosik et al. (2019), machine learning can be used to predict digital advertising by extracting large amounts of data for data-driven decisions in PPC marketing.

The machine learning process used in marketing automation can either be passive or activelearning processes where passive automated learning involves the use of past campaign data or clickstreams. In contrast, active learning involves directly asking questions to enrich the marketing automation data (Järvinen & Taiminen, 2016). To complement these internal marketing automation system activities, third-party marketing automation is made available by third-party vendors.

Third-party marketing automation tools are designed to help advertisers optimize and automate their PPC campaigns. According to a study by Wilson (2019), third-party marketing automation has a significant impact on PPC management as it helps advertisers streamline and optimize their campaigns, leading to increased ROAS and improved campaign performance.

Advanced third-party MA utilizes cloud marketing automation software hosted by third-party companies with the advantages of saving advertising the cost of hosting their own server, data integration, and system maintenance as the advertisers will only integrate these already made systems into their digital marketing channels (Smith, 2016). The study also found that third-party marketing automation tools provide advertisers with advanced features, such as bid optimization andaudience targeting, which help increase their ads' relevance.

Many studies have investigated the impact of integrating third-party automation tools with PPC management and have made some notable research conclusions. For instance, Hall (2022) provides insight into automation tools in automated PPC, including third-party marketing automation tools. The author concludes that third-party automation tools can improve PPC performance by reducing manual tasks and improving ad targeting. Other researchers investigatedthe impact of marketing automation on PPC advertising and concluded that third-party automation tools can improve PPC performance by reducing costs and improving targeting (Smith, 2016). This author also examines the impact of PPC advertising on business growth and concludes that third-party marketing automation tools can improve PPC performance by reducing costs, improving targeting, and increasing conversion rates. Hall (2022)

examines the impact of marketing automation on PPC advertising and concludes that automation tools can improve PPC performance by reducing manual tasks, improving ad targeting, and increasing conversion rates by optimizing campaigns using historicalconversion data.

A further study supported the findings that automation tools can improve PPC performance as a viable marketing channel with the ability to enhance organizational status and boost their equity values through strengthening the customer relationship by using reciprocity in communications, which is a fundamental and effective process of customer acquisition and retention mechanism (Świeczak, 2019). It is evident that in Google ads PPC channels, customer acquisition is boosted using retargeting campaigns while leveraging the customer audience segmentations to deliver loyalty program through automated targeting.

One of the most common types of PPC is Google Ads, which allows advertisers to bid for results anywhere on the Google search engine (Desai, 2019). Google Ads PPC is one of the most popular advertising platforms, with 92.96% of all search engine advertising market share worldwide (Statista, 2023). Google Ads generates an average of $8 for every $1 spent on advertising (Google, 2021). Furthermore, Google Ads is responsible for 28% of all website visits from paid search advertising (Smartphone User Behavior Report, 2021). Many studies have shown the effectiveness of Google Ads PPC as a leading PPC channel. For example, a study by WordStream found that Google Ads PPC has an average click-through rate (CTR) of 3.17% for search ads and 0.46% for display Ads, with about 82% of Ad spend allocated to Google ads, according to their report pulled from 18,000 advertisers on Localiq (McCormick, 2023).

Additionally, a study found that 64.6% of people click on Google Ads when they are looking to buy items online, with paid searches beating out organics in the ratio of 2;1 for search keywords with commercial intents in the United States (Kim, 2022). Research by Allazov (2020) stated that customers from Google search engine advertising have more transactions than others from related channels. Many references in academic and industry publications also support the effectiveness of Google Ads PPC as a leading PPC channel. For example, a study by Cho and Lee (2018) found that Google Ads PPC is one of the most effective forms of online advertising. Additionally, a study by Torgerson (2022) found that Google Ads PPC is a cost-effective advertising method for small businesses. One of the primary

benefits of Google Ads PPC is its effectiveness in driving website traffic and conversions. Another study by WordStream found that businesses using Google Ads PPC had a conversion rate of 3.75%, significantly higher than the industry average of 2.35% (WordStream 2018). According to Hanapin Marketing, Google Ads PPC generated an average of $2 in revenue for every $1 spent on advertising (Hanapin Marketing, 2018). These findings suggest that Google Ads PPC is a highly effective form of digital advertising, delivering a strong return on investment (ROI) for businesses.

Based on these distinguishing factors of Google Ads PPC on information extracted from the past research above, this literature review explores the effectiveness of Google Ads PPC as a leading PPC channel with the aim of investigating the impact of its inherent or in-house automation features in "Google ads performance max campaign," its smart bidding strategy and integration with Tenscore as a third- party automation tool on Conversions, ROAS and other key performance indicators (hereafter referred as KPI). Several studies have highlighted the benefits of marketing automation in Google Ads PPC management for B2C businesses. According to a study by Gehrt et al. (2018), marketing automation can help businesses save time, increase efficiency, and improve customer engagement. The study found that businesses that used marketing automation in their Google Ads PPC campaigns could generate higher click-through rates (CTR), reduce bounce rates, and increase conversion rates.

Another study by Digital Marketing Institute (2022) found that marketing automation can help businesses personalize their messages to customers, leading to higher engagement andconversion rates. The study found that 83% of marketers who used marketing automation were able to increase their conversion rates through leads nurturing. This study critically reviews past literature regarding the effect of MA on some performance indicators on Google Ads PPC management.

2.1 IMPRESSION METRIC

An impression is said to be made when an ad request by a user is completed and displayed (Shandilya et al., 2023). The first KPI must exist before all other KPIs can be measured in digital advertising because without impressions, there won't be a click or conversions. An impression is counted when an ad is served as part of search engine results in search engine marketing (henceforth referredto as SEM) and this is based on the number of times the keywords are searched which is

dependent on the position of the ranking in the auction index (Brooks, 2004). The impression metrics differ from reach because reach measures the number of people who have seen the ads while the impression measures the number of times the ads were served (Indrė Jankutė-Carmaciu, 2020).

The Ad impressions are complex to be triggered and difficult to determine when Ads are to be served because of the complexity of the competition in the auction, this is made more difficult because the number of slots to be filled in SERP is limited (Williamson et al., 2007). Hence, MA is required to boost and scale the chances of the ads' visibility as it is multi-tasking for humans to boost digital ads impressions manually (Chen & He, 2006). This study proposes the possibility of effectively increasing impressions to target audiences that will lead to higher conversions and ROAS through MA as against the standard or manual manipulations to gain visibility. When an impression is made in PPC advertising, it will lead to an interaction called clicks if the ads is found to be persuasive by the user.

2.2 THE CLICKS AND CLICK-THROUGH RATE

The click is a metric that counts the number of interactions between the user and ads when the ads make appealing impressions to the user while the click-through rate is the expectation that the user will click on the displayed ads (Williamson et al., 2007). The click-through rate is expressed as the number of impressions divided by the number of clicks multiplied by 100 as a percentage constant.The CTR plays a very significant role in PPC advertising as it is one of the fundamental factors in determining the quality factor of ads in the auction. It is the percentage of total ad views that resulted in clicks, and the higher the CTR, the better the ranking of your ads and the lower the cost of clicks (CPC) in Google Ads (Laubenstein, 2022). Getting the best CTR within advertisers' PPC platform depends on what can be classified as the best CTR for a given industry, as each niche has a relative benchmark for a particular industry and the type of paid network, which is either display or search (Laubenstein, 2022).

The clicks and the click-through rate (hereafter referred to as CTR) are greatly affected by the position of the ads in the SERP. The higher the ads are on the results page, the higher the likelihood of the CTR to be higher (Williamson et al., 2007). The effect of the position of the ads on SERP implies that getting a higher CTR and clicks cannot be efficiently managed manually as these ads are placed randomly on the results page using a search engine ad-rank algorithm. A study on ad position inrelation

to keywords in search engine PPC found that the position of ads depends on the bid values and ad relevancy factors (Ayanso & Karimi, 2015). Based on this, adjusting bids manually to boost the ad position for increased CTR might be a heavier task that will require automation.

Further studies have also proved that branding can play a significant role in boosting the CTR of an ad when placed on SERP; this is in contrast to occupying the first position in the SERP, which implies that potential users are likely to click on ads placed by superior brands even down they appear below a less known brands in the search engine results page (Ayanso & Karimi, 2015). According to Think With Google (2020), ads with automation feature has 30% CTR than standard and impersonalized ads. Further studies have indicated that knowing the time of the day when it is more convenient for users to engage with campaign ads can effectively increase the CTR, and adopting an automated marketing system that will rightly predict these schedules can be made possible with the integration of MA (Deligiannis et al., 2020). To have a successful CTR, the advertiser must be above the industry benchmark, which is manually difficult to predict and this is where MA plays a big role as having a higher CTR will not only boost the quality score but has been found to correlate with higherconversion rates (Laubenstein, 2022).

2.3 CONVERSIONS And CONVERSION RATES

A conversion is a factor that is dependent on the advertiser's campaign objectives, and it could be a lead sent from form received or a phone from a paid ad, a click on ad or a sale purchase made through the ads (Saura et al., 2017). Conversion has also been defined as an action carried out by a user that satisfies the goal of the online website (Digital Marketing Institute, 2022). Tracking conversions isa complex process as many touch points cannot be handled manually. AniccaWebinar (2023) states that smart bidding strategy, which is an automated-driven feature in Google ads, helps ensure proper conversion tracking.

When marketing automation tools are integrated with Google Ads, the impact on conversions can be even more significant. A study by the Digital Marketing Institute (Digital Marketing Institute, 2022) found that companies that use marketing automation in conjunction with Google Ads see a 32% increase in conversions. Additionally, a study by the Content Marketing Institute (2019) found that companies that use marketing automation in conjunction with Google Ads see a 50% increase in

conversion rates, the percentage of potential customers that complete a desired action. Similarly, a study by Gao et al. (2018) found that the integration of marketing automation tools with Google Ads improved conversions for businesses in the e-commerce industry. The study found that businesses that used marketing automation tools had an average conversion rate of 5.2% compared to 3.2% for those that did not. Therefore, this project proposes a hypothesis that the performance max campaign, a Google ads AI's driven automated campaign has more positive impact of a number of conversions than standard shopping/search campaigns in B2C.

H1: Performance max campaign has more positive impact on conversions than standard shopping/search campaign in B2C E-commerce platform

2.4 ROAS

ROAS is a digital marketing metrics that measures revenue earned for each amount you spend on advertising (Treasure Data, 2023). It shows the advertisers how much money they are making from the amount they are spending on campaign (Lincoln, 2022). Past studies have also investigated the impact of integrating MA in Google Ads PPC on ROAS. ROAS is an acronym for Return on ad spend as a metric that measures the return generated from an advertising campaign in relation to the amount spent on that campaign. It is calculated by dividing the revenue generated by the advertising cost (Seth, 2023). When marketing automation tools are integrated with Google Ads, the impact on ROAS can be even more significant. A study by the Econsultancy (2018) found that companies that use marketing automation in conjunction with Google Ads see a 25% increase in ROAS. Additionally, a study by the HubSpot (2019) found that companies that use marketing automation in conjunction with Google Ads see a 30% increase in ROAS.

Several studies have also explored the impact of integrating third-party marketing automation tools with Google Ads on ROAS. A study by Wang et al. (2020) found that the integration of marketing automation tools with Google Ads significantly improved ROAS for businesses in the healthcare industry. The study found that businesses that used marketing automation tools had an average ROAS

of 5.8% compared to 3.6% for those that did not use them. Similarly, a study by Chenet al. (2019) found that the integration of marketing automation tools with Google Ads improved ROAS for businesses in the retail industry. The study found that businesses that used marketing automation tools had an average ROAS of 4.2% compared to 3.5% for those that did not use them. The study also found that businesses that used marketing automation tools had a higher average customer retention rate, indicating that these tools helped businesses retain customers longer. A study by Li et al. (2017) found that the integration of marketing automation tools with Google Ads improved ROAS for businesses in the travel and hospitality industry. The study found that businesses that used marketing automation tools had an average ROAS of 6.2% compared to 4.8% for those that did not use them. The study also found that businesses that used marketing automation tools had a higher average customer lifetime value, indicating that these tools helped businesses retain customers longer.

Marketing automation tools can also have a more significant impact on ROAS when properly integrated with Google Ads PPC platform, according to a study by the MarketingSherpa (2016), companies that use marketing automation see a 12% increase in ROAS. Additionally, a study by Forrester Research (2017) found that companies that use marketing automation see a 20% increase in ROAS. According to HubSpot, companies that use marketing automation in conjunction with Google Ads see a 30% increase in ROAS HubSpot (2019). Based on the inferences from past studies, this research proposes a hypothesis that performance max campaign - a Google ads AI's driven automated campaign has more positive impact on ROAS than standard shopping/search campaigns inB2C.

The H2 Performance max campaign has a more significant impact on ROAS than the standardshopping/search campaign.

2.5 Google Ads Automated Bidding (Smart bidding strategies)

One of the complex tasks in PPC advertising is setting the bids that will determine how advertisers'

campaign will compete with other advertisers in the auction index. According to Chen & He (2006) only few advertisers have their products listed on SERP due to the availability of many advertisers bidding for a place. This is because there are many competitors bidding for a space in the Google search result page and advertisers blindly place bids manually without knowing the exact amount that will get them to the first page results where their ads will be seen by users, theseauction uncertainty leads to the call for development of intelligent bidding strategies to optimize the performance metrics (Shandilya et al., 2023).

To deliver the desired impact on the key performance index and help advertisers decide bids automatically, Google ads developed several in-house automation features that limit manual manipulation. One of those strategies is the smart bidding strategy. Smart bidding is a bidding strategy used in Google Ads that uses a machine learning algorithm to adjust bids in real-time (Google, 2023). Smart bidding adds extra signal that human cannot be able to factor into the auction for every search (Anicca Webinars, 2023). Generally, automated bidding relies on machine learning to optimize bids for the advertisers (Edwards, 2023). Smart bidding automates functions by taking the heavy lifting of guesswork out of bids in the auctions which aim to maximize the return on investment of PPC advertising (Google Ads Help, 2023). It automatically sets bids to capture interactions most likely to result in a conversion.

Smart bidding considers several factors, such as user behavior, time of the day, device type and location to adjust bids dynamically (He et al. 2019). Smart bidding has the characteristics of portfolio bid management such as setting max bid limits for target cost per acquisition (henceforth referredto as TCPA) and target ROAS while also learning from multiple campaigns to align with the campaign goals (Anicca Webinars, 2023). Further leverages from Google Ads smart bidding strategies indicate that it helps build accurate tracking of metrics by ensuring that PPC conversion tracking is set up correctly to measure the right conversion touching points. Smart bidding's AI help deliver a higher return on ads spends if the following components are enabled viz vis google tag manager, enhanced conversions, on-device measurement, value-centric measurement, and ads data-hub for marketers (Google Marketing Live, 2023). It is instructive to mention in this study that automated bidding differsslightly from smart bidding strategies, while the automated bidding system uses machine learning to set and optimize bids,

the smart bidding strategies are sub-set of the automated bidding strategy that focuses on conversions or conversion values bids optimizations on Google ads channels (Edwards, 2023). Hence, this study proposes the effect of Google Ads smart bidding strategies and their existing types. Various Google Ads smart bidding strategies exist, and each should be applied with specific attention to the target of the advertised businesses.

According to Shandilya et al. (2023), automation and data analytics should be used only when the prevailing strategies have been established. Target CPA (Cost- Per-Acquisition) - Target CPA is a Smart Bidding strategy that sets bids to achieve a specific CPA goal. Target CPA uses historical data to predict which clicks are more likelyto result in a conversion and adjusts bids accordingly ((Tappé & Müller, 2022). Target ROAS (Return onAd Spend) - Target ROAS is a Smart Bidding strategy that sets bids to achieve a specific ROAS goal. Target ROAS uses historical data to predict which clicks are more likely to result in a conversion and adjusts bids accordingly (Li et al., 2017). based on the likelihood of a conversion. Past studies have specifically found the Maximize ROAS bidding strategy to be suitable for enhancing the target KPI for a B2C PPC management.

2.6 MAXIMIZE ROAS BIDDING STRATEGY (Target ROAS Smart Bidding Strategy)

A study by Xie et al. (2020) investigated the impact of maximizing ROAS on the performance of B2C PPC advertising in the context of different Ad formats (text, image, and video). The study found that maximizing ROAS led to higher ROAS and conversion rates across all ad formats in B2C advertising.

Several other academic studies have also investigated the impact of maximizing ROAS bidding strategy on the performance of B2C advertising; for instance, in a study conducted by Balabanov et al. (2020), the authors compared the performance of maximizing ROAS with other bidding strategies such as manual bidding and maximize clicks and concludes that maximize ROAS led to significantly better performance in terms of conversion rate, revenue and ROAS. Google ads maximize ROAS bidding strategy is found to also lead to higher ROAS and conversion compared to another non-automated bidding (D' Angelo et al., 2020).

A study by Google found that advertisers using the maximize ROAS bidding strategy saw an average increase in ROI of 35% compared to manual bidding (Google, 2019). Maximizing ROAS bidding strategy

has been proven to have resulted in a 15% increase in ROI compared to manual bidding (Baldwin et al., 2020). Another study found that using Maximize ROAS bidding strategy resulted in a 12 % increase in ROAS compared to manual bidding (Baldwin et al., 2020). It is important to note. This research proposes a hypothesis that that performance max campaign, a Google ads AI's driven automated campaign has more positive impact of number of conversions than standard shopping/search campaigns in B2C.

H3: Google Ads' smart bidding -maximize conversion value with target ROAS strategy has more significant positive impact on ROAS than manual bidding strategy.

2.7 CHALLENGES With MA

Despite the benefits of marketing automation in Google Ads PPC management, implementing it can be challenging for B2C businesses. One of the main challenges is the lack of expertise and resources. According to a study by Aspatwar et al. (2020), many B2C businesses do not have the necessary expertise or resources to implement marketing automation in their Google Ads PPC campaigns. The study found that businesses that lacked the necessary resources and expertise were more likely to experience challenges such as poor data quality, low engagement rates, and reduced ROI. Another challenge of implementing marketing automation is the need for ongoing optimization. According to a study by Kim et al. (2021), businesses that used marketing automation in their Google Ads PPC campaigns had to continuously optimize their campaigns to ensure that they were effective. The study found that businesses that did not optimize their campaigns were more likely to experience reduced engagement rates and lower conversion rates.

Best Practices for B2C Businesses: To overcome the challenges of implementing marketing automation in Google Ads PPC management, B2C businesses can follow best practices. According to a study by Srinivasan et al. (2019), some of the best practices for B2C businesses include: a) defining clear objectives and goals for the Google Ads PPC campaign; b) segmenting the target audience based on

demographics, behavior, and interests; c) developing personalized messages that resonate with the target audience.

Using a variety of ad formats such as text ads, display ads, and video ads and implementing conversion tracking to measure the effectiveness of the campaign and continuously optimizing the campaign based on the performance data. As digital advertising continues to evolve, Google Ads PPC will likely see some changes. One potential development is the use of artificial intelligence (AI) and machine language (ML) to optimize ad targeting and bidding strategies. A study by Kenshoo found that using AI and ML in Google PPC campaigns resulted in a 30% increase in conversion and a 33% decrease in cost per acquisition (CPA) (Kenshoo, 2019). The Performance Max campaign is one of the Google Ads campaigns with full in-house marketing automation features powered by ML algorithm.

2.8 GOOGLE PERFORMANCE MAX CAMPAIGN

Google Ads Performance Max campaign is a new global-based campaign that allows advertisers to place ads automatically on all Google ads inventory by steering the campaign inputs through marketing automation. It uses smart bidding, attribution technology, machine learning, and auto-generated assets to enhance campaign audience signals (Google, n.d.). Performance Max campaign shows ads on all Google network ranging from display, search, YouTube, shopping, and discovery. The main difference between other types of Google ads campaigns and performance is based on the fact that performance ads will automate the information been provided by the advertiser (Bishop, 2021). Performance Max campaign is designed to help businesses achieve their desired ROAS by using advanced machine learning algorithm to automatically adjust bids and budget in real-time based on the performance of each ads (Flores, n.d.).

A recent survey by search engine land revealed that 67% of advertisers who participated in the survey are currently using performance max campaign. 62% of the respondent demonstrated their frustration with the keywords and search terms reporting insight as there is no keyword reporting as searches are based on automated targeting (Adthena, 2023). The performance max campaign has only two bidding strategies to select from, including maximizing conversion values and conversions (Sanders, 2022). Therefore, the advertiser has the option of using target cost per conversion (TCPA) to

set a required amount he wants to pay for a given conversion or target cost of ROAS to set bid for the maximize conversion values for a given conversion values. According to Google (Google, n.d.), the benefits of a performance campaign are unlocking new customers across the channels, driving better results across advertisers' goals, simplifying campaign management, and getting more transparency insights. Kim (2021) provides an overview of the features of Google Ads performance and how they can benefit marketers. The author highlights the platform's machine-learning capabilities that optimize ad placement, bidding, and creative elements to drive better performance. Another study that explored how Google Ads Performance Max canhelp marketers improve their return on investment (ROI) established that Performance Max can automate Ad creation and targeting, reducing the time and efforts required for PPC management (Amanda, 2022).

Performance campaign has great is projected to have great impact on PPC management relying on how the Performance Max campaign automation features can reduce the need for manual optimization and allowing marketers to focus on strategy and creative. The Performance Max Campaign utilizes the power of automation to identify the best optimization strategy in B2C (Amanda, 2022). It is of note that performance max campaign does not imply 100% automated assets in terms of campaign setupas there are level of control to be effected by the PPC manager such as budget allocation, ad scheduling, location targeting, and asset set up (Bishop, 2021). Performance Max Campaign can also reduce the learning curve by automating campaign setup and optimization, thereby reducing the learning curve and the time required for PPC management because Google ads will automate the assets the PPC manager provides (Bishop, 2021).

Marketing automation can either be used as an in-house tool or a third-party tool in PPC management. According to a report by Marketst and Markets, the global marketing automation software is expected to grow from $3.3 billion in 2019 to $6.4 billion by 2024, with a projection of $9.5 billion by 2027, this growth is being driven by increasing demand for marketing automation tools, particularly the third-party marketing automation tools (Market And Markets, n.d.).

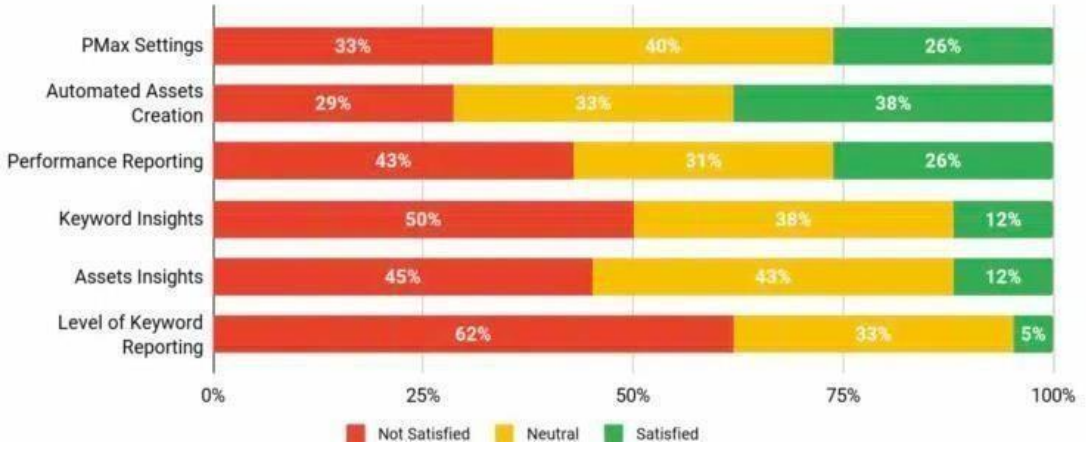

Figure 2.1 Pmax campaign user survey report adapted from Search engine land.

2.9 THIRD-PARTY MA

Marketing channels such as Google Ads, Meta for Business and others have their own internal or inhouse-marketing automation system, while others are being configured using third-party companies' tools. Third-party MA tools help to complement in-house automation tools. Third-party marketing automation refers to the use of automation tools developed by third-party companies as opposed to being developed in-house by the business itself. These tools are designed to help businesses improve the efficiency and effectiveness of their marketing efforts. They can include features such as email automation, lead nurturing, and PPC campaign management (Patel, 2022).

According to Meta (2023), third-party automation services are those offered by external vendors that allow independent software integration of their software as a service within a workplace, whereby this software can then be installed by any customer to deliver valueautomation and provide software and tools to business to automate their marketing operations. Third-party MA services have been shown to provide numerous benefits to businesses including increased efficiency, cost savings and improved customer engagement. According to study byMarketo, businesses that use third-party MA software can see 14.5% increase in sales productivity and a 12.2% reduction in marketing overhead costs (Marketo, 2017). One of the main benefits ofusing third-party marketing automation tools for PPC management is improved efficiency. Several studies have found that these tools can help businesses save time and reduce the resources requiredto manage PPC campaigns. For example, a study by Kenshoo found that businesses that

used their marketing automation tool could save up to 30% of their time on PPC management tasks (Kenshoo, 2020). Another study by WordStream found that businesses that used their marketingautomation tool were able to save up to 20 hours per week on PPC management tasks (WordStream, 2020).

Another study by Aberdeen Group found that businesses using marketing automation software experienced a 451% increase in qualified leads and a 53% higher conversion rate than those who did not use automation tools (Aberdeen Group, 2014). Third-party marketing automation tools can also help businesses improve their PPC campaigns' return on investment (ROI). Several studies have found that businesses that used these tools achieved higher conversion rates, lower cost-per-click (CPC), and higher click-through rates (CTR). For example, a study by AdEspresso found that businesses that used their marketing automation tool were able to achieve a 62% lower CPC and a 42% higher CTR than businesses that did not use their tool (AdEspresso, 2020). Another study by Kenshoo found that businesses that used their marketing automation tool were able to achieve a 9% higher conversion rate and a 30% lower CPA than businesses that did not use their tool (Kenshoo, 2020).

Third-party marketing automation can have a significant impact on businesses, especially in terms of marketing efficiency, customer engagement, and revenue growth. According to a study by Salesforce, businesses that use marketing automation software can see a 34% increase in lead generation, a 42% increase in qualified leads, and a 25% increase in revenue growth (Salesforce, 2017). While third-party marketing automation can provide many benefits, there are also some disadvantages. One of the main challenges with using third-party automation tools is that they may not be fully integrated within a business's existing systems, which can lead to data inconsistencies and errors. Additionally, third-party automation tools may be costly, especially for small businesses, and may require a significant investment in training and support to be used effectively). However, it is essential to note that the effectiveness of third-party automation tools depends on the quality of the software, the business's industry, and the business's marketing goals. Third-party marketing automation services offer many benefits to businesses, including increased efficiency, cost savings, and improved customer engagement.

However, there are also some challenges and considerations to consider when using third-party automation tools. Businesses should carefully evaluate these tools' effectiveness and integration with existing systems before investing in marketing automation software. One of the most significant challenges of third-party marketing automation in PPC management is the lack of campaign control. As Balakrishnan and Vrooman (2016) identified, when outsourcing PPC management to third-party providers, there is a risk of losing control over the campaign'sbudget, messaging, and overall strategy. Additionally, third-party automation tools may not optimize campaigns as efficiently as in-house teams. These challenges can lead to suboptimal results and reduce the return on investment. Another challenge of third-party marketing automation in PPC management is the risk of increased costs.

According to Steward (2019), third-party tools can be expensive and may require additional staffto manage the campaigns effectively. Furthermore, third-party tools may not always integrate well with existing marketing systems, leading to additional expenses. The lack of transparency and visibility is also a challenge of third-party marketing automation in PPC management. As Zeitz (2021) identified, third-party tools may not provide detailed performance reports, making it challenging to understand the campaigns' effectiveness fully. This can hinder the optimization process and lead to suboptimal results.

Finally, data privacy and security are significant concerns with third-party marketing automation in PPC management. Wirtz et al. (2016) noted that outsourcing PPC management to third-party providers can pose a risk to sensitive customer data. Therefore, organizations must ensure that third-party providers comply with data privacy regulations and have appropriate securitymeasures.

2.10 TENSCORE AS A THIRD-PARTY MA

One of the essential factors to consider when selecting a third-party marketing automation tool for PPC management is the feature set, and businesses should look for tools that provide a comprehensive set of features, including bid management, campaign automation, and reporting (Kim et al., 2019). This fact is validated because robust MA features can help businesses streamline

their PPC management tasks, reduce costs, and improve campaign performance (Kim et al, 2019). Another critical factor to consider when selecting a marketing automation tool for PPC management is its integration capabilities.

As Lu et al. (2021) noted, businesses need to choose tools that can integrate with their existing advertising platforms, such as Google Ads or Facebook Ads. This is because integration capabilities can help businesses streamline their workflow, reduce errors, and improve the accuracy of their data. The ease of use of a marketing automation tool is another critical factor that businesses need toconsider. As noted by Hsu et al. (2021), businesses should look for tools that are easy to use and require minimal training. This is because ease of use can help businesses to improve their efficiency, reduce errors, and increase user adoption.

The cost of a marketing automation tool is another essential factor to consider. Kim et al. (2019) noted that businesses should look for tools that provide a cost-effective solution that fits their budget.However, it is essential to balance cost against the tool's feature set, as choosing a cheaper tool with fewer features may result in reduced campaign performance and increased costs in the long run.

Finally, customer support is another critical factor to consider when selecting a marketing automation tool for PPC management. According to Lu et al. (2021), businesses should choose reliable customer support tools, including phone and email support, online documentation, and a knowledge base. This is because reliable customer support can help businesses resolve issues quickly, reduce downtime, and improve their overall experience with the tool. Third-party marketing automation tools such as Tenscore claim to improve ad quality scores with relative pricing as low as $25/month for one Google Ads account. It also has a good customer support mechanism and easily integrates with Google Ads without the need for much expertise input; based on these points, this literature review explores the impact of Tenscore as a third-party marketing automation tool on Google Ad quality score and the various aspect of Tenscore as a marketing automation tool, including its features, benefits, andlimitations.

Tenscore is a third-party marketing automation tool that allows businesses to automate their marketing activities. It is a comprehensive marketing automation tool that provides businesses with

various features to enhance their marketing activities. Its key features include lead nurturing, lead generation, email marketing, social media marketing, and customer segmentation (Tenscore, n.d). The tool also provides businesses with detailed analytics and reporting capabilities to help them measure the effectiveness of their marketing campaigns. Tenscore offers several benefits to PPC advertisers using the tool for marketing. Firstly, the tool helps PPC managers save time and resources by automating their marketing operations, allowing them to focus on other aspects of their campaigns. Secondly, Tenscore helps PPC managers improve their lead generation and lead nurturing resulting in increased sales and revenue of B2C, Thirdly, Tenscore provides Google Ads PPC platforms with detailed analytics and reporting capabilities, enabling them to measure the effectiveness of their marketing campaigns and make data-driven decisions.

It is defined as a SaaS tool that specializes in helping advertisers optimize their metrics and regulate click cost on their PPC campaigns (Zayas, 2021). The tool performs simple but powerful functions of monitoring the individual quality scores of Google ads campaigns once it is linked to the Google ads interface (Dreller, 2011). The tool has been described as a low-cost PPC solution that helps improve advert quality score and help reduce waste of ad-spend while improving ranking on the search engine results, thereby boosting ROI especially in SMES (Digital school of marketing, 2020). According to Benard (2022), Tenscore serves as a brand monitoring PPC tool that offers marketers recommendations regarding optimizing their campaigns. The tool has been found very useful and can help PPC advertisers to keep track of their campaign performance and make the best decisions on how to distribute their campaign budget to more profitable keywords thereby reducing waste (Benard, 2022).

While Tenscore offers several benefits to businesses, it also has limitations. Firstly, the tool can be expensive for small businesses making it difficult for them to afford. Secondly, Tenscore require businesses to have significant amount of data to be effective, which can be a challenge for small businesses. Thirdly, Tenscore's user interface can be overwhelming for some users, making it difficult for them to navigate the tool without any in-house expertise (Marketing automation insider, 2019).

2.11 PROJECT MODEL AND HYPOTHESIS

This review explore ROAS as the dependent variable defined mathematically according to Seth (2023) as ROAS = [(AD REVENUE / AD COST) x 100] . This means that achieving more Conversion values with less Ad spend will result to higher ROAS. ROAS depend on many factors in PPC advertising and prospective online marketing strategy is evaluated based on its incremental return on ad spend (Chen & Au, 2022). Evaluating ROAS in digital advertising has been a fundamental problem in marketing (Chen et al., 2018). In the Google ads platform, the metric of ROAS is given as conversion value divided by the cost of advertising. Many past studies have tried to find the connection between ROAS and the existing PPC strategy. Chen and Au (2022) defined iROAS as incremental return on ad spend in relation to response of the PPC strategy.

Many studies have carried out research to determine the impact of increase on Ad budget onROAS as a dependent variable (Chan & Perry, 2017). Other studies focus on evaluating the impact of the Media Mix Model on ROAS. Medial Mix Model involves the use of observational data such as price, sales, Ad spend and economic factors to Forecast the impact on ROAS (Chen et al., 2018) but not much has been dedicated on experimenting or practical validation of using MA as a casual effect on ROAS.

This review identifies this research gap that will be exploited and expanded into a model by investigating the impact application of ROAS smart bidding strategy and Google Ads automated performance Max campaign as a PPC strategy on ROAS and use it to determine the level of incremental ROAS henceforth referred to as iROAS. This literature will review and modify the implicit assumption model developed by Chen et al. (2018) where Y stand for Sales value with a casual path affected by O and P, where O and P refer to Organic results and Paid results in search engines respectively, A stand for auction and Q stand for user's search query in the search engine (see fig 2.2 below).

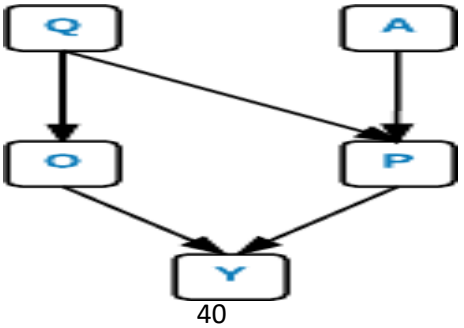

Figure 2.2 A causal Model diagram for search ad at a query level.
Adapted from Chen et al. (2018).

Modifying this model, IF Y= Y Sales value from Google ads PPC advertising, O= S representing Standard shopping campaign strategy, A = A representing Ad spend, Q = G representing Google adsPPC channels and P = P representing Performance Max campaign (automated campaign), then this review replicates the above implicit model as shown below in fig 2.6. This study proposed three hypotheses as represented below:

H1: Performance max campaign has more positive impact on conversions than standardshopping/search campaign

Figure 2.3 Hypothesis 1 model diagram showing relationship between Pmax, Conversions & SSC

H2 Performance max campaign has more significant impact on ROAS than standard shopping/search campaign

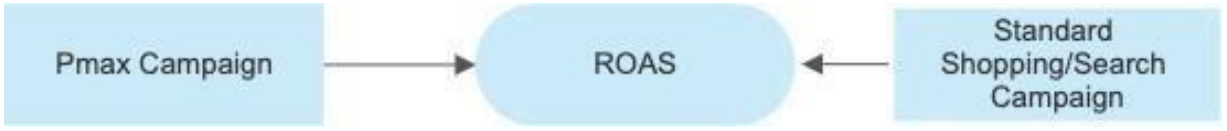

Figure 2.4 Hypothesis 2 model diagram showing relationship between Pmax, ROAS& SSC

H3: Google Ads' smart bidding -maximize conversion value with target ROAS strategy has more significant positive impact on ROAS than manual bidding strategy.

Figure 2.5 Hypothesis 3 model diagram showing relationship between smart bidding, ROAS & manual bidding.

The three hypothesis proposes a relationship between performance max campaign, standard shopping/search campaign, smart bidding strategy (target ROAS), manual bidding strategy and their impact on conversions and ROAS in Google ads PPC channels, using these 3 hypotheses with the model adapted from Chen et al. (2018) which established a relationship on ROAS and cost of ad spend, a holistic model is then proposed to demonstrate the three hypothesis

into a single mode as shown in fig 2.6:

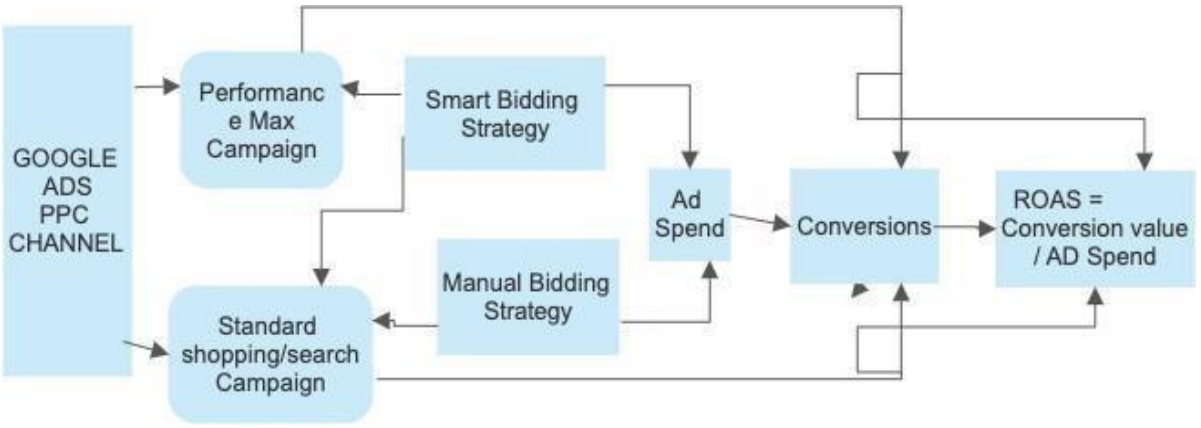

Figure 2.6 Model diagram illustrating Google Ads' Pmax Campaign, Standard Shopping/Search campaign, smart bidding, manual bidding and their impact on Conversions and ROAS

2.12 PROJECT MODEL EXPLAINED

According (Seth, 2023) ROAS is AD revenue divided by Ad cost expressed in percentage. From fig 2.2, this will be represented as ROAS = (Y/A) X100, therefore, this causal diagram model implies that ROAS is dependent on S and P respectively while S and P are affected by A which is the amount of ad spend.

There is no connectivity between S and P meaning that both do not depend on each other, but both have direct consequences on Y which is the determinant of ROAS. Y is the sales value and A = Ad spend, G = Google ads channels while S and P stands for standard shopping and performance max campaigns as previously explained in section 2.11 above.

The model diagram by the author in Fig 2.6 illustrate these relationships where two campaigntype under study – Pmax and SSC are created on the Google ad PPC channels. The Pmax was treated with smart bidding strategy while SSC was treated with both smart and manual bidding at different stages of the campaign. Both bidding strategies acted on the campaign budget to give the individual Ad spend which is the total cost of campaign on Pmax and SSC respectively. The required action from the users is the conversions that came from the ad spend which also determines the ROAS by dividing the conversion value by the total ad spend as illustrated on Fig 2.6.

3 METHODOLOGY

3.1 RESEARCH METHOD

This research uses a quantitative method to galvanize the data and justify the study's hypothesis. Quantitative research is a type of research that explains the underlying phenomenon through the collation and analysis of numerical data using mathematical methods (Creswell, 1994Cohen et al., n.d.) noted that quantitative research uses empirical methods in justifying the subject of study.

Empirical statements are expressed in numerical terms where empirical evaluation are applied in quantitative research (Sukamolson, 2007). Therefore, the author uses numerical emphasis in bringing the core phenomenon of the study. One of such empirical study in digital marketing is A/B split testing experiment in Google Ads PPC advertising channels. There are three types of split testing being classified according to the purpose of study, viz., conversion-based split testing, usability-based testing and traditional usability evaluation (Speicher et al., 2014). The purpose of this study is a conversion value-based performance metrics and hence, the quantitative approach is adapting a conversion-based A/B testing experiment using the Google Ads interface.

3.2 METHODOLOGY APPROACH AND CONCEPT FROM PILOT STUDY

This research method adapted a pilot concept carried out by Guerini et al. (2010) in their work of “evaluation metrics for persuasive NLP with Google AdWords.” The experiments were created and tested within a real promotional campaign on the real platform of Google AdWords (now known as Google Ads). Two groups consisting of control groups and an experimentational condition group were used by the previous authors. The experimentation condition group is referred to as the treatment group in this project. This project methodology explores the third recommendation from Gurini et al (2010) which suggested experimentation on automated features of Google to dynamically write contents. Hence, this study uses practically created experiments to test the automated campaign features of Google ads plus the effect of integrated third-party software called Tenscore with Google ads and monitor their effects on major campaign

performance metrics.

3.3 THE EXPERIMENT STRUCTURE

The split testing experiments in this project is divided into two parts, part one experiment is thetesting of the impact of in-built automated campaign feature of Google Ads Called “Performance MaxCampaign” on ROAS and Conversion. The split experiment is used in determining the impact of Google Ads in-house MA on Conversions and ROAS in B2C E-commerce businesses against the standard shopping and standard search campaigns otherwise referred to as manual campaigns in this project.

The second part of the experiment is the implementation of automated bidding strategy to determine the impact of smart bidding strategy ROAS. The method adopted involved the introduction of smart bidding strategy on the standard shopping campaign after 45 days of running onmanual bidding. After running standard shopping campaign for a period of 45 days, the bidding strategy was changed from Enhanced CPC to smart bidding strategy using target ROAS and the resultsare compared to know the resultant effect on ROAS generated by the standard shopping campaign.

Both second parts of the experiment were integrated with Tenscore as a third-party automation software. The author uses split experiment in deducing how the integration of Tenscore in Google impact on carrying out repetitive task specifically on Google Ads campaign.

Both parts are tested on two varieties of B2C business objective verticals consisting of leads generation and sales campaign objective. For the leads generation business, the niche is s Colon Hydrotherapy industry with physical location in Brisbane, Australia. The campaign goal is to generate leads from prospective customers who want to book appointment to have a colon cleansing andcolon hydrotherapy.

The Ecommerce platforms is a Tactical gear online store based in Canada. the ecommerce platform in this study was selected because it is a fully online store without a physical presence except the inventory store. Another reason is the online purchase values in Canadian dollars when a purchase or item is sold through Google Ads.

3.4 CONVERSION AND ROAS TRACKING

To ensure that only conversions and ROAS that came from Google Ads are considered through the experiment, conversion tracking's are used to capture purchases and leads that came from Google ads PPC channels. The first step involved creating conversion actions in the Google ads interface. To track purchases, a purchase conversion action was selected with different conversion values since theproducts in the online store consisted of items of different prices. The conversion tracking ID and conversion label were copied and installed on the E-commerce website used in the study. For the Tactical Gear online store, the E-commerce platform is Magento and access to the admin was granted before navigating to the store to the configuration. From the configuration interface to the sales and where the Google API is located. The conversion labelled and the conversion ID are then inserted into their respective fields with the dynamic values set to enabled**.**

3.5 GOOGLE ANALYTIC INTEGRATION

To enhance the KPI in the study, both GA4 and universal analytics were integrated and linked to the Google ads used in the study. To ensure that conversions were tracked properly, the purchase conversion goal was imported into the Google ads channels, but the conversions from the analytics were set to secondary to only serve as conversion funnels such as add to cart and visiting of checkout were all set to secondary to avoid double counting of the conversion metrics since the conversions have been implemented directly on the magneto e-commerce store.

3.6 Pmax CAMPAIGN VS STANDARD SHOPPING CAMPAIGN

In this experiment, ROAS is the dependent variable while the Performance Max (henceforth referred as Pmax) and Standard shopping /search campaign (henceforth referred as SSC) are the independent variables. Their causal effects are under investigation. Hence, the A/B split test experiment was created using Pmax as a treatment group and SSC as a control group and both have a 50% split group meaning that the traffics and budget allocated will be shared equally in the ratio of 50%. While the SSC campaign uses Enhanced CPC bidding strategy as this is the only

conversion

Related bidding options available at an early stage of the campaign when there are not enough campaignmetrics for optimization as it is required to at least 15 conversions before switching to smart bidding strategies.

The treatment group-Pmax campaign uses a Google Ads automated bidding “Target ROAS” bidding strategy to set bids automatically to get maximum conversion values within the allocated campaign budget as seen in figure 3.1 & fig 3.2 below.

After running standard shopping campaign for a period of 45 days, the bidding strategy was changed from Enhanced CPC to smart bidding strategy using target ROAS and the results are compared to know the resultant impact on ROAS generated by the standard shopping campaign. The ROAS trend from both manual bidding and smart bidding is used to decide if smart bidding has moreimpact on ROAS than manual bidding.

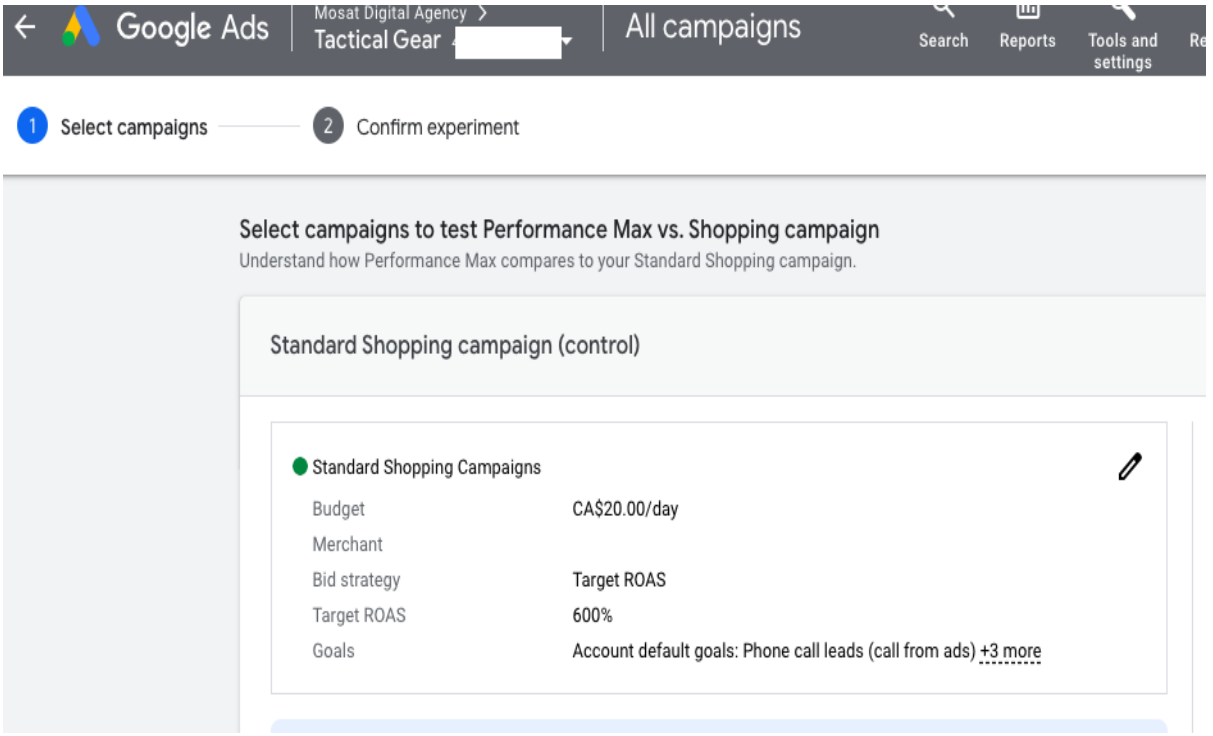

Figure 3.1 50% SPLIT: Control & Treatment Groups

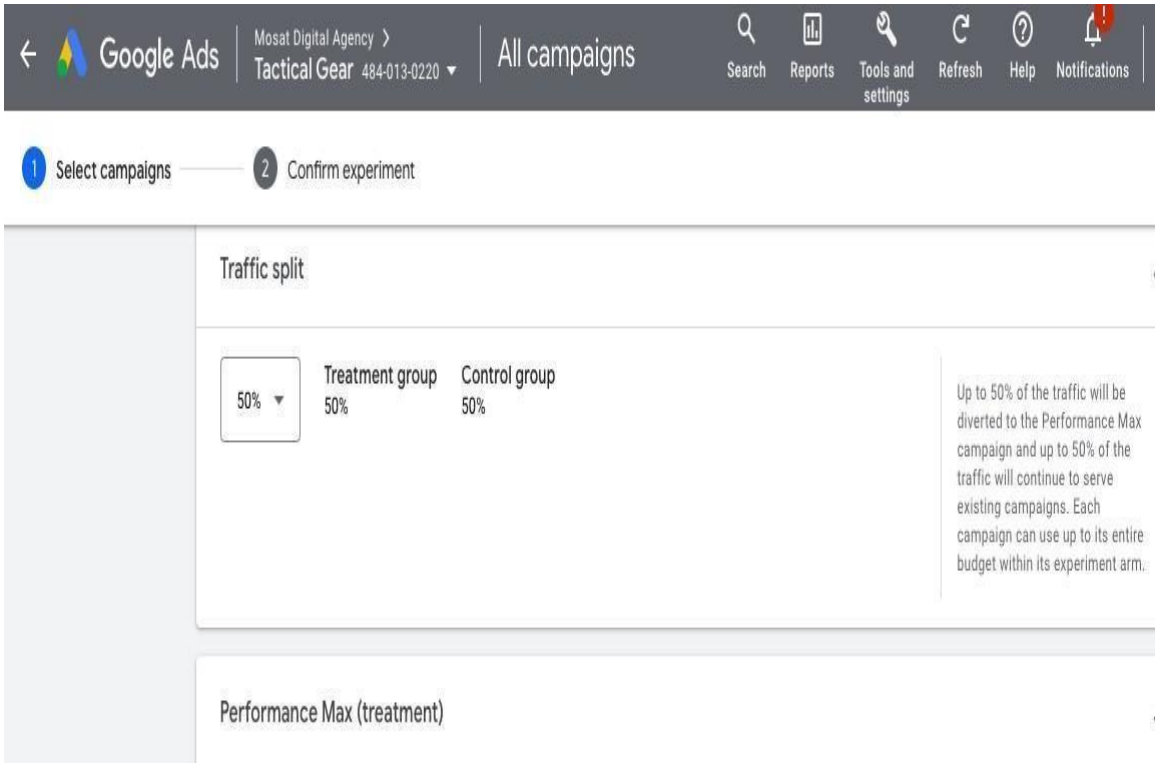

Figure 3.2 Pmax and SSC as Treatment & Control Groups Respectively

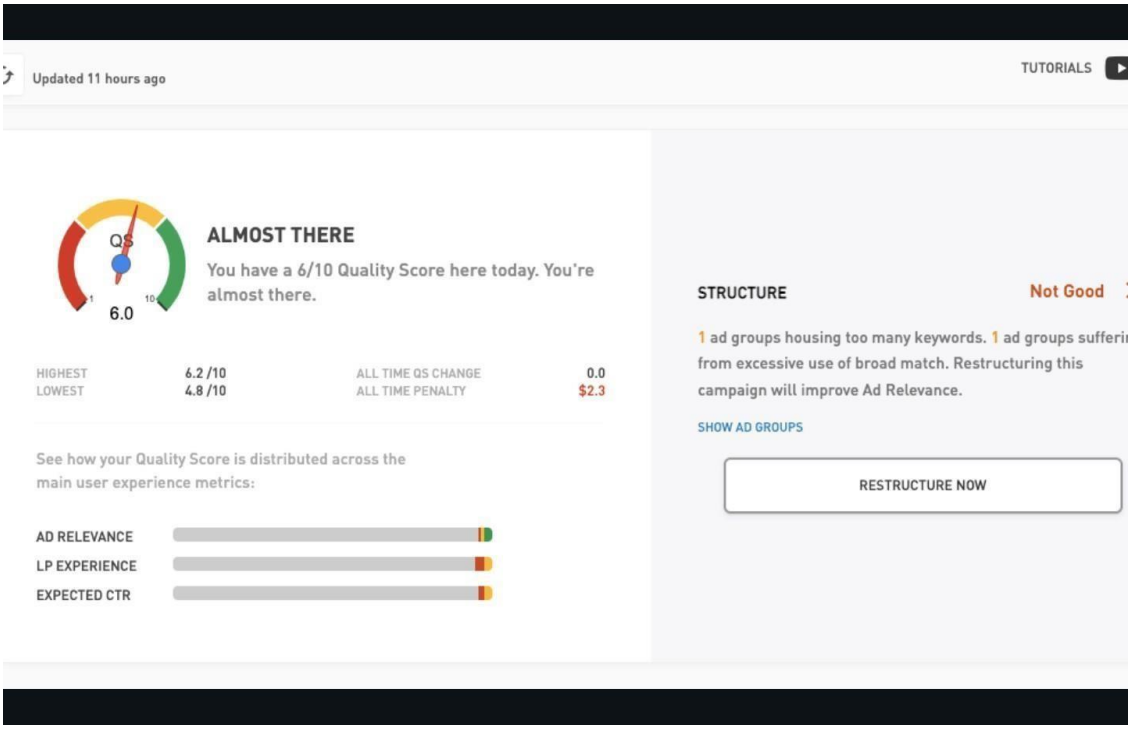

Figure 3.3 Tenscore interface showing campaign structure score on Google ads

3.7 PMAX VS Standard Search Campaign

The difference between the standard shopping and search campaigns is that shopping campaigns are for product marketing while search ads are for both product marketing and service-

based. To increase the reliability of the data used in the project analysis, the author tested the Pmax campaign for different B2C online businesses. Hence, a split experiment was created using Pmax as a treatment group and search ads as a control group, but this time, the online business being targeted is a service based where leads generation is the goal of the campaign instead of purchases/sales. The dependent variable is CONVERSION, while experiment is investigating the causal effects of Pmax and Search adsas independent variables on conversions The experiment was split into 50%, indicating equal traffic and budget allocation as was done when ROAS is the dependent variable. Fig 3.3 and Fig 3.4 illustrate as explained.

3.8 INTEGRATING TENSCORE WITH GOOGLE ADS PLATFORM

The Tenscore software was integrated into the Google Ads interface by linking the specific Google ads IDs by the author as the administrator to the PPC interface. After connecting the Tenscore, the existing campaigns to be used as control groups were selected and restructured using the Tenscore restructuring interface. The Tenscore software immediately suggested automated changes to be made to the existing campaign for improved performance starting from the campaign Ad grouping structures.

A new series of ad groups was created from the existing campaign and automatically published in the Google Ads interface. All the newly created ad groups are differentiated from the existing Ad groups with a TS Pre-fix to note those ad groups being created using the Tenscore tool. After the new ad groups were created, a split campaign was set up as an A/B test experiment as seen in Fig 3.3. The control group campaign contains Ad groups manually created without the Tenscore software, while the treatment campaign contains only l the ad groups automatically created using the Tenscore third-party tools with a TS prefix. All other parameters in the campaign are made to be the same as the split groups equally received 50% of traffic and budget share during the periods of the experimentations. The process is repeated in both service-based businesses and ecommerce-based campaigns in B2C online businesses.

3.9 EXPERIMENT DURATION AND KPI SAMPLE SIZES

The total duration of the experiment span from March 20th, 2023, to June 15th, 2023, which involved approximately 90 days. Ideally, the experiment was set to terminate on June 20th but thedata for the results was extracted until June 15th.

The number of clicks represents the subject sizes in the experiment as it shows a number of people who saw the experiment and clicked on it. Other important data which consist of the sample sizes arethe impressions and CTR, which indicated the rate at which people clicked on the ads during the experiment periods. These sample sizes are below for both the E-commerce platform and leads campaign.

Table 3.1 Sample size of the experiment

Types of Campaigns	Campaign Goal	Number of Impressions	Number of Clicks
Standard Shopping Campaign	E-commerce Sales	64,150	730
Performance Max	E-commerce Sales	49,680	1,820
Search Campaign	Leads -Static Website	11,145	2,721
Performance Max	Leads Static Website	3,992	403
Total	2	128,967	5674

3.10 MATHEMATICAL MODEL FOR EXPECTED RESULTS VALIDATION

Bearing in mind the hypothesis of this study is further listed below as follows:

a) H1 - Performance max campaign has a more positive impact on conversions than thestandard shopping/search campaign;

b) H2 - Performance max campaign has a more significant impact on ROAS than the standard shopping/search campaign;

c) H3 - Google Ads' smart bidding -maximize conversion value with target ROASstrategy has a more significant positive impact on ROAS than manual bidding strategy.

3.10.1 For Hypothesis 1 – Impact On Conversion

The change in the number of conversions is denoted by ΔCN where:

- CN is the number of conversions.
- PMAXNC is the number of conversions from Performance Max campaign.
- SCCNC is the number of conversions recorded by standard search/shopping campaigns.

$for\ this\ study$, ΔC_N which is change in the number of conversions which is the difference in the number of conversions between the treatment group and the control group in the experiments which are Pmax and SSC respectively. Hence, Hypothesis 1 is **TRUE** IF $PMAX_{NC} > SCC_{NC}$ which implies that $\Delta C_N > 0$, where $\Delta C_N = PMAX_{NC} - SCC_{NC}$

3.10.2 For Hypothesis 2 -Impact on ROAS

For this study, the change in ROAS is denoted by ΔR meaning the difference between ROASPMAX And ROASSSC. Where ROASPMAX is the return on ROAS from Pmax campaign and ROASSSC. is the return on ad spend from standard shopping/search campaigns.

Therefore, $\Delta R = ROAS_{PMAX} - ROAS_{SSC.}$

IF ROASPMAX > ROASSSC. then ΔR will be positive which implies that hypothesis- H2 is sustainedto be TRUE else Hypothesis 1 is FALSE. Therefore, H2 is TRUE only when ΔR = ROASPMAX - ROASSSC leads to incremental ROAS (iROAS) as defined by (Chen et al, 2018)

3.10.3 For hypothesis 3 -Impact of smart bidding strategy (target ROAS) on ROAS

To determine the impact of smart bidding strategy on ROAS, this study considered the change in ROAS of standard shopping campaign before and after the implementation smart bidding strategy. Therefore, ΔR is the change ROAS between manual and smart bidding calculated over equal period of time which is 45 days each of the total of 90 days of the split experiment. $ROAS^{MD}$ represent the ROAS from manual bidding while $ROAS^{SM}$ therefore iROAS which is increment in ROAS resulting from if $ROAS^{STB}$ -$ROAS^{MD}$

3.11 INTEGRATING RELIABILITY IN THE EXPERIMENTATION PROCESS

Reliability as a factor of quantitative research measurement defined as an indicator of the

stabilityof the measured values obtained in repeated measurements under the same circumstances using thesame measuring instrument (Maslaka & Surucu, 2020). To ensure the reliability in the metrics being analyzed in this project, the methodology been adapted ensured that the following measures were taken, viz.

The experiment was carried out in 3 three different B2C businesses which included women apparels online store in USA, tactical gear online store based in Canada, Custom fashion online store based in Australia, Colonics therapy online services based in Australia and Luck smith services based in USA. The split in parameters used in the experiment where shared equally in the ratio of 50% so thatboth the control groups and treatment groups received the same traffics and the same budget allocation within the time of the experiments. The target locations for both the control groups and the treatment groups are made to be thesame to avoid any undue advantage accruing to either the control or treatment group. Both the control and treatment groups are made to have the same ad scheduling, this allows allthe ads to run at the same periods of the day. The landing pages for both the control and treatment groups are same, this allows for uniformexposure to the same useability ratio in relation to landing page experience.

For the ecommerce products campaigns, both the treatment and control groups are connected to the same merchant center account meaning that same products are being advertised across the two groups.

4. RESULTS

The theoretical concept of this project underscores the effectiveness of MA on the following concepts viz vis conversions, ROAS, and other PPC performance metrics in Google ads advertising channels. The third-party automation which is another leading concept underscores the easy of carrying out repetitive tasks against the human manipulations. The results of this study are explored and displayed with attention to connecting the results to these thersitical concepts.

4.1 RESEARCH RESULTS OF ALL KPI FOR TACTICAL GEAR E-COMMERCE CAMPAIGNS

The results below show all major KPI measured against the two main campaigns under study in thesplit experiment for the B2C tactical gear E-commerce platform. The two types of campaigns arePmax and SSC

Table 4.1 All Target KPI from Pmax and standard shopping campaigns after 90 of split experiment

	Campaign	Impressions	Clicks	CTR	Cost	Conversions	Conv. rate	Cost / conv.	ROAS	Conversion Value
1.	Standard Shopping Campaigns	64.15K	730.00	1.14%	$446.90	14	1.92%	$31.92	4.57	7,377.57
2.	Performance Max Campaigns	49.86K	1.82K	3.65%	$912.38	55.3	3.04%	$16.49	4.01	10,730.19
	Grand total	114.01K	2.55K	2.24%	$1.36K	69.3	2.72%	$19.61	4.20	18,107.76

4.2 CONVERSION METRICS RESULTS FROM THE TACTICAL GEAR E-COMMERCE CAMPAIGNS EXPERIMENTS

The study compares the impact of full inventory automated performance campaign against standard campaign in a tactical gear supply industry and the results for periods of 90 days. From Table 1, it shows that Pmax recorded a total of 55.3 conversions while the Standard campaigns recorded only 14 conversions the pi-chart and bar chart in fig 4.1below illustrate % proportion which shows that out of the total numbers of conversions recorded during the periods, Pmax recorded 79.8% ofthe conversions while the SSC recorded 28.2% of the conversions.

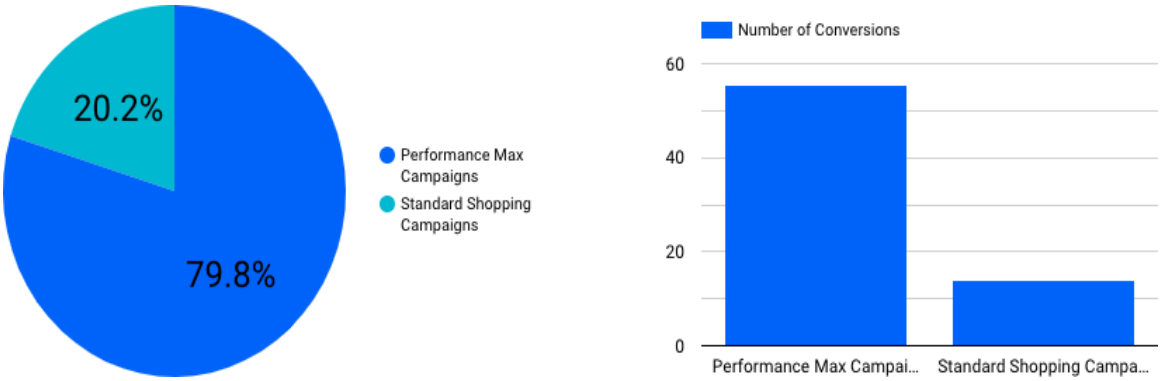

Figure 4.1 Chart showing Number of conversion results from Pmax & SSC

The conversion trends as shown in fig 4.2 below shows that Pmax started recording conversion from March 21 which is the second day of the experiment while the Standard shopping campaign started recording conversions on March 29 which is 9 days after the experiment started serving ads.

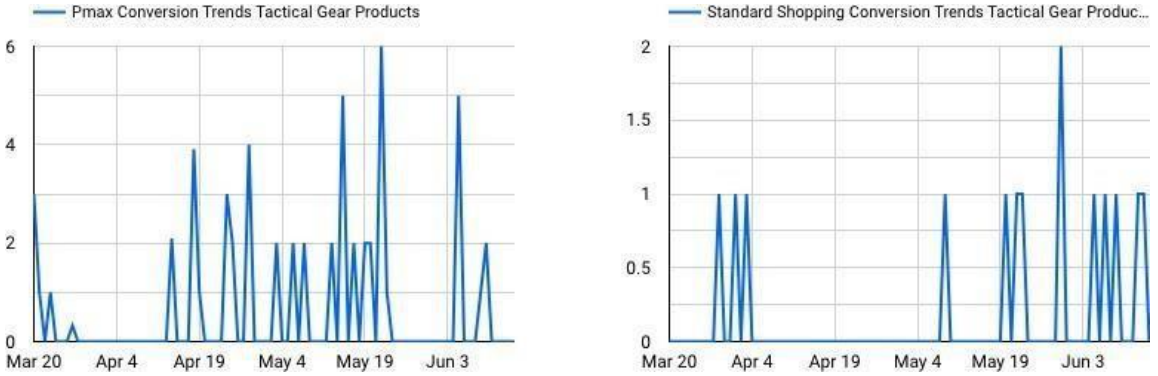

Figure 4.2 Conversion Trends from Pmax and SSC Experiment from Mar 20-June 15

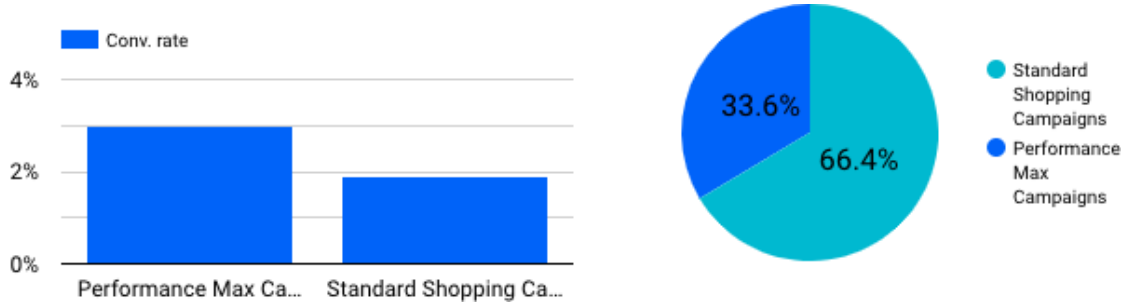

Figure 4.3 Conversion Rates from Pmax and SSC Campaign Experiments

4.3 ROAS METRICS RESULTS FROM THE TACTICAL GEAR E-COMMERCE CAMPAIGNS

From the Table 1.0 above, a surprise metrics shows that SSC recorded a higher ROAS against the Pmax campaigns despite recording the highest number of conversions with a value of 4.57 and 4.01 respectively. The figure in Fig4.4 shows the ROAS proportions for each of the campaigns represented in both pi-chart and bar chart simultaneously. From Fig 4.4, the ROAS. Another interesting metrics is the ROAS trends in Fig 4.5 which shows that Standard search campaigns recorded very low ROAS untilMay 9th.when the bid strategy was changed from manual bidding to automated bidding -Target ROAS

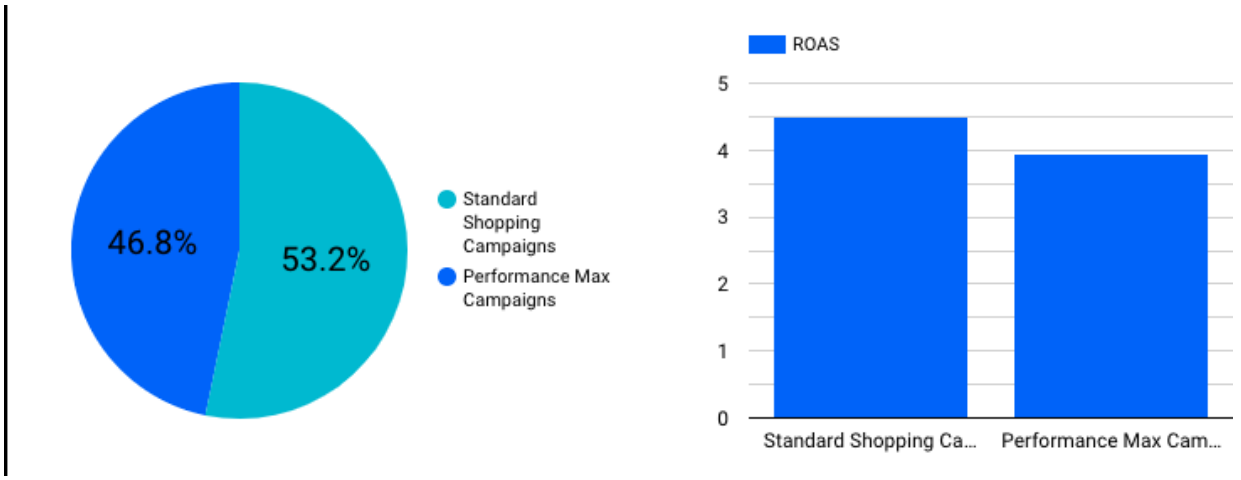

Figure 4.4 ROAS Share between PMAX & SSC

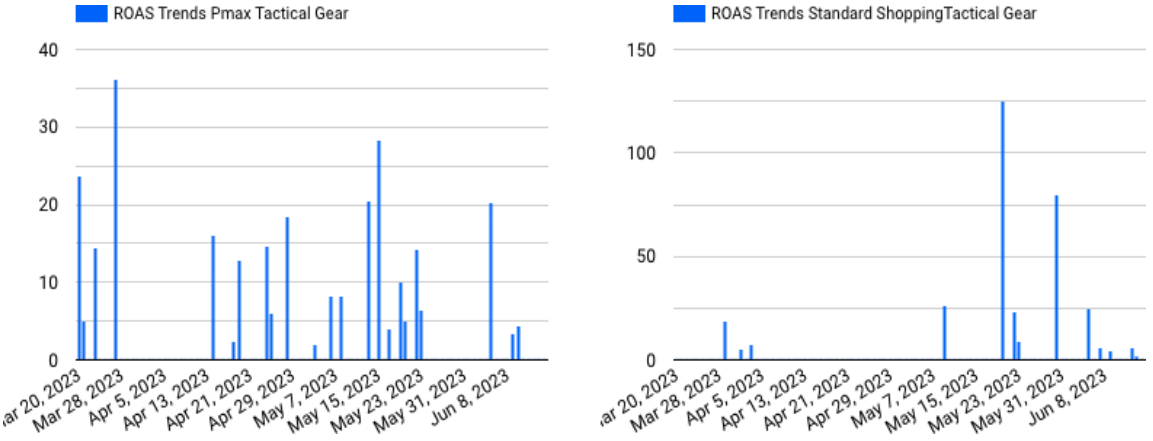

Figure 4.5 ROAS Trends Pmax and ROAS Trends Standard Shopping

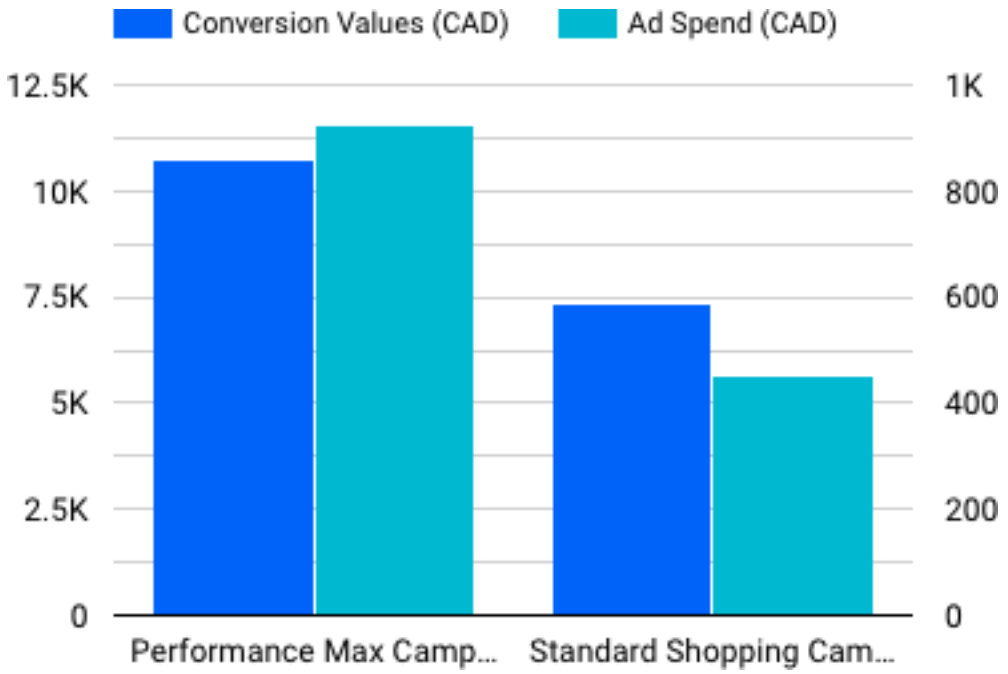

Figure 4.6 Conversion Values and Ad Spend from Pmax & SSC -splt experiment

4.4 CLICKS AND CLICK RATES METRICS RESULTS FROM THE SPLIT CAMPAIGNS

The click metrics is an important metrics that measure the willingness of people to interact with ads by clicking on it after impressions are established (Giraldo-Romero et al., 2021) According the Pi- chart in Fig4.7, Pmax received 71.4% of the total clicks during the periods of the campaign experimentwhile SSC received only 28.4% of the clicks. The 71.4% represent a total of 1,842 clicks while the 28.5% received from SSC represent a total of 739 clicks as shown in Fig 4.7 below.

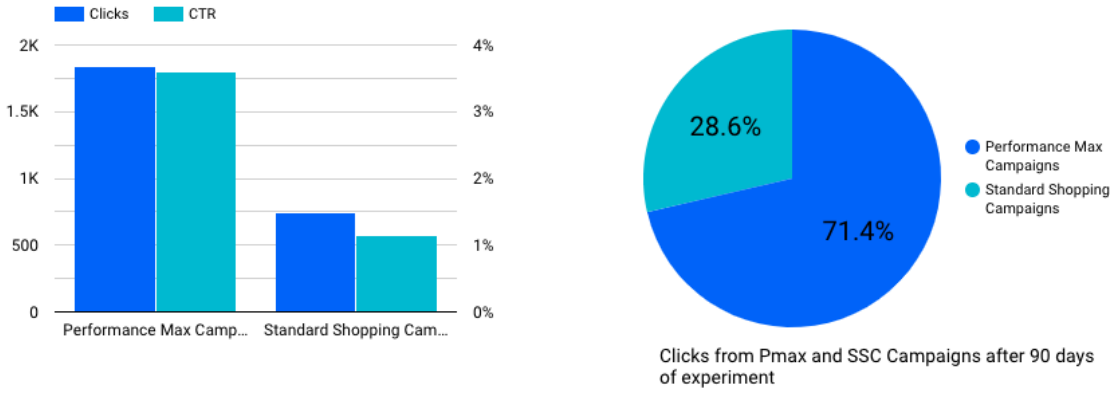

Figure 4.7 chart showing number of conversions between Pmax & SSC Campaign

Another important results here is the click rate which is the rate at which an ad is being clicked compared to the number of impressions being made (Osmundson, 2022) FIG4.8 indicated that Automated

ML driven campaign PMAX has a higher CTR compared to Standard shopping campaignsdespite showcasing the same types of products views during the time of the campaign.

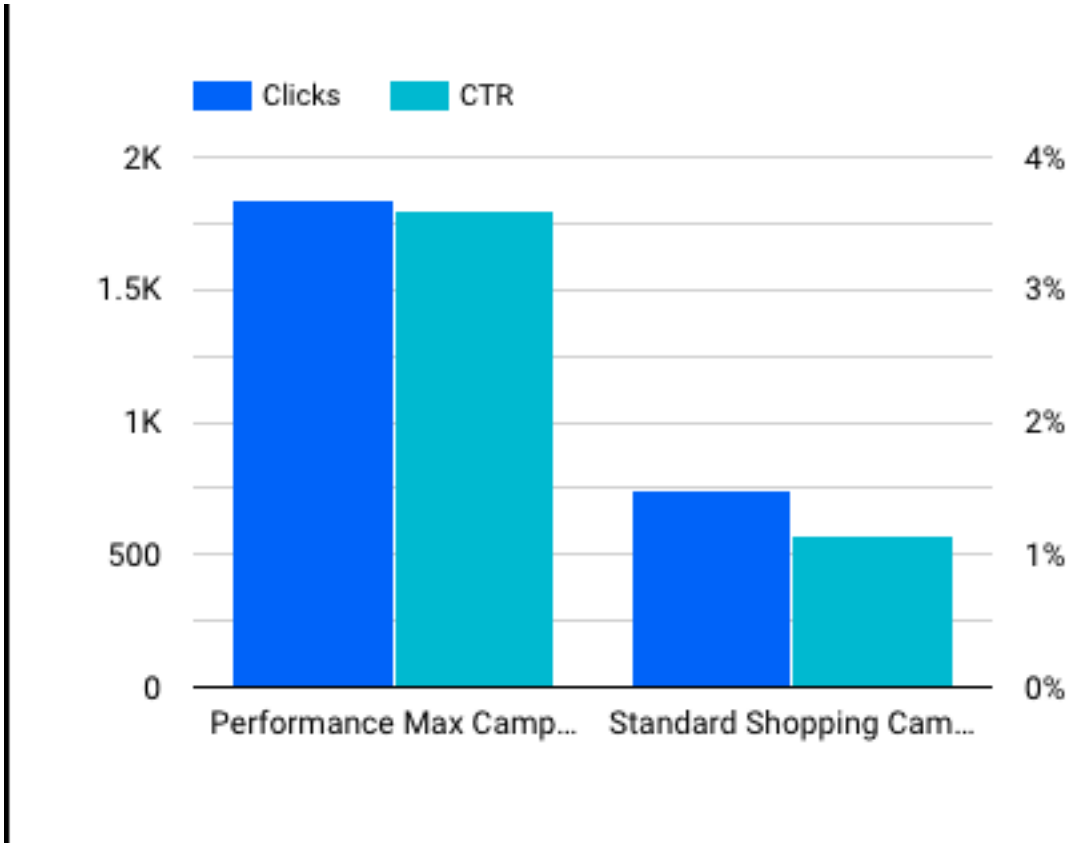

Figure 4.8 Clicks & Click Rates Pmax Vs SSC Campaign Results

Fig 4.9 indicated an interesting phenomenon where the standard shopping/search campaign recorded higher impression than the automated campaigns. Out of a total of 116,092 impressions recording during the periods of the experiment, SSC campaign got 65,023 while Pmax received 51,069impressions as illustrated in the Fig 4.90 below. A drill down of the impressions shows that SSC received more impressions on mobile device with 52,611 impressions while Pmax received 35,587 impressions on mobile devices. The Pmax had more impression on computer device than SSC with 14.658 while SSC got 11,362 impressions as seen in fig 4.9 below.

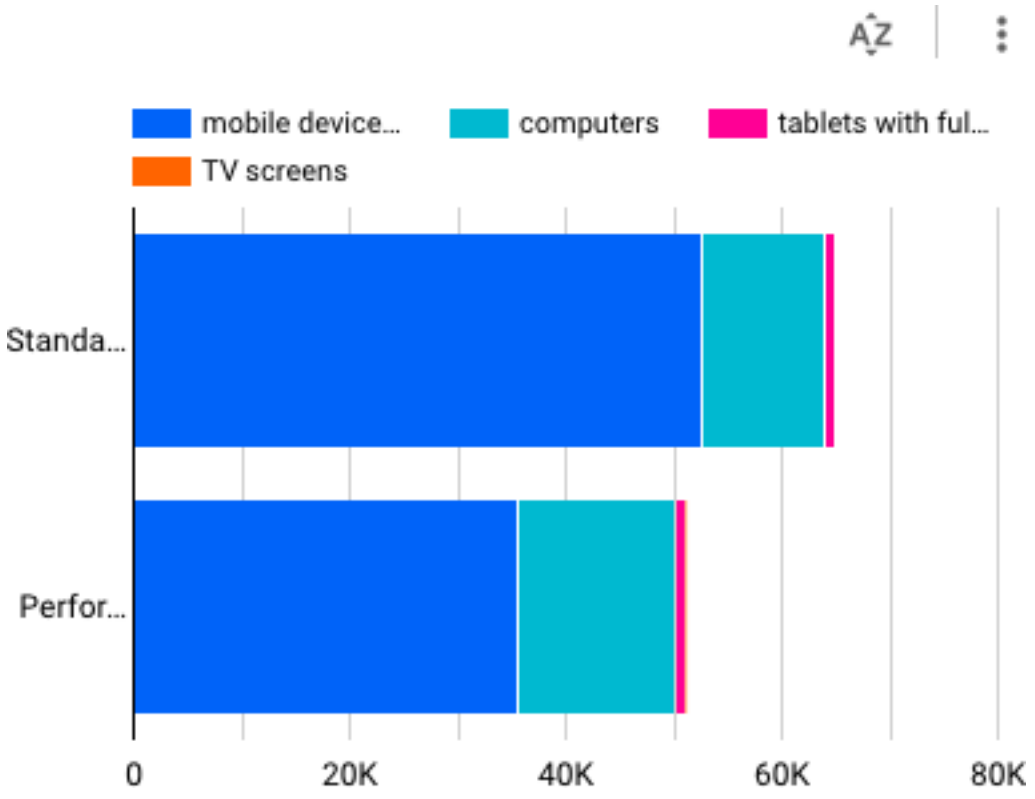

Figure 4.9 Impressions from Pmax and SSC with Device Drill Down after 90 days

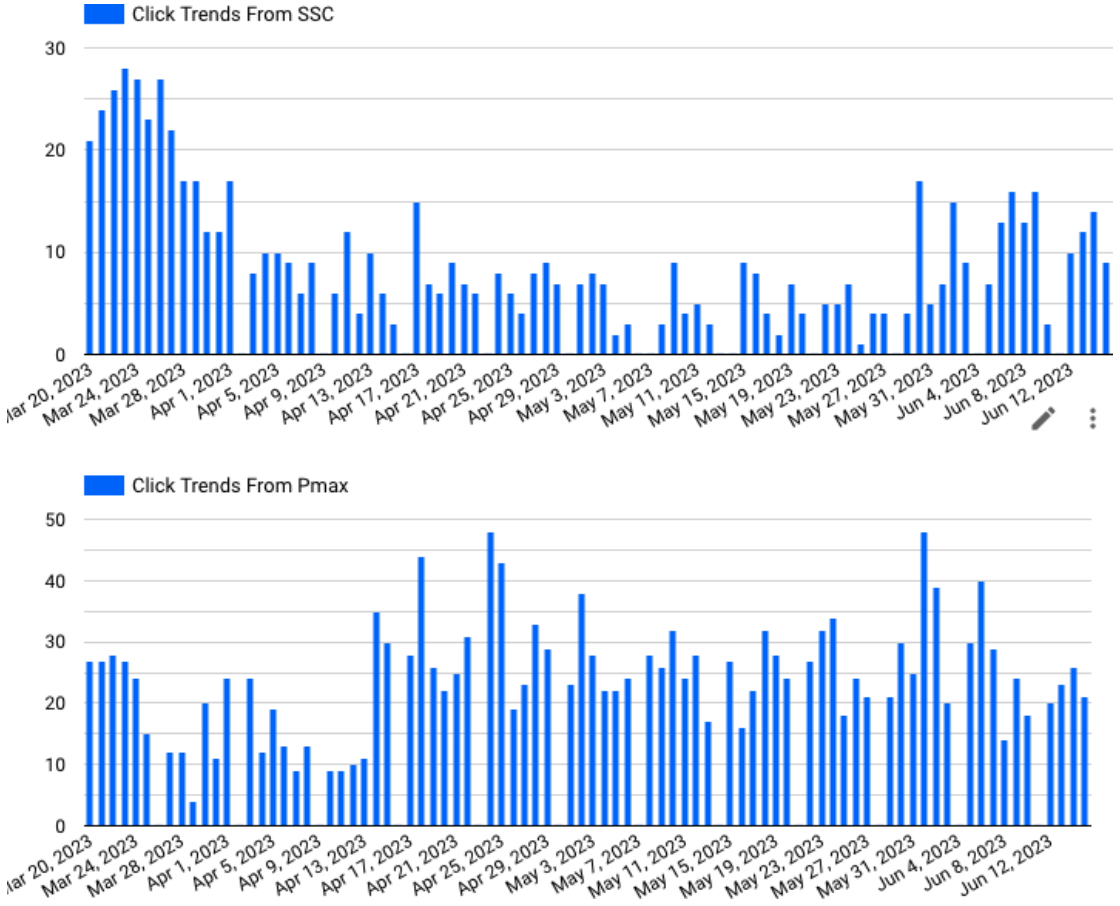

Figure 4.10 Click trend from Pmax Vs SSC Split Experience after a period of 90 days.

4.5 RESULTS OF ALL KPI FOR LEADS CAMPAIGN

The results from split experiment for leads generation as tabled in Table 4.2 shows that standard search campaign had a greater number of conversions at a cheaper cost per conversion compared to the performance max campaign. The important metrics here is the cost per conversion for Pmax and SSC which are $11.24 and $4.99 respectively as seen in Table 4.2 below.

Table 4.2 All Target KPI from Pmax and SSC after 90 days of split Experiment For Leads Campaigns

	Campaign	Impressions	Clicks	Cost	Conversions ▾	Cost / conv.
1.	Standard Search Campaign	11.15K	2.72K	$1.54K	309.00	$4.99
2.	Performance Max Leads Campaign	3.99K	403.00	$348.34	31.00	$11.24

5. DISCUSSIONS

The discussion of this study centers on the relevant of the results of the study to the outlined objectives of the study which are recapped as follows: a) To evaluate the impact of implementation Google ads automated campaign with ML feature known as “Performance Max Campaign”) on ROAS and Conversions plus other performance metrics in B2C PPC management; b) To study the impact of integrating Tenscore third-party MA with Google Ads PPC on the ease of achieving repetitive tasks in Google Ads PPC management; c) To evaluate the impact of Google ads’ smart bidding strategy – “maximize conversion value with target ROAS” on ROAS in B2C Campaign management.

5.1 EVALUATING IMPACT OF GOOGLE ADS PMAX CAMPAIGN ON ROAS

From the results analysis in Table 4.1, it was demonstrated that while Pmax recorded ROAS of 4001% (4.01) while standard search campaign recorded ROAS of 457% (4.57) which indicated that the ROAS from standard shopping campaigns is slightly higher than that of Pmax after the 90 days period of the split experiment. But there is other strategic implications that can be drawn from the performance when other target KPIs are considered. One of such consideration is the overall conversion values. From the Table 4.1, the overall conversion values accrued to Pmax is $10,730.19 while standard search campaign recorded a total of $7,377.57.

The strategic implication of this result mean that while the ROAS of standard shopping is slightly higher than that of Pmax, but the revenue generated by Pmax was higher and within the profit margin of the campaign. ROAS of 4 is a good ROAS for many niches including 911 target gear supply products which is considered in this study (SEGEMENTS, n.d.) Another strategic insight is that the ad spend from Pmax is higher than of standard campaign despite being allocated the same amount of

daily campaign budget. Past studies have also shown that ROAS may decrease when Ad spend is increased because higher targeting.

The ROAS trends indicated that it takes the standard shopping campaign 45 days to start seeing an increase on ROAS and this happen only when the bidding strategy was changed from manual bidding to smart bidding strategy which is being discussed in detail in another section of this study. Meaning that the ROAS from SSC lagged behind ROAS from Pmax for half of the periods until a switch in a bidding strategy from manual to automated strategy. Hence, evaluating the impact of Pmax on ROAS,this study reveals that Pmax has great impact on ROAS with higher conversion value meaning possibility of ROI since the Pmax was shown to have larger ad spend and meeting the optimal profit level of 400% required to scale above the equilibrium. What is obvious in this discuss is the fact that the impact of Pmax on ROAS cannot be said to be more that of standard shopping campaign because the results revealed that ROAS largely depend on the application of smart bidding strategy-target ROAS.

Relating this discussion with the second hypothesis of the study shows that it is **NOT** completely TRUE that **Performance max campaign has more significant impact on ROAS than standard shopping/search campaign. T**o further validate this outcome, mathematical model on the impact of Pmax on ROAS as against the SSC has been demonstrated mathematically as described in the methodological part of this study as follows:

$$\Delta R = ROAS_{PMAX} - ROAS_{SSC.}$$

IF ROASPMAX > ROASSSC. then ΔR will be positive which implies that hypothesis in number 1 is sustained to be TRUE else Hypothesis 1 is FALSE. Pulling the results from Table 4.1 above, H2 also was rejected.

5.2 EVALUATING THE IMPACT OF GOOGLE ADS PMAX CAMPAIGN ON CONVERSIONCOMPARED TO STANDARD SHOPPING CAMPAIGN

The results from table4.1 showed that PMAX recorded 55 conversions while SSC recorded only 14 conversions. It is also observed that the cost of acquiring conversion from PMAX campaign is $16.49 with a conversion rate of 3.04% which are better performance metrics when compared to SSC with 14conversions, 1.92% conversion rate and $31.92 as the cost per conversion. This metrics

is further summarized in table 5.1 below.

>0, wRelating these KPI in table 5.1 above with the first hypothesis of the study H1-which states that Performance max campaign has more positive impact on conversions than standard shopping/search campaign can be clearly seen to be through as proved below with the mathematical model of this study as defined in chapter 3, Hence, Hypothesis 1 is TRUE IF $PMAX_{NC} > SCC_{NC}$ which implies that ΔCN $\Delta CN = PMAX_{NC} - SCC_{NC}$. Therefore, from table 5.1, $\Delta CN = 55-14 = 41$ and 41>0 meaning that H1 is sustained as TRUE. Therefore, this study supports that Pmax has more significant impact on number of conversion compared to SSC which validated the H1

Table 5.1 Summary of Conversion KPI From PMAX And SSC After 90 days of experiment

	Number of conversions	Cost Per Conversion	Conversion Rate	Cost
Pmax	55	$16.49	3.04%	$912.38
SSC	14	$31.92	1.92%	$446.90

5.3 EVALUATING THE IMPACT OF GOOGLE ADS SMART BIDDING STRATEGY (TARGET ROAS) ON ROAS

Google ad's smart bidding is a subset of automated bidding strategy that eliminate manual input in deciding bid amount (Google Ads Help, 2023; Shandilya et al., 2023) The Pmax campaign uses smart bidding all throughout the experiment as it is fully automated campaign. From the result of the metrics in Fig 5.1 and Fig 5.2 respectively. This showed the ROAS of SSC from smart bidding is 8.23 while ROAS from manual bidding is 0.83. The ROAS trends indicated that ROAS metrics from Pmaxwas consistent throughout the periods of 90 days with little fluctuation, but it was observed that, the ROAS trends FROM SSC recorded values on March 29th, April 1 and April 3 but failed to maintain the consistency in the auction as it did not record any other ROAS until May 19 after the manual bidding was changed to smart bidding strategy ON May 2.as shown in the Figure 5.1 below. The consistencyof ROAS after the application of smart bidding for the next half (45 days) of the experiment proved the third hypothesis H3 of the study to be TRUE.

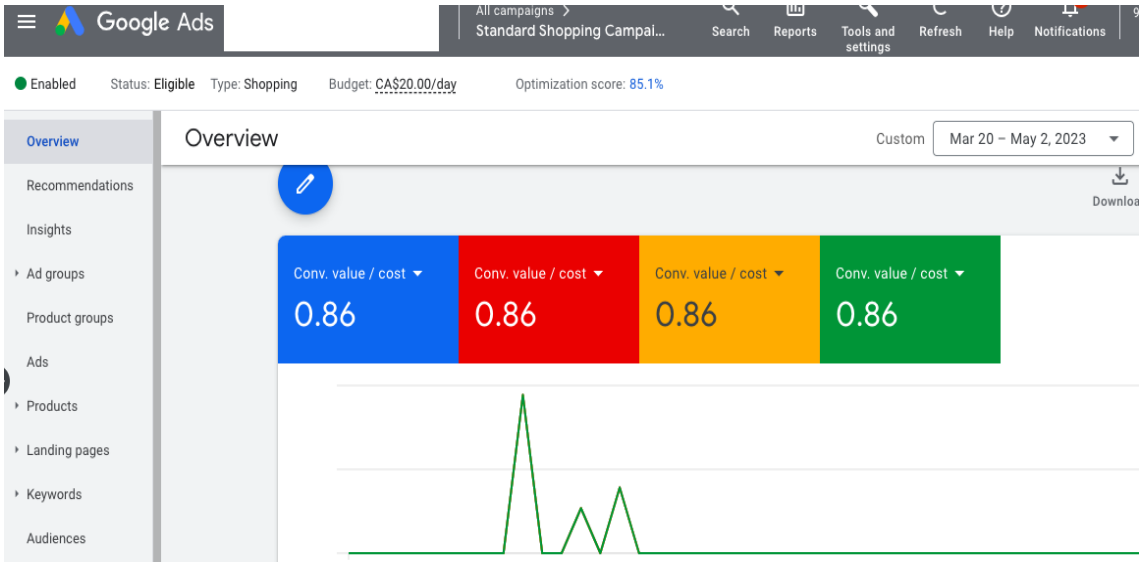

Figure 5.1 ROAS value and trend from manual bidding strategy in SSC

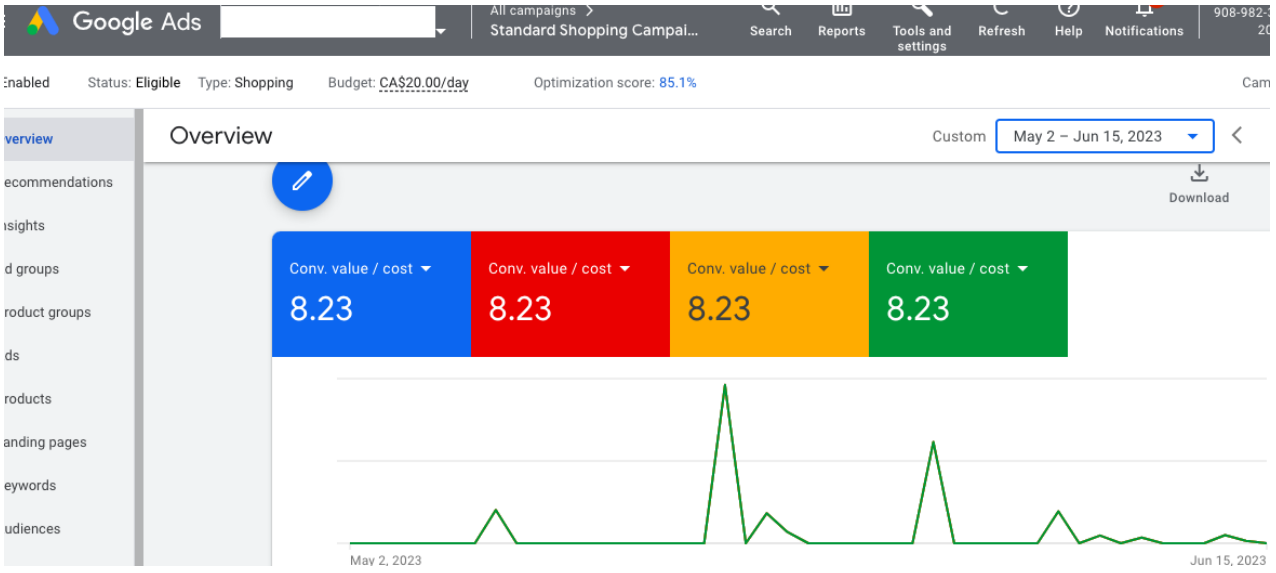

Figure 5.2 ROAS value and trend from target ROAS smart bidding strategy in SSC

Figure 5.3 SSC ROAS Trends Showing a Rise in ROAS after switching to Smart Bidding from May 9th, 2023.

From the results from the experiment as shown in Fig 5.1 and 5.2 above iROAS = $ROAS^{STB}$ - $ROAS^{MD}$$ROAS^{STB}$ = 8.23 and $ROAS^{MD}$ = 0.86. Hence iROAS which is the increment in ROAS is 8-23-0.86 = 7.37 Therefore, ROAS from smart bidding strategy recorded iROAS of 7.37 when compared to manual bidding which proved H3 to be **TRUE.**

5.4 RESEARCH MODEL AND HYPOTHESIS ADOPTION

Out of three hypotheses for the study, two has been proved to be accepted while only one isproved to be false as discussed above, this is summarized below along with the model.

Table 5.2 Hypothesis adoption

HYPOTHESIS	PATH	VALUE	CONCLUSION
I. **H1 -** Performance max campaign has more positive impact on conversions than standard shopping/search campaign	TRUE IF $PMAX_{NC}$ > SCC_{NC} and $\Delta C_N > 0$, where $\Delta C_N = PMAX_{NC} - SCC_{NC}$	$\Delta C_N = 55-14 = 41$ and $41 > 0$	Accepted
I. **H2 -** Performance max campaign has more significant impact on ROAS than standard shopping/search campaign	-37% Statically significant -split experiment 95% confidence H2 is TRUE IF $\Delta R = ROAS_{PMAX} - ROAS_{SSC} > 0$ Where $\Delta R = ROAS_{PMAX} - ROAS_{SSC}$.	$\Delta R = 4.01-4.57 = -0.57$ Therefore, $\Delta R < 0$	Rejected
I. **H3 -** Google Ads' smart bidding = (Target ROAS) has more significant impact on ROAS than manual bidding strategy.	TRUE IF iROAS >0 Where iROAS = $ROAS^{STB} - ROAS^{MD}$	iROAS = 8.23-0.86 = 7.37 Therefore, iROAS > 0	Accepted

5.5 PRATICAL CONTRIBUTIONS

5.5.1 INSIGHT TO PPC MANAGERS AND PPC SPECIALIST

What this implies to PPC managers and specialists is that combining SSC and Pmax is a very great way to harness a higher ROAS. Another important strategic outcome of the study is the need to start with Pmax campaign and have it generate many numbers of conversions before creating shopping campaigns. In this way, it will reduce ROAS down time since it will take the standard shopping campaign longer period before recording a significant ROAS. Google ads uses account history to determine average target cost per acquisition and average target ROAS. Since Google ads require a minimum of 15 conversions and a certain ROAS history before one can set up smart

bidding strategy on standard shopping campaigns, it then become imperative to use Pmax campaign to gain accelerated traction on account history of ROAS to enable better and strategic campaign optimizationduring the time SSC is running on manual bidding.

5.5.2 MANAGERIAL PLANNING AND CONTROL

This study proposes a managerial decision and budgetary allocation in terms of campaign planningin b2c ecommerce advertising. It proposes allocating more budget to performance max campaign at the first two months of the campaign before diversifying to standard shopping campaign. This will enable maximum ROAS since the SSC will have exit manual bidding before getting the required ROAS.

5.5.3 OPPORTUNITY FOR PRODUCT FEATURE UPGRADE

The result of this study shows that standard shopping campaign has a higher ROAS when treated with smart bidding strategy. The present technical development features of the standard shopping campaign only allow it to run on manual bidding strategy until a certain number of conversions has been registered before it can switch from manual bidding to smart bidding. Upgrading the SSC to run on smart bidding strategy during the campaign setup stage without the need to get a certain number of conversions before switching from manual to smart bidding strategy will present more opportunityto advertisers to deliver more ROI by boosting the ROAS right from the beginning of the campaign.

6 CONCLUSION

This study delved deeply into the impact of Marketing automation on Google Ads PPC management and the attendant effect of Tenscore-Third-party automation tool. The study was able to establish that that use of marketing automation is a leading trend in PPC advertising that harnesses the large chunk of data involved in Google ads PPC and streamlined them in more optimized form for better performance. The study was able to establish that the Performance Max campaign can reduce time used in creating and setting up campaigns as it blended the ads assets across all the Google ads inventories.

The task and cumbersomeness of creating different Google ads assets thatwill appear on all inventories of Google such as YouTube, display network, The study found out that Google ads PPC advertising is becoming too complex for human management and therefore established that one of the best automated features against manual maipulation is the use of Google ads automated bidding strategy to gain higher return on ad spend. ROAS The study concludes that smart bidding strategies with target ROAS has great positive impact on return on ad spent. It wasvery evident in the study that a transition from manual bidding in standard shopping campaign will exit a standard shopping campaign from low ROAS to a higher and positive return on ad spend. This revelation is in contract to many other studies that had predicted that Pmax campaign has more potentiality of generating a higher ROAS than standard campaign.

The campaign bulk ad grouping structure and how to organize them into efficient themes that will blend into Tenscore as a third-party automation in this study proved to be very effective by creating an interface between Google ads campaigns and PPC management especially in restructuring acampaign.

6.1 RESEARCH LIMITATION

This research is limited by some factors which includes the volume and scope of the PPC metrics involved. These limitations range from the period from which the data were extrapolated to the amount of campaign budge and the type of services been targeted which in this case are largely B2C industries. Data in PPC management are greatly impacted over long period of time and the size

of campaign budge under investigation. Many big sized companies with very large amount of campaign budget may have varied observations in analysis with the automation tool and campaign features been used.

Further studies should endeavor to explore bigger campaign data by extracting metrics from large campaign budget from multi-national companies and agencies. Also having access to data ranging over 12months of active campaign period will bring a more full-detailed study that will be more valid in making data driven decisions. The third-party tools used in the project are standard subscription-based model which have limited functionality compared to full-option subscriptions that have all the third-party automation features. The research only explores the use of Google ads PPC as the digital marketing channels, there may be valid hypothesis that the results and conclusion reached in this research may not be applied in other digital marketing channels like paid socials as this was not considered during the research process and application.

6.2 SUGESTIONS FOR FURTHER STUDIES

Attribution model plays a very important role in deciding the conversion metrics as it defines the different levels of touch points before giving conversion credits to a given campaigns The different types of attributions present in Google Ads PPC as at the time of this study are data-driven, last clicks and positioned based attributions models (Google Ads General Resources, 2023). This study uses last click model, which implies that only KPI generated through last clicks are counted. It is estimated that this may affect the performance of a given campaign. Research on attribution model has shown that many returning users who did not complete a purchase on their first visit are being counted as a direct visitor and the values of their transactions are not eventually been credited to the campaigns that initially brought them to the website (Rutz et al., 2009). Therefore, this research recommends subjectingfuture experiments into various attribution models as possible to ensure that each campaigns are given the credits it deserved as different types of campaigns may perform best in aparticular attribution model than others.

Generative AI should be integrated in the next study to evaluate how this will affect the target KPIs.Google indicated during the 2023 Google Marketing Live (GML) held in the month of May,

2023 thatit would be launching automated assets creation that will use a generative AI to write headlines and text ads using customers search queries. The implication of this is that the ads that will be seen by users will be written by AI in real time and in consonants with their searches on the search engines. During the time of this research, this feature has not been officially launched. Future studies should integrate this generative automation techniques with a view of finding their impacts in PPC campaign management as against the static campaign assets creation.

Integrating google product studio That allows automated creation of products images and linking them into the merchant center should also be researched upon as these are the projected marketing automation features that will be seen at the end of 2023 with the aim of deepening automation in Google ads creation and management.

Further studies should endeavor to integrate first party data in their Google ads PPC channels while carrying out further studies in related topics. This suggestion is made based on the expected impact that first party data are assumed to have on refining AI driven campaigns optimization including standard campaigns tool. Integrating first party data may have the likelihood of impactingon the results and conclusion.

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APPENDIX

Standard shopping campaign search terms from google ads

Search terms
March 20, 2023 - June 4, 2023

S/No.	Search term	Clicks	Impr.	CTR	Conversions	Avg. CPC	Cost	Currency cod
1	original swat boots	7	1,147	0.61%	0	0.89	6.23	CAD
2	swat boots	5	1,014	0.49%	0	0.77	3.84	CAD
3	swat boots canada	5	318	1.57%	0	0.61	3.04	CAD
4	tactical boots	1	232	0.43%	0	1.35	1.35	CAD
5	original swat canada	1	168	0.60%	0	0.39	0.39	CAD
6	pkg carry goods	2	165	1.21%	0	1	1.99	CAD
7	tactical gloves	1	152	0.66%	0	0.47	0.47	CAD
8	swat original boots	2	148	1.35%	0	0.92	1.83	CAD
9	original s w a t boots	0	136	0.00%	0	--	0	CAD
10	suspenders for men	2	133	1.50%	0	0.5	1	CAD
11	botte swat homme	2	132	1.52%	0	0.53	1.06	CAD
12	turtle skin gloves	11	124	8.87%	0	0.59	6.51	CAD
13	puncture proof gloves	5	121	4.13%	0	0.4	1.99	CAD
14	needle proof gloves	5	116	4.31%	0	0.43	2.16	CAD
15	triform notebook	8	112	7.14%	3	0.41	3.31	CAD
16	original swat classic 6	0	102	0.00%	0	--	0	CAD
17	original swat classic 9	0	97	0.00%	0	--	0	CAD
18	s w a t boots	4	83	4.82%	0	0.65	2.6	CAD
19	botte original swat	2	80	2.50%	1	0.42	0.83	CAD
20	swat boots edmonton	0	78	0.00%	0	--	0	CAD
21	puncture resistant gloves	2	75	2.67%	0	0.48	0.96	CAD
22	police notebook	2	74	2.70%	0	0.47	0.93	CAD

	A	B	C	D	E	F	G	H	I
26	23	police duty belt	1	68	1.47%	0	0.5	0.5	CAD
27	24	tactical boots canada	0	66	0.00%	0	--	0	CAD
28	25	luggage works	1	65	1.54%	0	0.42	0.42	CAD
29	26	tactical backpack	0	64	0.00%	0	--	0	CAD
30	27	swat safety boots	1	63	1.59%	0	0.5	0.5	CAD
31	28	turtleskin gloves canada	1	63	1.59%	0	0.36	0.36	CAD
32	29	turtleskin gloves	3	61	4.92%	0	0.72	2.15	CAD
33	30	police belt	0	61	0.00%	0	--	0	CAD
34	31	police boots	0	61	0.00%	0	--	0	CAD
35	32	swat shoes	0	61	0.00%	0	--	0	CAD
36	33	original swat boot zippers	0	61	0.00%	0	--	0	CAD
37	34	swat combat boots	1	59	1.69%	0	0.41	0.41	CAD
38	35	police search gloves	0	59	0.00%	0	--	0	CAD
39	36	original swats	0	57	0.00%	0	--	0	CAD
40	37	magnum boots	0	56	0.00%	0	--	0	CAD
41	38	needle resistant gloves	2	53	3.77%	0	0.38	0.75	CAD
42	39	original swat boots canada	2	53	3.77%	0	0.79	1.57	CAD
43	40	duty belt keepers	0	52	0.00%	0	--	0	CAD
44	41	combat boots	0	50	0.00%	0	--	0	CAD
45	42	handcuff keys	1	49	2.04%	0	0.31	0.31	CAD
46	43	police notebook cover	0	49	0.00%	0	--	0	CAD
47	44	padded inner duty belt	0	49	0.00%	0	--	0	CAD
48	45	shooting gloves	0	49	0.00%	0	--	0	CAD
49	46	original swat chase 9	1	48	2.08%	0	0.25	0.25	CAD
50	47	swat waterproof boots	0	48	0.00%	0	--	0	CAD