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# Development of an implementation framework and social media analytics tool for Tanzania's tourism small and medium-sized enterprises

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**DEVELOPMENT OF AN IMPLEMENTATION FRAMEWORK AND  
SOCIAL MEDIA ANALYTICS TOOL FOR TANZANIA'S TOURISM  
SMALL AND MEDIUM-SIZED ENTERPRISES**

**Shadrack Madila**

**A Thesis Submitted in Partial Fulfilment of the Requirements for the Degree of Doctor of  
Philosophy in Information and Communication Science and Engineering of the Nelson  
Mandela African Institution of Science and Technology**

**Arusha, Tanzania**

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## ABSTRACT

Tourism is among the sectors that contribute greatly to the economic development of many countries. The industry contributes the growth of countries' economies and employment in 2019 it contributed 10.3% of the global gross domestic product and 330 million jobs. Majority of organisations in the tourism sector operate as small and medium enterprises (SMEs). Tourism SMEs prominently use ICT services including social media in their daily business activities. Performing social media analytics has the potential to bring maximum advantage to social media business users as it can provide insights of social media data for added business competitiveness. Tourism SMEs are conducting SMA in their business activities even though there is no framework to govern the process. There is a need for these tourism SMEs to have an implementation framework that governs the implementation and management of the SMA process.

This study aims to develop a social media analytics implementation framework and a social media analytics tool for tourism SMEs in Tanzania. The study used questionnaires to survey tourism SMEs in the Arusha and Kilimanjaro regions to determine their social media analytics practices. The study found that majority of tourism SMEs 73% have not adopted the use of social media analytics tools and technologies. The 27% of SMEs that have adopted the use of social media analytics tools perform simple analytics using built-in tools from social media platforms, and don't have guidelines or procedures to aid the implementation of social media analytics.

The study is unique in that, it proposes a social media analytics implementation framework to assist tourism managers in implementing social media analytics in their social media platforms and the social media analytics tool. The framework was evaluated by tourism SMEs and the majority 86.66% agreed that it is appropriate for their usage. The study also introduces the social media analytics tool which will provide insight into the social media data of tourism SMEs. This research contributes knowledge and information about social media analytics to tourism SMEs managers and owners and provides the implementation framework and the social media analytics tool to tourism managers.

## DECLARATION

I, Shadrack Madila, do hereby declare to the Senate of the Nelson Mandela African Institution of Science and Technology that this dissertation is my original work and that it has neither been submitted nor being concurrently submitted for a degree award in any other institution.

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## CERTIFICATION

The undersigned certify that, they have read and hereby recommend for acceptance by the Nelson Mandela African Institution of Science and Technology a dissertation titled “Development of an implementation framework and social media analytics tool for Tanzania's tourism small and medium-sized enterprises business intelligence” in partial fulfilment of the requirements for the degree of Doctor of Philosophy in Information and Communication Science and Engineering of the Nelson Mandela African Institution of Science and Technology.

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## **DEDICATION**

*I dedicate this thesis to my family.*



## TABLE OF CONTENTS

ABSTRACT.....	i
DECLARATION .....	ii
COPYRIGHT.....	iii
CERTIFICATION .....	iv
ACKNOWLEDGMENTS .....	v
DEDICATION.....	vi
TABLE OF CONTENTS.....	vii
LIST OF TABLES.....	xii
LIST OF FIGURES .....	xiii
LIST OF APPENDICES.....	xv
LIST OF ABBREVIATIONS AND SYMBOLS .....	xvi
CHAPTER ONE.....	1
INTRODUCTION .....	1
1.1 Background of the Problem .....	1
1.2 Statement of the Problem.....	3
1.3 Ratioanale of the Study.....	4
1.4 Research Objectives.....	4
1.4.1 General Objective .....	4
1.4.2 Specific Objectives .....	5
1.5 Research Questions.....	5
1.6 Significance of the Study .....	5
1.7 Delineation of the Study .....	6
CHAPTER TWO .....	7
LITERATURE REVIEW .....	7
2.1 Definition of Terms.....	7

2.1.1	Tourism Small and Medium Size Enterprises .....	7
2.1.2	Social Media Usage by Small and Medium Size Enterprises.....	7
2.1.3	Social Media Analytics .....	8
2.1.4	Social Media Analytics Applications.....	9
2.1.5	Social Media Analytics Techniques.....	10
2.1.6	Social Media Analytics in Tourism Sector .....	10
2.1.7	Social Media Analytics Implementation Frameworks.....	11
2.1.8	Related works.....	12
2.2	Theoretical Literature Review .....	14
2.2.1	Technology Organisation and Environment .....	14
2.2.2	Technology Acceptance Model .....	14
2.2.3	Unified Theory of Acceptance and Use of Technology .....	15
2.3	Research Gap .....	16
CHAPTER THREE .....		17
MATERIALS AND METHODS.....		17
3.1	Research Philosophy .....	17
3.2	Research Design.....	17
3.3	Description of the Study Area.....	18
3.4	Study Population.....	19
3.5	Sampling Techniques.....	20
3.6	Sample Size.....	20
3.7	Sources of Data and Data Collection Methods .....	20
3.8	Reliability and Validity of Data .....	21
3.8.1	Reliability of the Study Instruments .....	21
3.8.2	Validity of the Study Instruments .....	22
3.9	Data Analysis Techniques.....	22

3.10	Programming Language.....	22
3.11	Social Media Analytics Implementation Framework Development Methodology .....	22
3.12	System Development Methods .....	23
3.12.1	Social Media Analytics Prototype Development.....	23
3.12.2	System Requirements Gathering.....	24
3.12.3	Functional Requirements .....	24
3.12.4	Non-Functional Requirements .....	24
3.12.5	Tourism SMEs SMA Insight Tool System Structure .....	24
3.12.6	Data Flow Diagram.....	25
3.12.7	Use Case Diagram.....	26
3.13	Tourism SMEs, SMA Implementation Framework Evaluation .....	27
3.14	Tourism SMEs, SMA Prototype Evaluation.....	27
CHAPTER FOUR.....		29
RESULTS AND DISCUSSION .....		29
4.1	Descriptive Statistics.....	29
4.2	Organisation and Respondents Information.....	29
4.2.1	Organisation Information.....	29
4.2.2	Respondents Information .....	29
4.3	Social Media Analytics Practice and Enhancement Requirements .....	33
4.3.1	Tourism SMEs Social Media Platform Presence.....	33
4.3.2	Tourism SMEs Purpose of Using Social Media .....	33
4.3.3	Motivation for Using Social Media Platforms.....	34
4.3.4	Benefits of Using Social Media Platforms.....	35
4.3.5	Tourism SMEs SMA Performance .....	35
4.3.6	Tourism SMEs Managers Knowledge of SMA .....	35
4.3.7	Tourism SMEs Usage of SMA Tools .....	36

4.3.8	How Tourism SMEs which are not Using SMA Tools Measure their Social Media Campaign.....	36
4.3.9	Tourism SMEs Intention to Use SMA Tools.....	37
4.3.10	How Soon the Tourism SMEs will Adopt Use of SMA Tools.....	38
4.3.11	Reasons for Tourism SMEs not to Adopt SMA Tools .....	38
4.3.12	Tourism SMEs Realisation of Expectation of Using SMA in their Social Media Platform.....	39
4.3.13	How Difficult for SMEs to Adopt Using SMA Tools .....	40
4.3.14	Technology Compatibility of Conducting SMA in Tourism SMEs in their Business Process .....	40
4.3.15	Tourism SMEs Challenges of Adopting SMA .....	41
4.3.16	Tourism SMEs Top Managers Understanding on the Benefit of Doing SMA .....	42
4.3.17	How Tourism SMEs Employees Influence the Adoption of SMA Tools ...	42
4.3.18	Tourism SMEs Top Management Readiness to Support Employees Conduct SMA .....	43
4.3.19	Influence of Competitive Presence in Tourism Industry in Adoption and Usage of SMA.....	44
4.3.20	Government Regulations Support in SMEs Adoption and Use of SMA.....	44
4.3.21	Social Media Analytics Tools Used by Tourism SMEs .....	45
4.3.22	Social Media Metrics Measured by Tourism SMEs During SMA .....	45
4.3.23	How Tourism SMEs Perform SMA.....	46
4.3.24	How Often Tourism SMEs Perform SMA in their Social Media Platforms	47
4.3.25	How Tourism SMEs Acquire Knowledge About SMA .....	48
4.3.26	How Useful is the Usage of SMA to Tourism SMEs? .....	48
4.3.27	Procedure for Conducting SMA .....	48
4.3.28	Social Media Information the Tourism SMEs wants to Find Insight About .....	49

4.4	Social Media Analytics Tourism SMEs Implementation Framework .....	49
4.4.1	Proposed Tourism SMEs, SMA Implementation Framework.....	49
4.4.2	Set-up Phase.....	50
4.4.3	Implementation Phase.....	51
4.4.4	Completion Phase .....	53
4.4.5	Social Media Analytics Implementation Framework User Evaluation .....	54
4.5	Tourism SMEs, Web Based SMA Tool Prototype Development.....	55
4.5.1	Developed System Prototype Functional Requirements.....	55
4.5.2	Developed Tourism SMEs, SMA Tool System Functionalities .....	56
4.5.3	Login Interface.....	57
4.5.4	Age of Page Visitors .....	57
4.5.5	Language of Page Visitors .....	58
4.5.6	Likes, Dislikes, Comments and Share .....	59
4.5.7	Location of Page Visitors.....	59
4.5.8	Sentiment Analysis .....	60
4.5.9	Prediction Analysis .....	61
4.5.10	System Prototype Evaluation.....	62
4.6	Discussion.....	64
	CHAPTER FIVE .....	69
	CONCLUSION AND RECOMMENDATIONS .....	69
5.1	Conclusion .....	69
5.2	Recommendations.....	70
	REFERENCES .....	71
	APPENDICES .....	83
	RESEARH OUTPUTS .....	90

## LIST OF TABLES

Table 1:	Cronbach's alpha coefficient for reliability test .....	21
Table 2:	Organisation information.....	30
Table 3:	Respondents information .....	31
Table 4:	The SMA implementation framework evaluation results.....	55
Table 5:	System Prototype Functional Requirements.....	56
Table 6:	Tourism SMEs, SMA tool system functions .....	57
Table 7:	Summary of the SMA tool user system prototype evaluation .....	64

## LIST OF FIGURES

Figure 1:	Social media analytics process (Fan, 2014) .....	9
Figure 2:	Unified theory of acceptance and use of technology .....	16
Figure 3:	Design Science Cycle (Hevner, 2007) .....	18
Figure 4:	Map of Tanzania indicating the study area with blue color .....	19
Figure 5:	Scrum-based software development method.....	24
Figure 6:	Tourism SMEs SMA tool prototype system structure .....	25
Figure 7:	The TSSMI data flow diagram .....	26
Figure 8:	Use case diagram.....	27
Figure 9:	Tourism SMEs social media platforms presence .....	33
Figure 10:	Purpose of tourism SMEs to use social media .....	34
Figure 11:	Tourism SMEs motive to use social media on their business process .....	34
Figure 12:	Tourism SMEs benefit of using social media .....	35
Figure 13:	Tourism SMEs managers' knowledge of SMA .....	36
Figure 14:	How Tourism SMEs which are not Using SMA tools to measure their social media campaign .....	37
Figure 15:	Tourism SMEs Intention to use SMA tools .....	37
Figure 16:	How Soon Tourism SMEs will Adopt Use of SMA .....	38
Figure 17:	Reasons for tourism SMEs not adopting use of SMA in their social media platforms.....	39
Figure 18:	Tourism SMEs Realisation of Expectation of Using SMA in their Social Media Platform .....	39
Figure 19:	How difficult for SMEs to adopt use of SMA tools.....	40
Figure 20:	Tourism SMEs technology compatibility using SMA tools .....	41
Figure 21:	Tourism SMEs challenges of adopting SMA.....	41
Figure 22:	Tourism SMEs managers understanding of using SMA tools .....	42
Figure 23:	Tourism SMEs employees influence on the adoption of SMA tools.....	43

Figure 24: Tourism SMEs top manager's readiness to support employees to conduct SMA	43
Figure 25: Influence of competitiveness in tourism industry in adoption of SMA .....	44
Figure 26: Government regulation support in SMEs adoption and use of SMA.....	45
Figure 27: The SMA tools used by tourism SMEs .....	45
Figure 28: Social media metrics performed by SMEs .....	46
Figure 29: How tourism smes performed SMA.....	47
Figure 30: How frequent tourism SMEs perform SMA .....	47
Figure 31: Usefulness of SMA to tourism SMEs .....	48
Figure 32: Business Activities Tourism SMEs wants to Find Insight About .....	49
Figure 33: Proposed SMA implementation framework.....	50
Figure 34: The SMA process .....	53
Figure 35: The TSSMI login interface.....	57
Figure 36: Age and gender of page visitors .....	58
Figure 37: Language of page visitors.....	58
Figure 38: Number of visitors likes social media page.....	59
Figure 39: Geographical location of social media platform page visitors .....	60
Figure 40: Social Media Post Sentiment Analysis Results .....	60
Figure 41: Python codes for extracting data from the facebook page .....	61
Figure 42: Python codes for reading data from .CSV file and performing prediction .....	62
Figure 43: Prediction Results from the social media Comments.....	62
Figure 44: System prototype technical evaluation results .....	63



## LIST OF APPENDICES

Appendix 1: Questionnaire .....	83
Appendix 2: Poster Presentation.....	91

## LIST OF ABBREVIATIONS AND SYMBOLS

API	Application Programme Interface
BI	Business Intelligence
COVID	Corona Virus Disease
CRM	Customer Relationship Management
CUP	Capture, Understand and Present
EBSCO	Elton B. Stephen Company
IBM	International Business Machine
ICT	Information Communication Technology
IEEE	Institute of Electrical and Electronics Engineers
IT	Information Technology
NBS	National Bureau of Statistics
NLTK	National Language Took Kit
PR	Public Relation
SMA	Social Media Analytics
SME	Small and Medium Sized Enterprises
SPSS	Statistical Package for Social Science
STEM	Science Technology Engineering and Mathematics
TAM	Technology Acceptance Model
TOE	Technology, Organization and Environment
TSSMI	Tourism SMEs Social Media Insight
TV	Television
TVET	Technology and Vocational Education Training
UTAUT	Unified Theory of Acceptance and Use of Technology
WHO	World Health Organization

## CHAPTER ONE

### INTRODUCTION

#### 1.1 Background of the Problem

Tourism is among the major sectors which have a significant role in the Tanzanian economy. It is one of the leading sectors which brings foreign exchange and generates many employment opportunities (Malleo & Mtengwa, 2018). The world travel and tourism council 2020 reported that 2019 the tourism sector contributed 10.3% of global gross domestic product and about 330 million jobs (WTTC, 2020). In Tanzania, tourism is the second-largest contributor to national income after manufacturing. In 2019 it contributed 10.7% of the country's gross domestic product, and it is also important in poverty alleviation and job creation (Wamboye *et al.*, 2020; Kyara *et al.*, 2021). Most tourism firms are operated as small and medium-size enterprises (SMEs). These tourism SMEs have huge contributions to several economic practices e.g., regional promotion, new employment and increasing revenue. Information and Communication Technology (ICT) is alternative support for the growth and increasing performance of tourism SMEs (David & Musabila, 2021). The SMEs in tourism industry are among the prominent users of social media platforms in their business processes (Ndekwa & Katunzi, 2016). The majority of tourists plan their travel based on social media reviews and shares. In this case it is inevitable for tourism SMEs to have their presence in different social media platforms, but also to track and collect data and evidence from social media-generated contents to make business decisions (Josh & Rashod, 2021).

Social media brings a new way for people to interact, cooperate and collaborate involving content generated by users and used to connect people through many-to-many instead of one-to-many communication approach (McCann & Barlow, 2015). These social media technologies are widely used in sharing variety of information. By using social media platforms individuals can share photos, conduct podcasts, construct blogs, share videos etc. Social Media data comes from many sources and in different forms such as blogspot, micro-blogs, social networking, wikis, and multimedia sharing.

Nowadays social media has become an important way of sharing information and communication with other media. Social media is easy to use and free which can provide business connections to customers at a quick and low cost (Fischer & Reuber, 2011). Social media is used by SMEs as an effective tool for doing marketing activities. Compared to other

marketing platforms social media has many tools which are easy and free (Levinson & Gibson, 2010). Kazungu *et al.* (2017) concluded that micro-enterprises are social media users to a large extent hence contribute to increasing performance and growth. There is evidence that social media has caused these enterprises to grasp many customers and meet their needs, and give advantages including brand awareness, customer base, profit gain, sales volume and brand image.

Social media analytics (SMA) defined as the approach to assemble data from different social media platforms, for instance, Facebook, Twitter, LinkedIn, WhatsApp and then evaluating and analysing data to make different business decisions (Hayat *et al.*, 2019). This is a new field which enables businesses to improve performance of organisation initiatives through different business functions. It can gather customer insight on needs and preferences, measuring the efficiency of their promotions, receiving feedback on performance of the product and viewing marketing trend data. These SMA tools are capable of providing useful information to different business departments including sales and marketing, customer relation, product development and public relations (Ruhi, 2014). The SMA can be applied to identify expressions that give understanding to social media posts also gives companies opportunities in some aspects like advertisement and customer relationship management (Coen, 2016). Social media analytics (SMA) helps organisations to connect with customers and to determine how customers understand and perceive their products, brands and services using the generated content on social media platforms. The SMA tools enable organisations to plan for better market campaigns, provide better and interactive customer services, analysis of the consumer's comments and identify company's key influencers (Bekmamedova *et al.*, 2014).

Business companies can use SMA results in many operations. Stieglitz *et al.* (2014) found a big interest in analysing social media data for research but also for practical purposes. According to the authors analysing social media data, there is an opportunity for the company to target advertising, public relations, social customer relationship management (CRM), and business intelligence (Stieglitz, 2014). There are several SMA tools which are used by companies in analysing and assessing the impact of their social media campaigns on business processes. Other tools come with the social media platforms like Facebook analytics and Twitter Analyser which provides data on traffic regarding the number of followers, comments, likes, etc. Other tools like Google analytics are used in measuring site traffic and

how a brand and company products are mentioned (McCann & Barlow, 2015). Organisations have to spend some time to find out which tools give the intelligence that is in line with SMA measures for needed outcomes of organisations' social media campaigns (Ruhi, 2014; Zerres, 2021).

These SMA tools can also be used for business intelligence (Hu *et al.*, 2010; Russo *et al.*, 2021). Business Intelligence (BI), mainly has to support making decisions specifically for high-level managers and business analysts. It involves the application of technology to collect, synchronise, integrate and store data so that huge amounts of data can be retrieved and analysed (Abai, 2016). But SMA also gives “competitive intelligence” by providing businesses to understand their environments, supplier’s environments, competitor’s environments, and other business topics trends. Instead of gathering business intelligence from several other sources, obtaining information from social media about suppliers or competitors is easy for an organisation to monitor its affairs (Fan, 2014). Both BI and SMA can be used by SMEs to give insight of their business activities, but using SMA to provide business insight is easy and cheap, that is why SMEs are using social media analytics to get insight of their business activities (Mouyassir *et al.*, 2021; Spena, 2021; Choi *et al.*, 2020).

Several studies have developed and proposed SMA frameworks in different applications (He *et al.*, 2015; Karim *et al.*, 2016; Moe & Schweidel, 2017). Despite having several frameworks for SMA, there is a lack of SMA frameworks describing systematic approaches, methods and techniques required to implement and manage SMA for tourism SMEs. This study proposes an implementation framework for SMA to be used as business intelligence tool for tourism SMEs in Tanzania. The Tourism SMEs web-based SMA tool prototype has been developed to be used with the proposed implementation framework. The SMA tool was developed to promote the ICT innovation and encourage the development of local digital contents in Tanzania as it is emphasized by Tanzania ICT policy, 2016. Tourism SMEs have been chosen because the sector has proven to be very appropriate for ICT adoption and application, including the usage of social media platforms (Ndekwa & Kazungu, 2016).

## **1.2 Statement of the Problem**

Msuya *et al.* (2016) found that ICT adoption in Tanzania SMEs has risen from almost non-existent in 2004 to 80.1% computer usage, 68.9% users of internet, 56.6% own website, and 72.2% email by 2014. It has also been discovered that more than 53% of the SMEs are using

ICTs as a strategic communication channel and marketing tool. In addition to that, 47% of the SMEs were found competitive due adoption and usage of ICT. Research results also show that 53% of SMEs that adopted ICTs are not using the technologies to their advantage. Among the ICT adoption to SMEs is the usage of social media platforms in business activities. Different frameworks have been developed for SMA (He *et al.*, 2015; Karim *et al.*, 2016; Moe & Shweidel, 2007). However, the developed frameworks do not explain the procedures and guidelines on how to conduct SMA. Studies found that many organisations are struggling in the adoption, implementation and use of SMA techniques due to lack of proper guidelines for using the tools and technologies (Owyang, 2011; Ruhi, 2014). There is a need to develop an appropriate framework to seamlessly facilitate the implementation of SMA to tourism SMEs.

### **1.3 Ratioanale of the Study**

Implementation frameworks help new users of the technologies to quickly adopt and use the technology (Mfanga *et al.*, 2017). This study developed the implementation framework and the SMA tool to be used for tourism SMEs business intelligence. The study conducted by Zerres (2021), Ndiege (2019) and Lee (2018) explains the necessity of having a framework that will guide the implementation of SMA tools and technologies. The developed implementation framework will enhance the tourism SMEs ability to adopt and use the SMA so that they can gain the maximum advantages of using social media platforms. Also, the study developed the SMA tool, which will be used by tourism SMEs. Currently, there is no SMA tool that is designed and developed for tourism SMEs with their own requirements. Based on the main research problem, this study developed a framework for the implementation of SMA strategies for tourism SMEs in Tanzania and the SMA tool to be used in line with the proposed framework. The study chose the tourism sector due to its high contribution to gross domestic product and job creation. About 10.3% of the gross domestic product and 330 million jobs were from the tourism sector in 2019 globally, and 10.7% of the gross product in Tanzania (WTTC,2020).

### **1.4 Research Objectives**

#### **1.4.1 General Objective**

To develop a social media analytic implementation framework and analytics tool for Tanzania's small and medium-sized tourism enterprises.

### **1.4.2 Specific Objectives**

The study aimed to achieve the following specific objectives:

- (i) To identify the current social media analytics practices among tourism small and medium size enterprises in Tanzania.
- (ii) To develop social media analytics implementation framework.
- (iii) To validate the developed social media analytics implementation framework.
- (iv) To develop and validate the tourism small and medium size enterprises social media analytics tool.

### **1.5 Research Questions**

The study intended to answer the following questions:

- (i) What is the current practise of SMA application use in tourism SMEs in Tanzania?
- (ii) What is the appropriate framework that can guide the implementation of SMA tool among tourism SMEs?
- (iii) How is the developed SMA implementation framework fits reality?
- (iv) What SMA tool is suitable for Tanzania's tourism SMEs social media data analytics?

### **1.6 Significance of the Study**

This study aims to provide the SMA implementation framework and the SMA tool for tourism SMEs business intelligence in Tanzania. Tourism SMEs are using social media in their business activities, some of the tourism SMEs are not performing SMA in their business intelligence so they failed to gain maximum advantages of using social media. The development of SMA implementation framework for tourism SMEs will enhance the usage and simplify the implementation of SMA in their social media business process. The framework will guide the tourism SMEs owners and managers on how to effectively implement SMA within their business operations to take full advantage of the opportunity. The framework will provides a view point of an organisation's strategic plans, and measures performance on the operational level, and several social media metrics that can be worked

together to those performance measures (Ruhi, 2014). Furthermore, SMA tools to be used for business intelligence will be developed. The developed tool will have some metrics to determine customer location, sentiment analysis, prediction analysis and other metrics available to the social media platforms specifically for Tourism SMEs.

The SMA implementation framework will therefore be significant and promote the use of ICT in tourism SMEs. The outcome of the study will be useful for tourism SMEs managers and decision-makers; for researchers to obtain the current status of adoption and usage of the SMA in tourism SMEs in Tanzania; for governments and stakeholders to understand the current practice of tourism SMEs regarding SMA usage. The study also will provide a roadmap and step-wise procedures for the implementation and use of SMA to Tanzanian tourism SMEs. The study also will provide a background for development of SMA implementation framework for other sectors. Lastly the study developed the tourism SMEs SMA tool prototype.

### **1.7 Delineation of the Study**

The study was limited to tourism sector SMEs in northern Tanzania. The tourism sector is among the better performing sectors and provide more in the national income (Malleo & Mtengwa, 2018). In 2020 tourism sector contributed 10.3% global gross domestic product and 10.7% of Tanzania gross domestic product (WTTC, 2020; Kyara, 2021). The study focused on tourism SMEs managers and owners and the framework developed was evaluated by the same who are implementors of the SMA in the social media business activities.



## CHAPTER TWO

### LITERATURE REVIEW

#### 2.1 Definition of Terms

##### 2.1.1 Tourism Small and Medium Size Enterprises

Small and Medium Size Enterprises (SMEs) refer to firms with less than 100 employees and a capital of up to 800 million Tanzania Shillings (Kilangi, 2012). Tourism SMEs include business activities in hospitality and tourism such as food and accommodation services, souvenirs, transportation, tour guides, travel agents, and other services offered to visitors. (Deyshappriya & Nawarathna, 2020). The Tanzania's tourism sector is dominated by SMEs, and most of the tour operators are from this group (David, 2021).

##### 2.1.2 Social Media Usage by Small and Medium Size Enterprises

Social media means contents produced through involvement of social interactions. The social media come in different platforms which offer different services and tools to help building connections between firms and consumers (Jones, 2015). According to Statista (2022), there are 4.65 billion active global social media populations worldwide. There are a variety of social media platforms available that can be used by business companies. They include different forms of platforms such as social networking websites, content communities, blogspot, virtual social worlds, collaborative social projects and virtual game worlds (Kaplan & Haenlein, 2010).

Due to the advancement and wide usage of internet services by SMEs, social media has become one among the new channels to meet customers. Likewise, due to limited resources to the SMEs, social media has become more important to adopt and use for cost-effectiveness. Social media is suitable to SMEs because of low payment cost, low barriers to involvement and low level of IT knowledge essential to use it (Ainin *et al.*, 2015). As usage of social media technologies increases it helps SMEs to gain new strategies to minimise operational cost and better product and service prices, gaining new ways of conducting business and increasing public general awareness and support. Social media provide innovative methods like sharing, collaboration and co-creation which promote more profit and integration of business management functions (Basri, 2016).

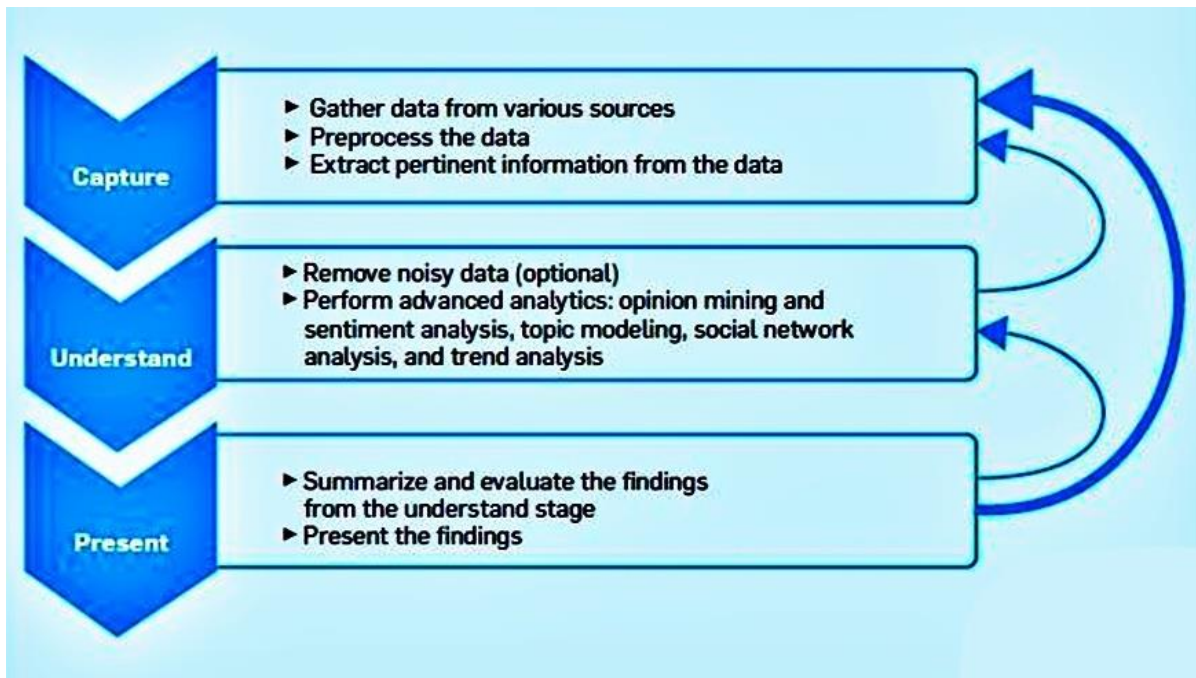
Social media usage has revealed numerous advantages to SMEs, including, increased sales, reduced costs, good customer service, increased brand awareness, increased traffic to the organisation website and expanded business relationships (Sharji, 2018). Social media is used by SMEs for a variety of function, Richard *et al.* (2011) pinpoint that, many businesses now are using social networks to assist with business activities such as marketing, customer relations management, business networking and recruitment. The studies referred in this section show how social media platforms are applicable by SMEs and their advantages.

### **2.1.3 Social Media Analytics**

Social Media Analytics (SMA) is defined as scanning social media data to identify and analyse organisational information due to external surrounding environment to assimilate and use obtained external intelligence to be used for business activity's purpose (Mayeh *et al.*, 2012). The most frequently used social media platforms are Twitter, Facebook, LinkedIn and Instagram. Social medias are used by companies and individuals for data, receiving news and thoughts of customers on various business topics. Increasingly, the users of social media platforms provide the production of huge amounts of information characterised by three main issues such as volume, velocity and dynamism (Wardati & Mahendrawathi, 2019).

In social media, data are generated by users. The generated data can be unsolicited and unscripted and can be available in different format, such as, combine text, videos, web links and sound (Brooker *et al.*, 2016). It poses a challenge to analyse such huge amounts of data of varying variety and high frequency, hence, the need to apply SMA.

According to Fan (2014), SMA includes three stages: capture, understand and present, commonly known as the CUP framework. The capture stage involves collecting social media data by listening to some social media platforms to obtain data and extracting useful information. This can be completed by the organisation or by using a separate vendor. The captured data are not all useful, so in the understanding stage, the process of choosing relevant data to be used and removing noises and unwanted data is performed. Different analytics techniques are applied to selected data to obtain insight from them. The present stage involves results from the understood state which are given in a way that can be clearly understandable. Figure 1 shows the CUP framework.



**Figure 1: Social media analytics process (Fan, 2014)**

#### **2.1.4 Social Media Analytics Applications**

Social Media Analytics (SMA) is used in various applications like business, politics and natural disaster management to mention a few. He *et al.* (2017) conducted a study about SMA in hotel SME. The study aimed to discover the effectiveness of online reviews to recognize how consumers perceive hotels. The purpose of the study was to show business organisations how SMA can be used to detect insights of online reviews using a case study.

Khaleq and Ra (2018) conducted a study on twitter data analytics for disaster relevance and recovery. They develop a framework for a cloud-based SMA. The study used Twitter social media platform. The tweets from Twitter were analysed for disaster relevance, disaster identification as well as disaster recovery. The study was conducted during the occurrence of three major hurricanes and the focus was on studying three stages of disaster, disaster preparation, how to respond to disaster and the recovery process after the disaster occurrence. Stieglitz and Xuan (2012) developed a framework for SMA in political context, they outline several approaches of data tracking, data analysis and corresponding methods that will help gain an insight into political topics discussion in social media. Gayo-Avello *et al.* (2013) used SMA to predict the election's results. Guzman (2021) uses social network analysis to discover influential actors of the social media, presence of sub-communities and their interesting interaction patterns. This helps the social media page owners to use this

information as intelligence because they provide the strategically targeted influential actors (Guzman, 2021). The SMA is an important process for SMEs social media platforms as it delivers insight from social media data to support business decisions.

### **2.1.5 Social Media Analytics Techniques**

There are many techniques that SMA could exploit: sentiment analysis, opinion mining, insight mining, trend analysis, topic modelling, social network analysis, predictive analysis, image analysis, influence analysis, and visual analytics (Holsapple, 2014). Sentiment analysis or opinion mining is the detection of emotions which involve the opinion mining of polarity and subjectivity. Sentiment analysis can be performed by using machine learning approaches by classification and clustering or by using knowledge-based approaches which are lexicons and dictionaries (Alexandridis *et al.*, 2021; Tian *et al.*, 2020). Trend analysis/topic modeling identifying important topics in social media platforms (Ahangama, 2014, Corti *et al.*, 2022). Network analysis is a group of techniques which are used to study online communication, interaction and relationship (Saqr, 2019). Visual analytics is a method that has abilities to combine data from several sources in a way that supports analysis, appraisal, and decision-making (Daradkeh, 2019). Image analysis involves organising the images to the archive which is searchable and can be analysed. Image analysis enables organisations to do mining of image data and extract valuable information (Lee, 2018). Predictive analysis is the situation in SMA to forecast the future events. Several studies have used SMA to predict some situations, for example, Asur and Huberman (2010) used Twitter data to predict the sales of box office.

### **2.1.6 Social Media Analytics in Tourism Sector**

Social Media Analytics (SMA) is performed by tourism SMEs like hotels, restaurants, tour guide operators and other tourism service organisations to help them in business decision-making and to manage their social media campaigns. Several studies have described the application of SMA to tourism SMEs. Park *et al.* (2018) studied the application of SMA for tourism communication during crises, in which the social media managers monitor the comments from the community members during the crisis and provide responses to their consumers. Sentiment analysis social media technique was used by Park *et al.* (2016), He *et al.* (2017) and Berezina *et al.* (2015). Park *et al.* (2016) used SMA in inspecting the emotions of restaurant customers in Asia. The study applied sentiment analysis on the Twitter social

media platform. He *et al.* (2017) showed SMA in execution of the reviews of tourism's comments from different hotels using sentiment analysis to the trip advisor. Berezina *et al.* (2015) applied sentiment analysis to classify satisfied and dissatisfied customers of the hotel using hotel social media platforms, and classify the specific areas where they are satisfied or not. Flores-Ruiz *et al.* (2021) determined tourists from sentiment analysis of Twitter data during COVID-19 pandemic. Geetha *et al.* (2017) used linear regression method to do production of change in customer ratings for hotels, the study also uses sentiment polarity to conduct prediction. Another study conducted by Gao *et al.* (2018) uses SMA to perform competitive analysis to identify the competitors using text mining and sentiment analysis. The studies shows that tourism SMEs are among the users of this technology in their business activities.

### **2.1.7 Social Media Analytics Implementation Frameworks**

Social Media Analytics (SMA) has been finding increasing applications in many sectors including business and marketing. It is used as a source of information for new product design, innovation, customer relationship management and marketing. In social media all generated data from social media posts, users' comments and users replies has to be measured, finding the results and gaining the insight from them instead of just reading the opinions of others (Al-Kubaizi *et al.*, 2018).

For business firm's SMA, it is the emerging tool for business intelligence (Stieglitz, 2012). Several organisations are using SMA and, among those users are small and medium size enterprises. The SMA is used by SMEs to understand why customers use their products and services; this helps them create enterprise competitive advantages (Lee, 2018). There is a high need for businesses to perform SMA in order to get insight into their social media campaigns. Ndiege (2019) argues that the use of social media platforms by SMEs can be more beneficial if they can adopt and use SMA tools. The SMA can perform various analytics on social media contents. Ludena (2019) categorised the type of analysis that can be performed by SMA as predictive analysis, text analysis, effectuation analysis, statistical analysis and social media activity analysis.

Non-adopted Tourism SMEs managers find it difficult to implement SMA due to lack of information and knowledge about it, and those who implement SMA in their social media platforms fail to have maximum advantages of conducting SMA due to lack of procedures

and steps to implement and guide SMA (Madila *et al.*, 2022). Studies show that implementing SMA in SMEs brings a lot of benefits. In order for SMEs to gain these advantages they should follow proper guidelines and procedures to conduct SMA to Tourism SMEs (Madila *et al.*, 2022; Zerres, 2021)

According to the findings of this study, 74% of tourism SMEs that conduct SMA do so without adhering to any known framework or guideline for conducting SMA. A framework is a road map for completing a specific process or set of procedures. According to Lee (2018), there are a variety of tools, both open source and commercial, that provide simple analytics and customised analytics for SMEs; however, there is a lack of methods, typologies, and procedures that SMEs managers can use to perform SMA and choose appropriate techniques for analysing contents available on social media platforms. Hasanain (2015) argued the importance of having an implementation framework to be used as a pilot and to guide the implementation process, which will ensure consistency in adopting a new system.

To effectively use and utilise the SMA, tourism SMEs can benefit from an implementation framework that will guide and enhance SMA implementation. This study propose a simple understandable framework for tourism SMEs that guide the implementation of SMA on their social media platforms in order to gain business intelligence.

### **2.1.8 Related works**

He *et al.* (2015) in their study proposed a social media organisation's competitive analytics framework. The framework provides sentiment benchmarks and important methods for industry marketing intelligence. The framework identifies companies in the same field and then provides the standard for sentiment analysis and normal social network analysis methods to process huge amounts of data generated by users of the social media platforms for conducting comparison and competitive analysis.

Karim *et al.* (2016) developed an SMA capability framework which gives SMA capability for the company to have maximum advantage of data corrected from social media. Business process analytics and SMA were analysed in order to give a study case for necessity of an SMA company capability determination framework. Moe and Schweide (2017) introduced a framework which explains that social media can be a good source of marketing understanding. The study underlined features and characteristics of social media that can be used to deliver good marketing information insight. The study elaborates on the specific

social media news which is believed to provide valuable tools for marketing practice and also discusses other areas for future research.

The seven Cs framework developed by Rautela and Singhal (2020), provides a simple approach to social media analytics that focuses on the key metrics that drive business results. The Cs stands for content, conversation, community, channel, capital, culture and conversion. The framework emphasizes the importance of tracking engagement metrics and using data to optimize social media content and campaigns. The Social Media ROI Pyramid framework, developed by Altimeter Group (2011), provides a structured approach to measuring the return on investment (ROI) of social media marketing efforts. The framework includes three levels: activity metrics, business metrics, and ROI metrics. The goal is to move up the pyramid by measuring increasingly impactful metrics that demonstrate the business value of social media marketing. The existing frameworks explain the characteristics and practices of SMA, however, do not explain the procedures for implementation of SMA tools. Adnan *et al.* (2021) proposed the SMA framework which will increase students who are interested in studying STEM and TVET programs by using SMA in Malaysian high education institution's social media platforms. The framework is developed based on reviewing previous studies which used social media to increase students. The study also identifies the benefits and challenges of the developed framework. Roland *et al.* (2018) introduced a study on framework for use and reporting of SMA for emergency care research. The aim was to have a guideline for reporting previous studies in the field of emergency care. The study conducted by Ali *et al.* (2022), developed a social media big data as a service framework which guides the process of extracting social media data from various platforms and converting them into meaningful information,. The framework also assesses the quality features on the social media collected data. The real-world data was used to perform sentiment analysis on it. Oh *et al.* (2015) implemented SMA framework for brand TV advertisement. The framework was adapted from the CUP SMA framework by Fan and Gordon (2014). The CUP framework involved capture, understand and present stages. Capture is the process of taking social media data from the social media platform. Understanding is assessing the insight from the collected social media data and present is when the analytics results are summarised and shown to the user. In the Oh *et al.* (2015) framework, the identify stage was added which allows the identification of the social media data before capture stage. Stieglitz and Dan-Xuan (2012) introduced the SMA framework to be used in politics to guide on using social media data in political context. The framework

explains the major process of social media data analytics. The major processes outlined in the framework are data tracking or collection, data analysis and the outcome. Different methods were explained in each process in the developed framework.

## **2.2 Theoretical Literature Review**

This study adopted theories from the unified theory of acceptance and use of technology (UTAUT), technology organisation and environment (TOE) and the technology acceptance model (TAM). The UTAUT construct of facilitating conditions and social influence was used to determine the tourism SMEs usage of SMA tools, and the SMA tool development to ensure their acceptance and use. The TOE model is used to determine the adoption of SMA tools and technologies by tourism SMEs. The TAM constructs of ease of use and perceived usefulness were used to develop and evaluate the SMA tool.

### **2.2.1 Technology Organisation and Environment**

The TOE framework is accepted model for studies related to ICT adoptions in organisations, including SMEs. The TOE framework was developed by Tornatzky, Fleischer and Chakrabarti (Eze *et al.*, 2018; Ahmad *et al.*, 2019). The TOE framework focuses mainly to discover how the constructs of technology, organisation and environment influence the adoption and implementation of ICT technologies and services (Mkansi, 2021). The TOE framework has been used to study the ICT adoption in developed countries and developing countries as well. Several studies use TOE to explain the adoptions of ICT technologies and services. Parveen (2012) uses the framework to explain factors which influence the adoption of social media in Malaysia. Gangwar *et al.* (2015) examine the adoption of cloud computing to SMEs using the TOE framework. The study by Wen and Chen (2010) applied TOE to investigate the adoption of e-business and Stieglitz *et al.* (2018) uses the TOE framework in the study of adoption of SMA in crisis management. In this study the TOE framework was deployed to understand the factors which influence the adoption of SMA technologies to tourism SMEs.

### **2.2.2 Technology Acceptance Model**

The technology acceptance model (TAM) is among the useful models in determining the adoption and utilisation of new technology. The TAM model has two factors which are used to determine the adoption and use of new technology: The perception of an individual on how

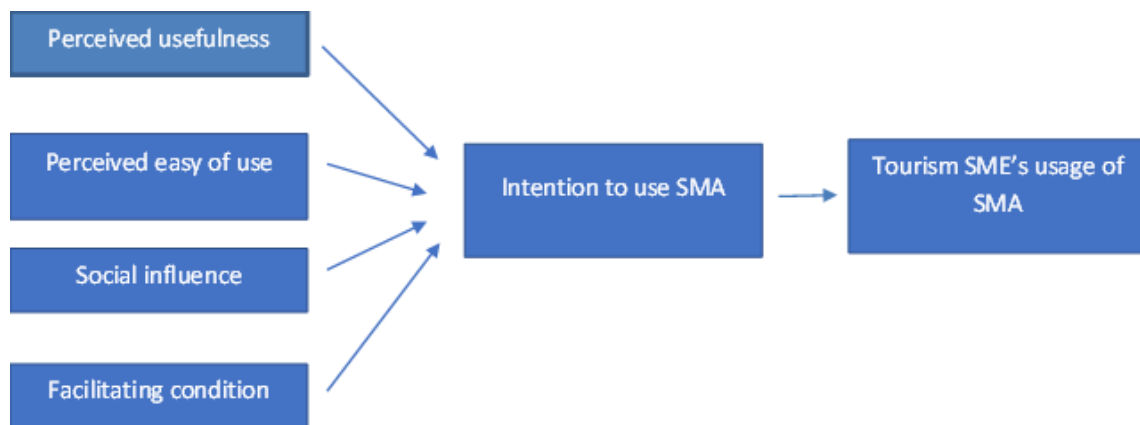


it is easy to use the new technology and how useful the new technology is to the user. The TAM has additional factors which are social influence process and cognitive instrumental process. The use of new technology is extended to cultural and social merits.

The TAM has been used in many SMEs adoption studies. The study conducted by Okundaye *et al.* (2019) applied TAM framework to explain about ICT adoption strategies of small SMEs in Nigeria. Salimon *et al.* (2021) uses TAM to examine the factors that influence Malaysian SMEs adoption of mobile commerce. Shetty and Panda (2022) uses TAM to examine factors which influence the adoption of cloud computing to SMEs in India. In the context of this study, the TAM was Used to develop the SMA tool and evaluate to ensure its adoption and use.

### **2.2.3 Unified Theory of Acceptance and Use of Technology**

Venkatesh *et al.* (2003) introduced a Unified Theory of Acceptance and Use of echnology (UTAUT). The framework explains that acceptance of ICT technology and services depend on four variables: Perceived usefulness, perceived ease of use, social influence and facilitating conditions. In 1989, Davis explains that perceived usefulness is the perception of users on the technology that using such technology will expand the organisation productivity (Mokha & Kumar, 2021). Perceived ease of use is explained as “the degree to which a person believes that using a particular system would be free of effort”. From these two variables technology acceptance model (TAM) was formed. Other two variables were added to UTAUT, these are social influence and facilitating conditions. Social influence is the condition in which a person perceives how important other people believe that she or he should use the technology (Venkatesh *et al.*, 2003). Facilitating condition is the “degree to which an individual believes that an organisation and technical infrastructure can support use of the system” (Venkatesh *et al.*, 2003). In this study, UTAUT was used to determine how tourism SMEs use SMA in their business activities and in what areas they use SMA to find the insight in their social media platforms. Figure 2 shows the UTAUT framework.



**Figure 2: Unified theory of acceptance and use of technology**

### **2.3 Research Gap**

From the above review, it is argued that SMA in tourism SMEs is very useful to them. Studies revealed several frameworks developed that govern different aspects of SMA. He *et al.* (2015) proposed a SMA organisation's competitive analytics framework. Karim *et al.* (2016), developed an SMA capability framework, and Moe and Shweidel (2007) introduced a framework which explains that SMA can be a good source of marketing understanding.

However, it is observed that there is a lack of framework which guide the implementation and the SMA process for tourism SMEs. Hence this study developed the tourism SMEs social media implementation framework to guide the SMA process to enhance tourism SMEs to use and apply the SMA tools and technology.

## CHAPTER THREE

### MATERIALS AND METHODS

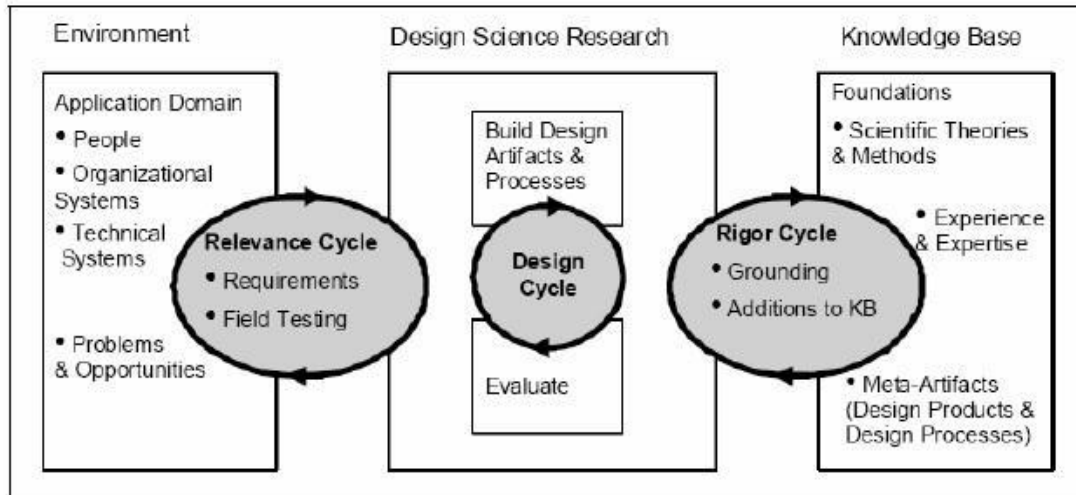
#### 3.1 Research Philosophy

Establishing the research philosophy is important to create a suitable research methodology. The research philosophy will guide the choice of the appropriate research strategy and how data will be collected and analysed. Two major research philosophies are identified (Collis & Hussey, 2009; Lewis & Thornhill, 2009). Positivism is the research philosophy that includes discovering and validating theories based on empirical research through observation and experiment. The use of quantitative methods characterises this philosophy. The interpretivism research philosophy is based on social reality, which it describes, translates, and interprets in order to understand social phenomena in a particular field. This research philosophy uses qualitative research methods. This study is based on the positivism philosophy, and as a result quantitative data was produced that was used to answer the research questions about the usage of SMA by tourism SMEs and the adoption status by SMA to tourism SMEs. The positivism philosophy was also used to evaluate tourism SMEs SMA proposed framework.

#### 3.2 Research Design

The study adopted design science methodology, in this category of research design the researcher has to understand real life phenomena, identify problems and design applicable solutions by introducing appropriate artefacts that can serve human purposes. The output of the design science methodology is artefacts in the shape of concepts, guidelines, methods, models, and implementations (Hevner, 2007). When applied to technology design science methodology is active as it is involved in the creation of technological artefacts that provide solutions to people and organisation. It deals with problem solving but regularly takes a simplistic view of the organisation and people or community contexts in which designed artefacts will function (Hevner *et al.*, 2004).

The objectives of this study fit well with the design science methodology. This is shown by the nature of the research questions of the study, to understand the current situation of the SMA implementation, develop the SMA implementation framework and test the developed framework by using a prototype developed tool for SMA. Figure 3 shows the design science design.



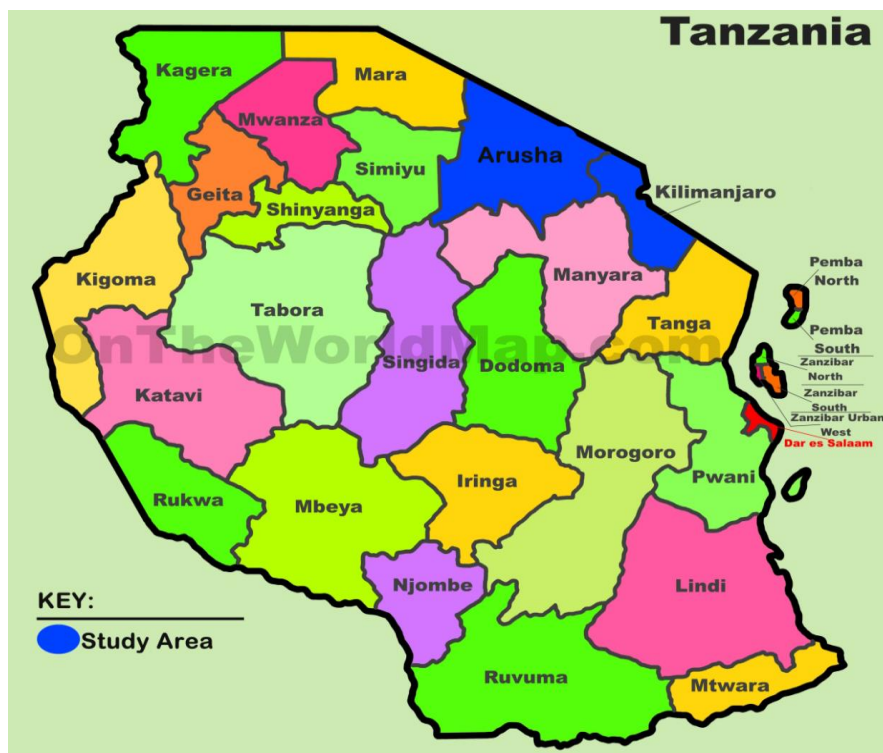
**Figure 3: Design Science Cycle (Hevner, 2007)**

The design science methodology has three phases: relevance cycle, rigour cycle the design cycle. In analysing business needs in the environment, the relevance cycle provides system requirements. It gives clarity on the actors involved, the organisation structure and the technological structure. This cycle defines the application and the requirements of the artefact. The rigour cycle ensures the grounding of the research foundation. It defined the research methodologies and the theories used as well as adding new knowledge to the existing knowledge. This cycle combines knowledge and theories to inform the design process of the planned artefact. The design cycle includes the design phase, the development phase and the evaluation phase of the artefact.

### 3.3 Description of the Study Area

The study was conducted in the Arusha and Kilimanjaro regions in northern Tanzania. These regions were selected due to their rich tourism SMEs and many of them have their head offices in these two regions. These areas receive 75% of international tourists who visit Tanzania and have high tourism investment (David, 2021). Kilangi (2012) discovered 152 tourism related SMEs in Arusha and Kilimanjaro regions. The Kilimanjaro region is located between latitudes 20 20' and 40 30' south of the equator and longitudes 370 and 380 east of

Greenwich. According to the 2022 statistics, the region had a population of 186 193 people and surface area of 13 209 km<sup>2</sup>, Bureau of Statistics (NBS 2022). Kilimanjaro national park and Mount Kilimanjaro, the Africa’s tallest mountain are both popular tourist destinations in the Kilimanjaro region. Arusha region is located in the northern part of Tanzania near Kilimanjaro region and Tanga in the east. The regional population is 2 356 255 (Bureau of Statistics (NBS), 2022). The region has famous tourist sites like Arusha national park, Tarangire national park also is near to Ngorongoro conservation area. Figure 4 shows the Map of Tanzania, highlighting the study area in Arusha and Kilimanjaro regions.



**Figure 4: Map of Tanzania indicating the study area with blue color**

### 3.4 Study Population

The study population is the entire set of cases where the sample will be taken (Saunders *et al.*, 2009). According to MNRT (2020), there are about 1875 licenced tourism agents operators in Tanzania. The study established a total of 396 licenced tourism agents operators, which are located in Kilimanjaro and Arusha, urban. Hence, the study used 396 operators as target population.

### 3.5 Sampling Techniques

The study uses purposive sampling to select the respondents. Purposive sampling allows the selection of respondents who know about the research problem (Polit & Beck, 2010) also it helps the researcher to select respondents with certain characteristics to the research problem (Macnee & MacCabe, 2008). The study selected the respondents whose organisations have presence in social media and they have basic knowledge with social media usage and management.

### 3.6 Sample Size

The sample size is the representative number of cases to be selected from the population (Leavy, 2017). The sample size of the study has to be neither too small or nor too large. The study used Yemane's (1967) formula to calculate the sample size, as shown in equation (i).

$$n = \frac{N}{1 + N(e)^2} \dots\dots\dots(i)$$

N - Sample size

N - The population size = 396

e - The acceptance sampling error

e= 0.05

$$n = \frac{396}{1+396 (0.05)^2}$$

n= 198

The proposed sample size for the study was 198 respondents

### 3.7 Sources of Data and Data Collection Methods

Data collection is the systematic technique used to find information about the research subject, in this study are the tourism SMEs. The collected data was analysed to provide answers to the key research questions which were to identify the tourism SMEs practices on SMA and discover enhancement requirements among tourism SMEs that led to the proposed SMA framework and tool technical requirements.

The study collected primary data from the tourism SMEs using structured questionnaires with closed and open-ended questions some of which were distributed in printed form and others by using Google forms. The data collection activity was conducted during the COVID-19 era, during which time many tourism SMEs offices were closed. Hence, it was difficult to reach the calculated sample size, since few respondents were reachable through physical visits in accordance with WHO recommendations. Thus, it was decided to use an online Google form to reach more respondents. Google forms were distributed to a total of 150 respondents and 70 respondents received printed questionnaires, from which 51 Google forms and 20 printed questionnaires were filled and returned, making a total of 71. According to Anseel *et al.* (2010) and Groves (2006), the method for questionnaires administering may determine the response rate of respondents. Based on Anseel *et al.* (2010) the response rate for online questionnaires has an average of 30%. The online questionnaires received was 34% hence it was recommended for data analysis. The returned questionnaires constituted of respondents from 1 airline operator, 23 tour guide operator, 26 travel agents, and 21 hotels and restaurants based in Kilimanjaro and Arusha regions.

### 3.8 Reliability and Validity of Data

#### 3.8.1 Reliability of the Study Instruments

Reliability is the research instruments' ability to produce consistent results (Creswell *et al.*, 2013). Research instruments are considered reliable when they produce consistent results. The study used IBM SPSS statistics version 23 software to check for reliability. The reliability of data was measured using Cronbach's alpha coefficient. The Cronbach's alpha coefficient value of 0.7 or above is considered significant reliability. Table 1 shows the Cronbach's alpha coefficient for the reliability test in which the instruments were accurate to above 70%.

**Table 1: Cronbach's alpha coefficient for reliability test**

Variables	Sample size	Cronbach Alpha	Number of items
Organisation Information	71	0.8	9
SMA practice and enhancement requirements	71	0.7	29
Framework and SMA tool development	71	0.7	6

### **3.8.2 Validity of the Study Instruments**

Validity is the extent to which research instruments are valid. The study ensures the validity of the instruments used. The questionnaire was developed based on TAM and UTAUT theories. The study conducted a pilot study in which 12 respondents were administered, including managers and owners of tourism SMEs with the instruments deemed reliable. Before the pilot study, the instruments were checked and verified by IT experts and statisticians.

### **3.9 Data Analysis Techniques**

Data from the collected questionnaires were cleaned, coded and analysed by using the statistical tool Python version 3.8. The tool provides descriptive statistics for the operations performed such as percentage and frequencies. The bar charts, pie charts and histograms were used to provide a visual presentation of the answers of tourism SMEs respondents regarding SMA usage, adoption awareness and the prototype's user requirements

### **3.10 Programming Language**

The study used Python version 3.11 as a programming language for building SMA tool prototypes. The study decided to use Python due to its capability of performing many tasks from different disciplines with better performance and due to having libraries that are used in SMA with good outputs.

### **3.11 Social Media Analytics Implementation Framework Development Methodology**

Framework was defined as a graphical or narrative representation of the key factors, concepts or variables to explain the phenomenon of system implementation (Moullin *et al.*, 2015). Several methods can be used to develop frameworks. Jabareen (2009) points out different techniques that are used to develop frameworks. These methods include conceptual analysis, content analysis, discourse analysis, metaphor analysis and semiotic analysis. Conceptual analysis was used in this study to create a SMA framework for tourism SMEs. The study reviewed literature from journal papers and articles on SMA management and implementation in order to generate the proposed SMA implementation framework for SMEs. Twenty five (25) papers were downloaded from different databases, including SpringerLink, Emerald Insight, IEEE, and EBSCO. Five (5) papers were excluded as they

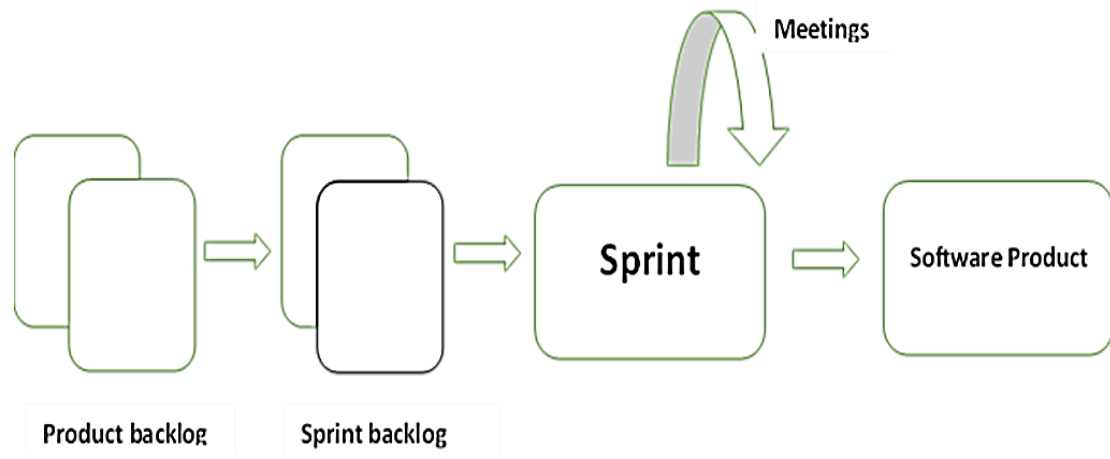


were not published in a journal. A total of 20 papers were screened by title and abstract, 6 papers were excluded because the studies were not carried out in the SMEs sector. The remaining 14 papers were included in the SMA implementation framework's development.

### **3.12 System Development Methods**

#### **3.12.1 Social Media Analytics Prototype Development**

A web-based prototype SMA tool for tourism SMEs, named, Tourism SMEs social media insight (TSSMI) was developed using the Agile software development method as illustrated by Fig. 5. The study employed agile software development methods due to their flexibility, iterative design, lightweight nature, and ease of incorporation of usability techniques (Hussain, 2009). The Agile software development method involves several techniques like Kanban, Scrum and extreme programming. In this study the Scrum technique was used to develop the SMA tool for tourism SMEs. The Scrum based development method has unique characteristics. The characteristic of collaboration is applied in Scrum as the team of developers consists of members with different skills, like users, programmers and quality assurance experts. Another characteristic is to have several meetings where the software development team communicates and conducts an evaluation of the progress of the software developed. Other characteristics are product backlogs and sprint backlogs. In order to deliver a successful product the requirements for a developed software are defined by the product backlog. It maintains a list of features, bugs, fixes and non-functional requirements. The sprint backlog records the tasks to be conducted by the development team on the next print. The list contains tasks from the top of the product backlog up to the next sprint (Matharu *et al.*, 2015).



**Figure 5: Scrum-based software development method**

### 3.12.2 System Requirements Gathering

During the system development process, the first activity to perform is gathering system requirements. This process involves the user identification and needs of the proposed system. There are two types of system requirements, the functional requirements which are the intended achievement the system is required to meet and the non-functional requirements that show how the system is good excluding what is capable to do. During gathering of system requirements both functional and non-functional requirements were attained.

### 3.12.3 Functional Requirements

The developed SMA tool's functional requirements were gathered using online open-ended questionnaires distributed to tourism SMEs managers and owners in Arusha and Kilimanjaro regions. Seventy one (71) filled-out questionnaires were collected from tourism respondents, which provide the features and functional requirements of the developed tourism SMA tool.

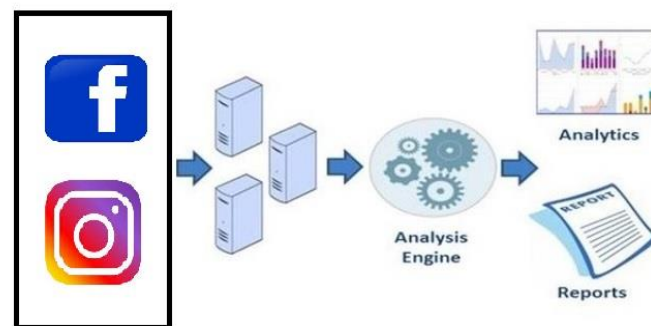
### 3.12.4 Non-Functional Requirements

Non-functional requirements influence system performance as well as the standards and quality of the prototype system. The study addresses the following non-functional requirements, performance of the system, usability, and security of the developed system.

### 3.12.5 Tourism SMEs SMA Insight Tool System Structure

The web-based developed system prototype was built based on the process of the SMA, that is divided into three phases. The first phase is dealing with the extraction and storage of

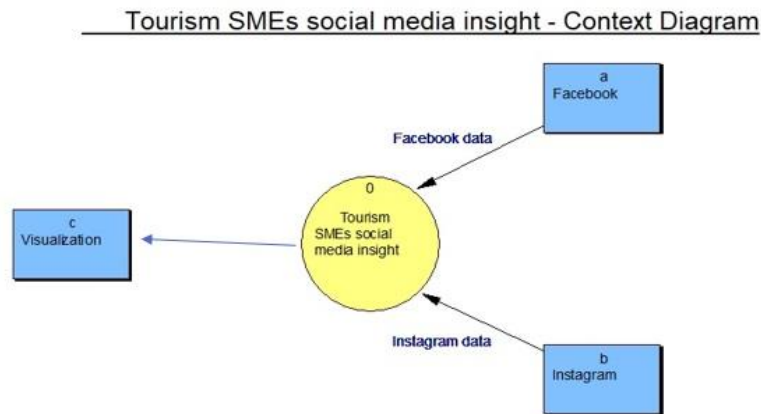
social media data from facebook and Instagram. In this phase the data from social media platforms was gathered by using social media platforms API and scraping tools, such as Facebook graph API, and stored in excel sheets for those that which will be used for prediction analysis. The second phase is where the analytics were performed to gain insight from the social media data. In this phase different analytics techniques were performed including, counting the number of likes and dislikes, and shares, performing sentiment analysis, locating the geographical locations of visitors and performing prediction analysis. The final phase dealt with the output of results. The analytical results were given out in the form of visualisation and in report format as shown in Fig. 6.



**Figure 6: Tourism SMEs SMA tool prototype system structure**

### 3.12.6 Data Flow Diagram

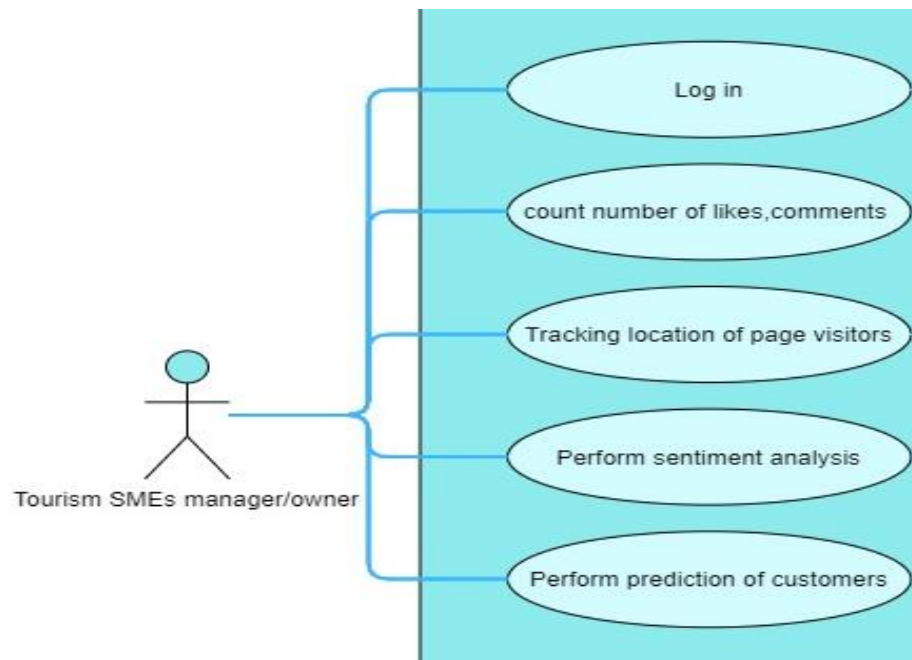
The data flow diagram is the technique used to model system user requirements and the specification of the developed system for understanding by technical and non-technical users (Mwapashua, 2021). This study used DFD to present how information flows within a tourism SMEs, SMA tool . The diagram shows that the data are gathered from the social media platforms Facebook and Instagram, then processed by SMA techniques, and provides results as a visualisation of the processed SMA aspects. Figure 7 explains the level 0 context diagram of the TSSMI.



**Figure 7: The TSSMI data flow diagram**

### 3.12.7 Use Case Diagram

The use case diagrams were developed during the design phase. Aquino *et al.* (2020) define use case diagrams as diagrams that identify the main functions and services that the system will provide. The use case diagram of the SMA tool has the following components: The user of the SMA tool can be the owner or manager of a tourism SME who interacts with the SMA tool to get insight into the social media data. The diagram has the login use case, which provides authentication and access to the SMA tool. The counting number of likes and comments use case provides the number of comments, likes, and dislikes given by the users of the platform. The track location of page visitors use case provides the geographical location of the visitors who visit the social media platform. Perform sentiment analysis use case provide the users sentiments of the comments, whether positive or negative. The perform prediction of customers use case provides the user of the system with predictions of prospective customers of the organisation as seen in Fig. 8.



**Figure 8: Use case diagram**

### 3.13 Tourism SMEs, SMA Implementation Framework Evaluation

The study conducted a heuristic evaluation. A total of 15 respondents were involved in performing SMA implementation framework validation. The respondents were selected from tourism SMEs managers and owners in the Kilimanjaro region. The respondents were given an orientation to the SMA implementation framework before providing their recommendations and views of the framework. The metrics used for evaluation were ease of understanding the framework, ease of using the framework, effectiveness of conducting SMA, users' satisfaction, and willingness to recommend the framework to other tourism SMEs owners and managers.

### 3.14 Tourism SMEs, SMA Prototype Evaluation

The SMA tool prototype was evaluated using heuristic evaluation method, in order to get evidence that the developed tool will work according to the specifications and requirements provided by the intended users and the ICT experts. The study uses semi structured questionnaires to perform framework and system prototype validation. The usability evaluation was performed by 15 tourism SMEs managers and owners selected from the Kilimanjaro region. The metrics used for usability evaluation were ease of understanding the tool, ease of using the tool, attraction of the interface, navigation of the tool modules, usefulness of the tool, and willingness to recommend the tool to others. The technical

evaluation was performed by 10 ICT personnel selected from Kilimanjaro and Arusha. The ICT experts were given access to the system and were able to interact with it, after interacting with the SMA tool, the ICT experts filled out the questionnaires. The metrics used for technical evaluation were the performance of the SMA tool, its security, and its compatibility with operating software.

## CHAPTER FOUR

### RESULTS AND DISCUSSION

#### 4.1 Descriptive Statistics

Descriptive statistics is used to present data in a summary format such as tabular or graphical form so that the information contained in the data will be easily identified (Collis & Hussey, 2009). In this study descriptive statistics were used to present the data in the following subsections, usage and applications of SMA, SMA adoption, evaluation results of the SMA framework and the evaluation results of the developed SMA tool.

#### 4.2 Organisation and Respondents Information

##### 4.2.1 Organisation Information

Table 2 presents findings on organisation information. The tourism SMEs were distributed as follows, 29.58% were from hotels and restaurants, 36.61% were travel agents, 32.39% were tour guide operators, and 1.41% were airline operators. The tourism SMEs number of employees was 33.80%, with 21–40 employees, 32.39% had 11–20 employees, 16.90% had 1–10 employees. The organization's head office's location was 49.30% in Arusha and 50.70% in the Kilimanjaro region. The tourism SMEs ages were 15.49% from 1-3 years, 25.35% from 3-5 years, and 59.15% from more than 5 years. The nature of the tourism SME market is 94.37% international marketing, 4.22% regional marketing, and 1.41% local marketing.

##### 4.2.2 Respondents Information

Table 3 provides the findings about the respondent's information. The respondent's gender composition was 81.69% were male, while 18.30% were female. The respondent's designations were 7.04% owners, 1.41% reservation managers, 1.41% general managers, 21.13% managing directors, 35.21% marketing managers, 4.23% IT managers, and 4.23% financial managers. The ages of the respondents were distributed as follows: 22.53% are 21–30 years old, 71.83% are 30–40 years old, and 5.63% are 40–50 years old. The respondent's education was distributed from secondary school O-level up to a master's degree. The 4.23% are Master's degree holders, 85.92% have a bachelor's degree, 1.41% have a certificate in

tourism, 4.23% are secondary school a-level holders; and 4.23% are secondary school o-level holders.

**Table 2: Organisation information**

<b>Character</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Types of Organisations</b>		
Hotel/Restaurant /Cafe	21	29.58%
Travel Agent	26	36.61
Tour Guide Operator	23	32.39%
Air Operator	1	1.41%
Total	71	100
<b>Number of Employees in the Firm</b>		
1 - 10	12	16.90%
11 - 20	23	32.39%
21 - 40	24	33.80%
41 - 60	9	12.68%
60 - 100	1	1.41%
More than 100	2	2.82%
<b>Organisation Head Office</b>		
Arusha	35	49.30%
Kilimanjaro	36	50.70%
<b>Age of the Firm</b>		
1 – 3 years	11	15.49%
3—5 years	18	25.35%
More than 5 years	42	59.15%
<b>Nature of the Firm Market</b>		
Local Market	1	1.41%
Regional Market	3	4.22%



<b>Character</b>	<b>Frequency</b>	<b>Percentage</b>
International Market	67	94.37%

**Table 3: Respondents information**

<b>Demographics</b>	<b>Frequency</b>	<b>Percentage</b>
<b>Respondents gender</b>		
Male	58	81.69%
Female	13	18.30%
<b>Respondents title</b>		
Operation Manager	18	25.35%
Owner	5	7.04%
Reservation Manager	1	1.41%
General Manager	1	1.41%
Managing Director	15	21.13%
Marketing/Sales Manager	25	35.21%
IT Manager	3	4.23%
Financial Manager	3	4.23%
<b>Age of Respondents</b>		
21- 30	16	22.53%
30- 40	51	71.83%
40- 50	4	5.63%
<b>Respondent's Education level</b>		
Master's Degree	3	4.23%
Bachelor Degree/Advance Diploma	61	85.92%
Certificate in Tourism	1	1.41%
Secondary School A-level	3	4.23%

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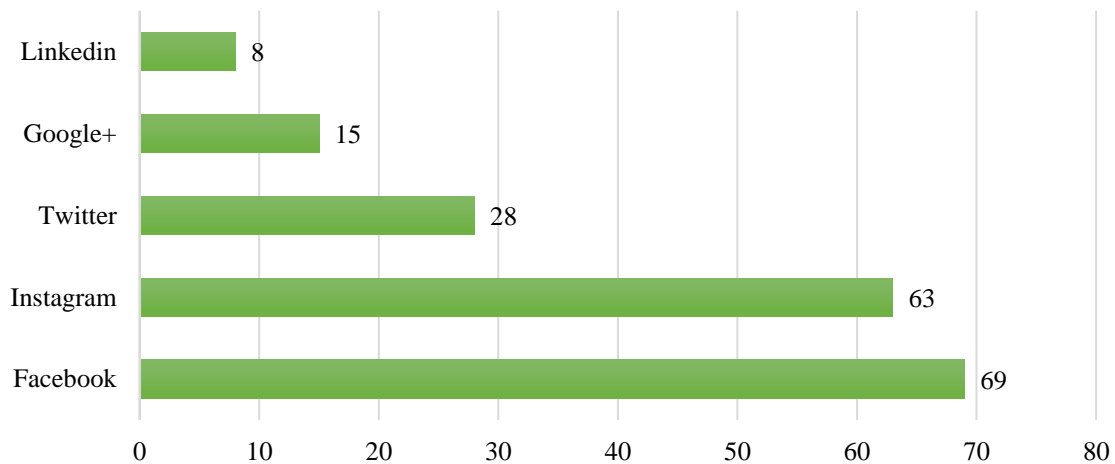
<b>Demographics</b>	<b>Frequency</b>	<b>Percentage</b>
Secondary School O-level	3	4.23%

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### 4.3 Social Media Analytics Practice and Enhancement Requirements

#### 4.3.1 Tourism SMEs Social Media Platform Presence

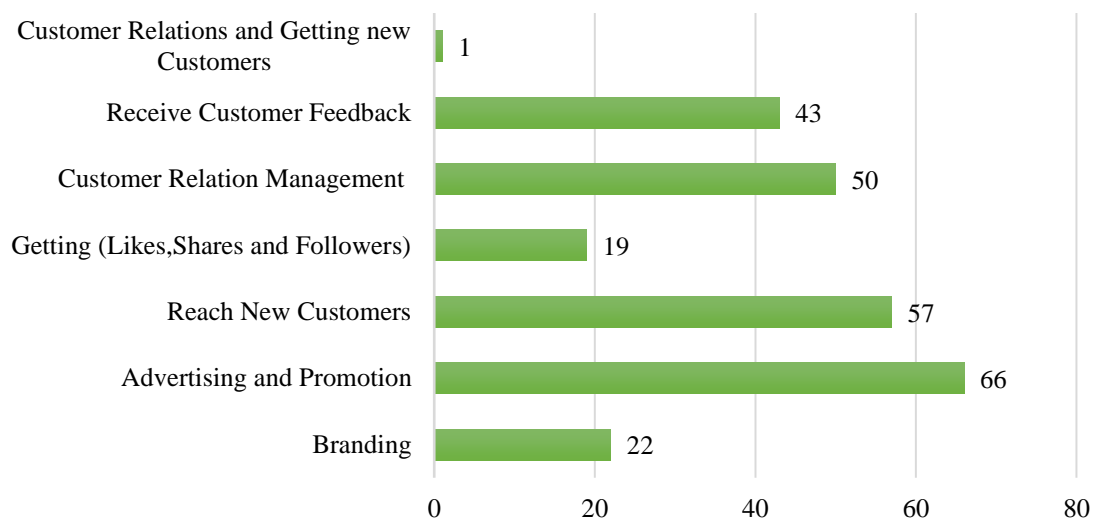
The surveyed SMEs were asked to mention the social media platforms where they have a presence. All the surveyed SMEs have a presence on more than one social media platform. The results show that they used Instagram and Facebook extensively in their business activities. The results are: among the social media platforms used 69 SMEs are using Facebook, 63 SMEs are using Instagram, 28 SMEs are using Twitter, 15 SMEs are using Google+ and 8 SMEs have a presence on the LinkedIn social media platform. Figure 9 presents the summary of tourism SMEs social media platforms presence results.



**Figure 9: Tourism SMEs social media platforms presence**

#### 4.3.2 Tourism SMEs Purpose of Using Social Media

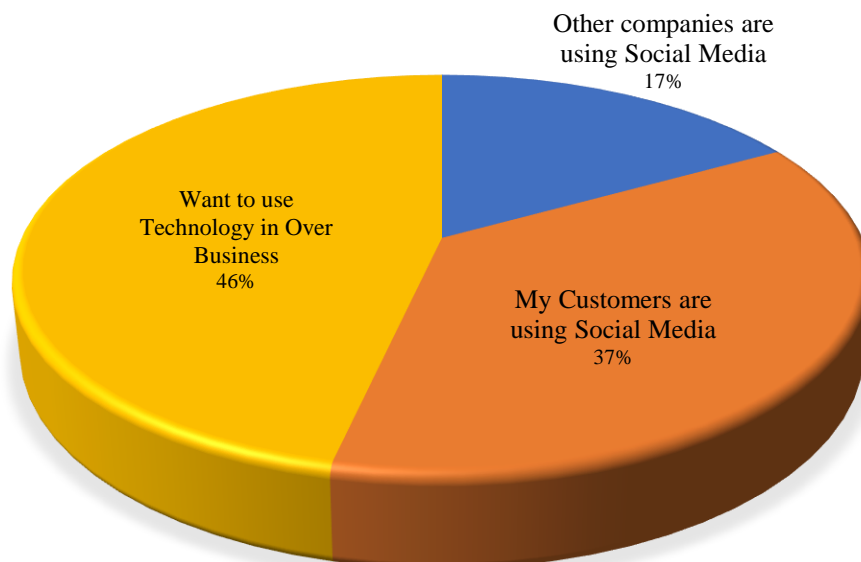
The study wanted to determine the purpose of the surveyed Tourism SMEs usage of social media platforms in their business activities. The commonly mentioned purposes for using social media platforms among the SMEs are as follows: 66 SMES are using social media for advertising and promotions; 57 SMEs use social media to reach new customers; 50 SMEs are using social media for customer relationship management; 43 SMEs are using social media to receive customer feedback and 22 SMEs are using social media for brand awareness, as shown in Fig. 10.



**Figure 10: Purpose of tourism SMEs to use social media**

### 4.3.3 Motivation for Using Social Media Platforms

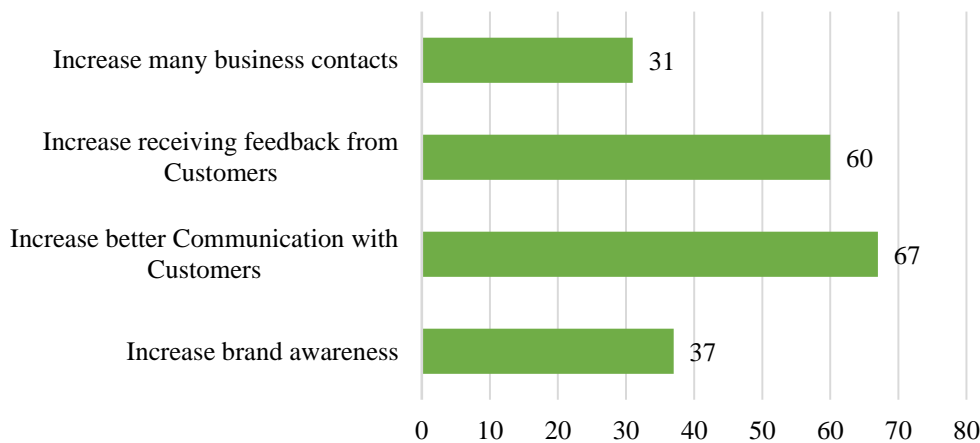
The surveyed tourism SMEs have been asked how they have been motivated to use social media platforms in their business activities. The findings reveal that 46% of respondents use social media in business because they want to utilise technology over their business activities, 37% because their customers use social media and 17% because other companies also use social media in the business, as shown by Fig. 11.



**Figure 11: Tourism SMEs motive to use social media on their business process**

#### 4.3.4 Benefits of Using Social Media Platforms

The respondents were asked about what are observed benefits since they started using social media platforms in their business activities. The respondent mentioned more than one benefit they got from their social media usage. According to the findings, 24 respondents stated that using social media increased business contacts; 41 SMEs stated that there is an increase in receiving feedback from customers as a outcome of using social media platforms; 47 respondents stated that they have better communication with customers as an outcome of using social media platforms; and 29 respondents stated that brand awareness is high as a result of using social media platforms. Figure 12 summarises the benefits of using social media.



**Figure 12: Tourism SMEs benefit of using social media**

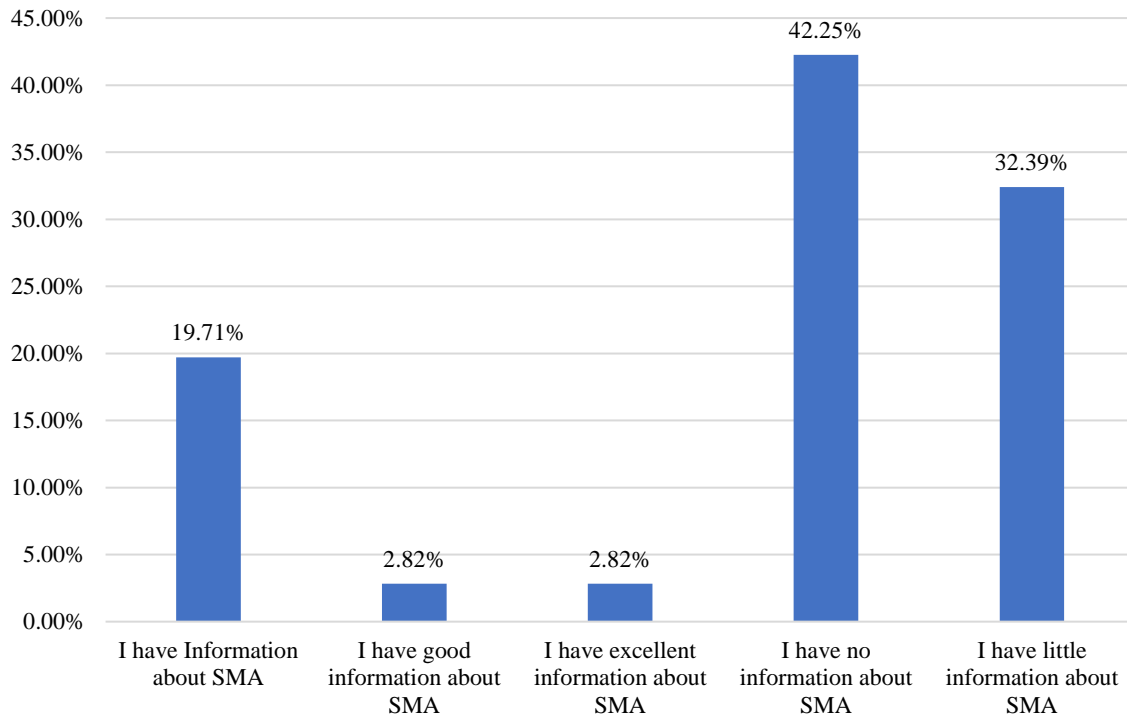
#### 4.3.5 Tourism SMEs SMA Performance

The study wanted to understand if SMEs are performing SMA or if they are not performing on their social media platforms. Hence the respondents were asked to say ‘No’ if they are not performing SMA or ‘Yes’ if they are performing and ‘May be’ if they are not sure that they are performing or not. The findings reveal that 43.66% of SMEs said Yes, they are doing SMA on their social media platforms while 47.89% said No they are not doing SMA on their social media platforms and 8.45% SMEs were not sure whether they are doing SMA or not.

#### 4.3.6 Tourism SMEs Managers Knowledge of SMA

The study wanted to recognise the knowledge about SMA among SMEs managers. The aim was to check the knowledge they had regarding SMA. The findings show that 19.71% had

information about SMA, 2.28% had good information about SMA and 2.28% had excellent information about SMA, while 42.25% had no information about SMA and 32.39% had little information about SMA, as seen in Fig. 13.



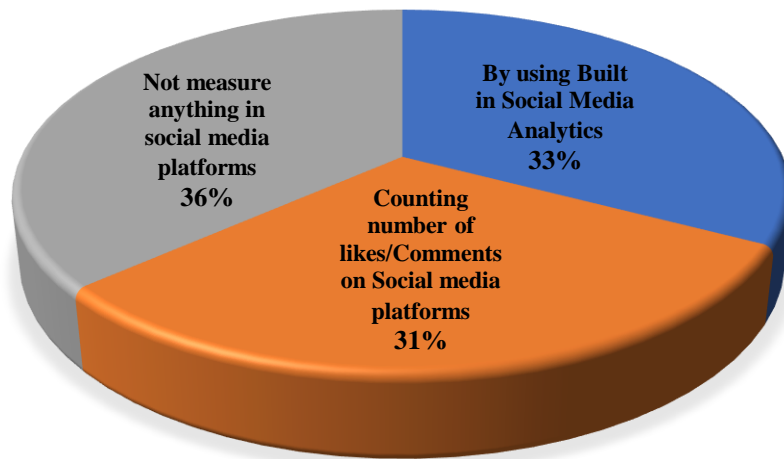
**Figure 13: Tourism SMEs managers' knowledge of SMA**

#### 4.3.7 Tourism SMEs Usage of SMA Tools

The respondents were asked if they used any SMA tool to gain insight from their social media platforms. It was observed that many SMEs are not using SMA tools. The findings reveal that 73% said they are not using SMA tools while 27% said they are using SMA tools.

#### 4.3.8 How Tourism SMEs which are not Using SMA Tools Measure their Social Media Campaign

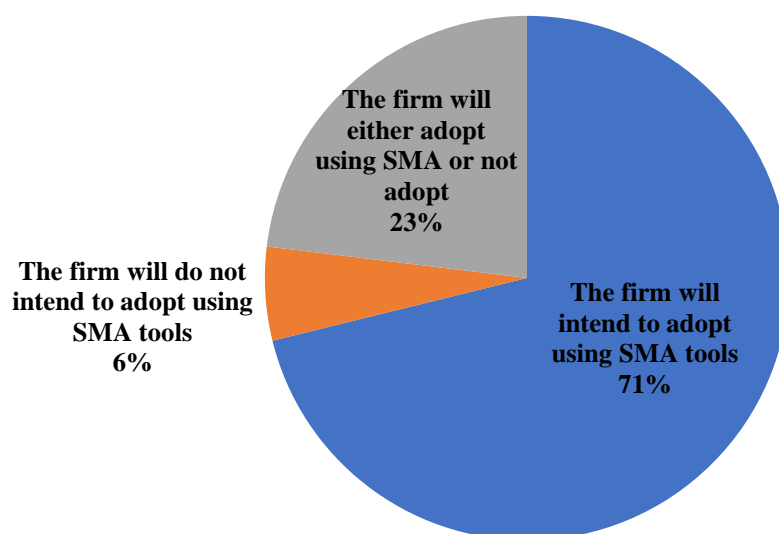
It was noted that 73%, which is 52 of the surveyed tourism SMEs were not using SMA tools to get insight on the contents on their social media platforms. For SMEs that are not using SMA tools the study wanted to understand how they measure their performance and get insight from their social media activities. The findings show that 36% of the tourism SMEs are not measuring anything in their social media platforms, 33% are using built in SMA tools and 31% are counting the number of likes, dislike and comments in their social media platforms as seen in Fig. 14.



**Figure 14: How Tourism SMEs which are not Using SMA tools to measure their social media campaign**

#### 4.3.9 Tourism SMEs Intention to Use SMA Tools

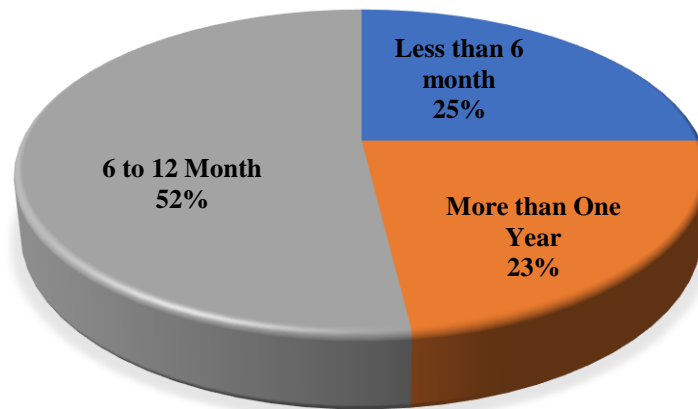
The respondent's intention to use SMA tools was elicited in order to determine whether the SME is willing to adopt and use SMA tools to gain insight into their social media usage. A total of 52 SMEs responded to the question, in which 23% of the respondents mentioned that the firm will either adopt SMA tools or will not adopt, 6% said that their firm do not intend to adopt using SMA tools and 71% of the respondents said the firm intend to adopt using SMA tools. Figure 15 shows the tourism SMEs intention to use SMA tools.



**Figure 15: Tourism SMEs Intention to use SMA tools**

#### 4.3.10 How Soon the Tourism SMEs will Adopt Use of SMA Tools

A total of 52 respondents were asked if they are willing to adopt the SMA tool for analysing their social media data and how soon the firm will be able to adopt it. The findings indicated that 25% of them will start using SMA tools in less than six months, 23% will start using SMA tools between six and twelve months and the remaining 52% will start using SMA tools to analyse their social media data in more than one year, as summarised by Fig. 16.

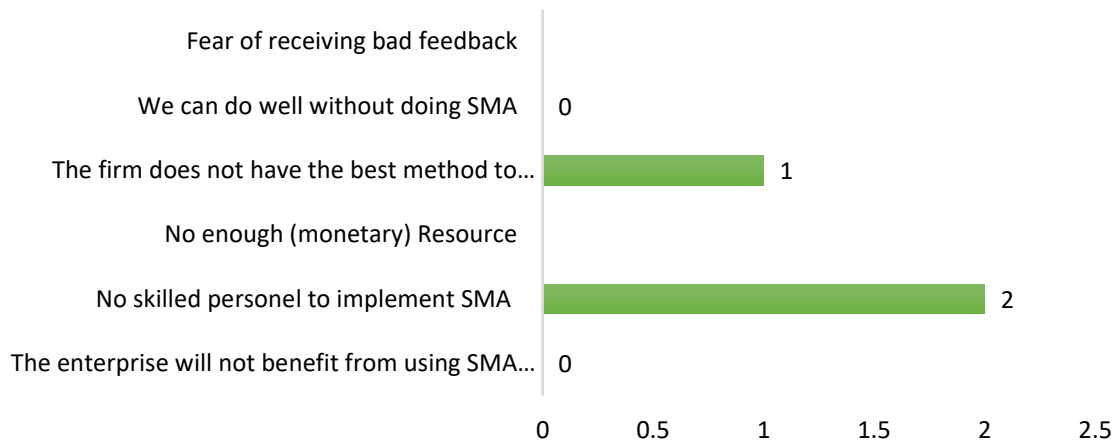


**Figure 16: How Soon Tourism SMEs will Adopt Use of SMA**

#### 4.3.11 Reasons for Tourism SMEs not to Adopt SMA Tools

Three SMEs respond that they will not adopt the usage of SMA tools. The study sought to understand the reasons for SMEs not to use SMA tools to better understand their social media data. It was found that two SMEs responded that they don't have a skilled person to implement SMA and one responded that the firm does not have the best method to implement SMA in their social media activities. Figure 17 summaries the reason for Tourism SMEs not adopt SMA tools.

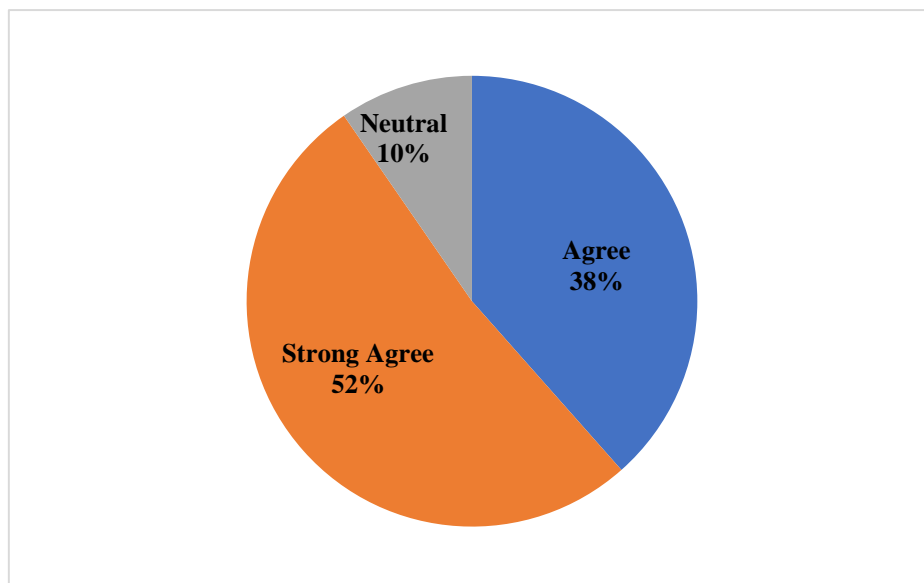




**Figure 17: Reasons for tourism SMEs not adopting use of SMA in their social media platforms**

#### 4.3.12 Tourism SMEs Realisation of Expectation of Using SMA in their Social Media Platform

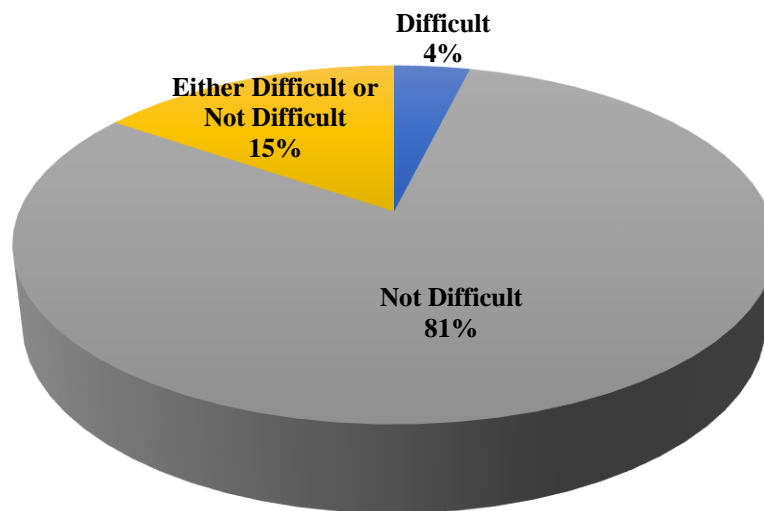
A total of 52 SMEs that have not adopted use of SMA tools were asked if they envisaged anything unexpected can occur when they start using SMA on their social media platforms. The study reveals that 10% were neutral, meaning they are not agreeing or disagreeing that anything unexpected can occur when they start using SMA tools, 38% agreed that anything unexpected can occur after using SMA tools and 52% strongly agreed that anything unexpected can occur, as summarised by Fig. 18.



**Figure 18: Tourism SMEs Realisation of Expectation of Using SMA in their Social Media Platform**

#### 4.3.13 How Difficult for SMEs to Adopt Using SMA Tools

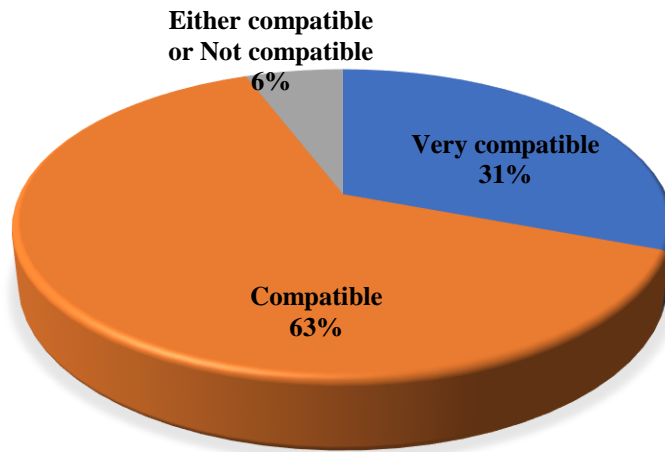
A total of 52 respondents were asked to comment on how difficult they believe it is to implement SMA tools in social media platforms, based on the responses selection: ‘difficult’, ‘not difficult’, or ‘either it is difficult or not difficult. The findings show that 81% said that the adoption of SMA tools in social media platforms is not difficult, 4% mentioned that the adoption of SMA tools is difficult, and 15% said that the adoption of SMA tools in social media platforms is either difficult or not difficult, as summarised by Fig. 19.



**Figure 19: How difficult for SMEs to adopt use of SMA tools**

#### 4.3.14 Technology Compatibility of Conducting SMA in Tourism SMEs in their Business Process

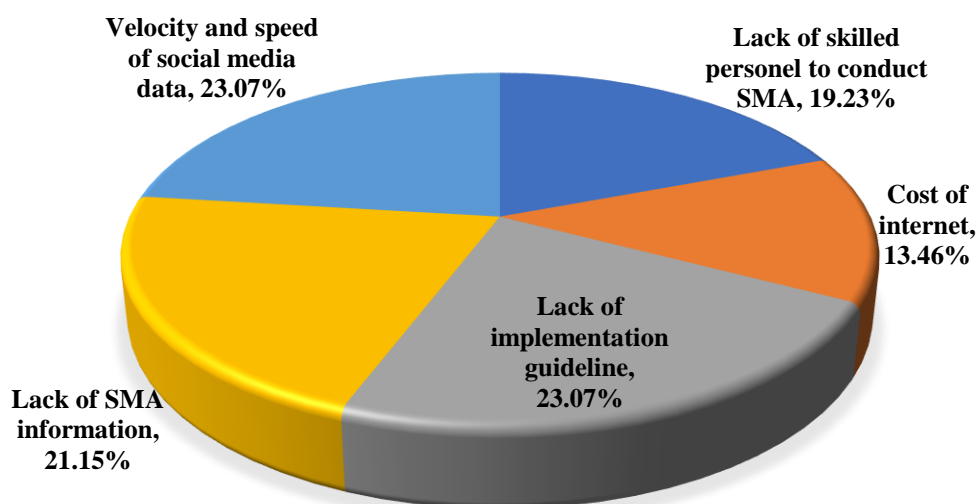
The purpose of the study was also to determine the technological compatibility of tourism SMEs in adopting and utilising SMA tools to gain insight from their social media platforms. A total of 52 respondents were asked about the technology compatibility needed to conduct SMA. The findings indicated that 6% mentioned that the technological compatibility of adopting and using SMA tools in their business activities is either compatible or not compatible, 31% agreed that it is very compatible for their firm to adopt and use SMA tools and 63% mentioned that it is compatible for their SMEs to conduct SMA on their social media platforms. The result summary is provided in Fig. 20.



**Figure 20: Tourism SMEs technology compatibility using SMA tools**

#### 4.3.15 Tourism SMEs Challenges of Adopting SMA

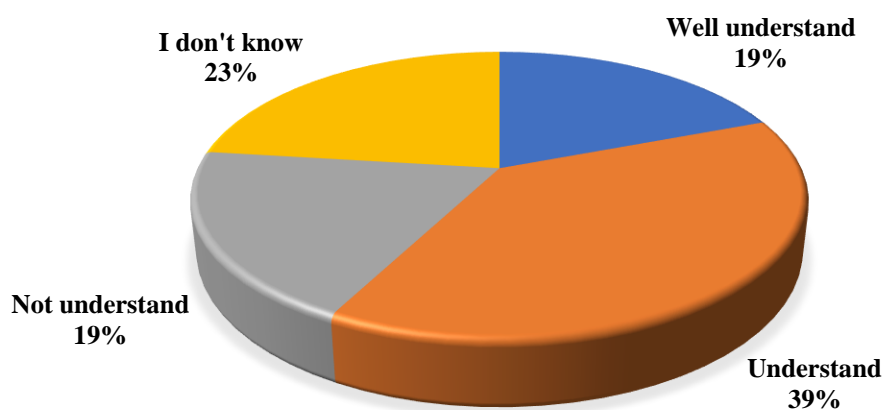
A total of 52 respondents were asked to comment on what challenges they are facing in adopting and using the SMA tools. The findings show that 19.23% of the respondents mentioned a lack of skilled personnel to conduct SMA, and 13.46% mentioned that they fail to adopt and use SMA due to the cost of the internet. The 23.07% mentioned that they had a lack of guidelines, 21.15% didn't adopt SMA due to a lack of information regarding SMA tools, and 23.07% of the tourism SMEs failed to adopt SMA due to the velocity and speed of social media data. Figure 21 show the summary of the results.



**Figure 21: Tourism SMEs challenges of adopting SMA**

#### 4.3.16 Tourism SMEs Top Managers Understanding on the Benefit of Doing SMA

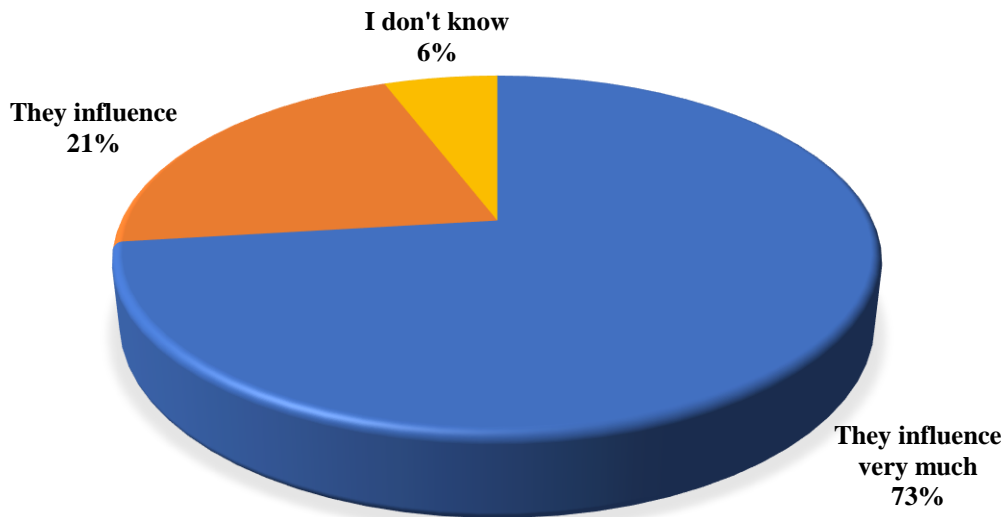
A total of 52 tourism SMEs were asked to state their opinion on top managers' understanding on the benefits of doing SMA on their social media platforms. The pie chart in Fig. 22, explains the responses from the respondents as follows 23% said that they don't know whether the top managers understand the benefit of using SMA tools, 19% explained that their top managers well understand the benefit of using SMA tools 39%, said that their top managers understand the benefit of using SMA tools and 19% said that their top managers do not understand the benefit of using SMA tools. Figure 22 presents the results summary.



**Figure 22: Tourism SMEs managers understanding of using SMA tools**

#### 4.3.17 How Tourism SMEs Employees Influence the Adoption of SMA Tools

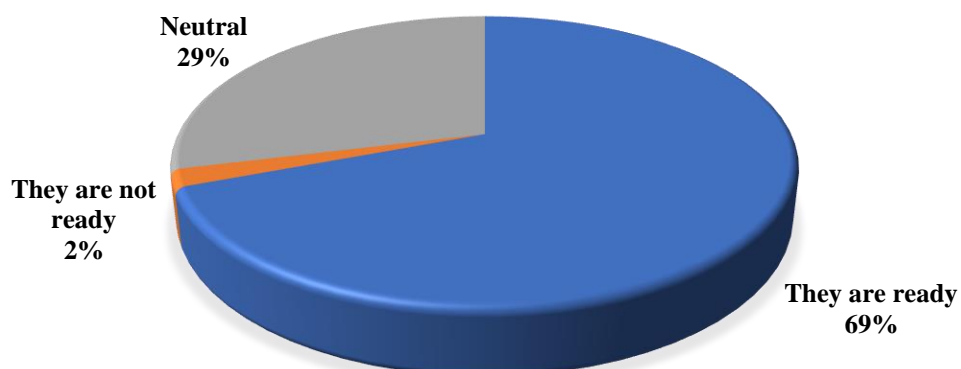
The study wanted to understand the employee effect on the adoption and usage of SMA tools in SMEs social media business activities. A total of 52 respondents were asked to show their employees influence on decision to use SMA tools and the responses are presented as, 73% state that the employee influences very much the adoption of SMA tools, and 21% agree that the employee influences the adoption of SMA tools 6% said they don't know if employees influence the SMEs adoption of SMA tools. See the results summary in Fig. 23.



**Figure 23: Tourism SMEs employees influence on the adoption of SMA tools**

#### **4.3.18 Tourism SMEs Top Management Readiness to Support Employees Conduct SMA**

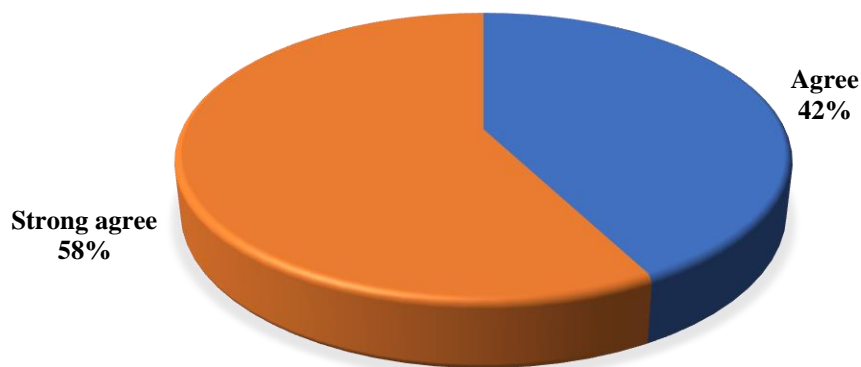
Respondents were asked to state their top management's willingness to assist their employees in conducting SMA on social media platforms in order to gain insight from the social media data and contents. The pie chart in Fig. 24, summarises the findings from 52 respondents as follows: 29% were neutral with the question, 69% said the top managers are ready to support their employees in conducting the SMA and 2% said that the top managers are not ready to support employees in conducting SMA, as seen in Fig. 24.



**Figure 24: Tourism SMEs top manager's readiness to support employees to conduct SMA**

#### 4.3.19 Influence of Competitive Presence in Tourism Industry in Adoption and Usage of SMA

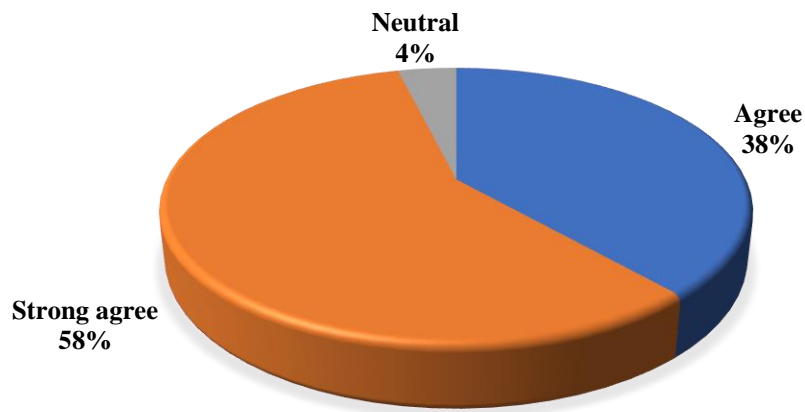
The respondents from SMEs have been required to give their opinions about how the current competitive presence in the tourism industry will influence companies to start adopting the use of SMA on their social media platforms. According to the findings, 58% strongly agreed, while 42% agreed that the competitiveness of the tourism industry influences the adoption of SMA. The summary of this results is presented in Fig. 25.



**Figure 25: Influence of competitiveness in tourism industry in adoption of SMA**

#### 4.3.20 Government Regulations Support in SMEs Adoption and Use of SMA

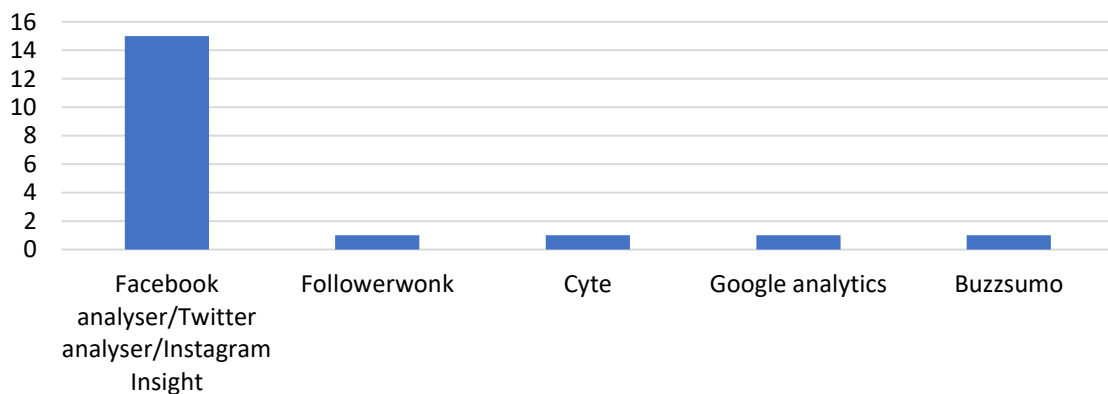
The study investigated how government and government regulations affect SMEs' adoption and use of SMA tools in their social media platforms to gain insight from social media data. A total of 52 respondents answered the question. The findings show that 4% were neutral about whether government regulations support adoption or not, 58% mentioned that they strongly agree that government regulations support adoption and usage of SMA tools and 38% agree with the statement that government regulations support adoption and use of SMA tools. The result summary is presented in Fig. 26.



**Figure 26: Government regulation support in SMEs adoption and use of SMA**

#### 4.3.21 Social Media Analytics Tools Used by Tourism SMEs

A total of 19 respondents who perform SMA were asked to mention the SMA tools they used to get insight from their social media data. The respondents mentioned the tools as follows: 1 respondent uses Follower; 1 respondent uses Cyte; 1 respondent uses Google analytics; 1 respondent uses Buzzsumo and 15 respondents use built in SMA tools like Facebook analyzer, twitter analyzer and Instagram insight. The result summary is presented in Fig. 27.

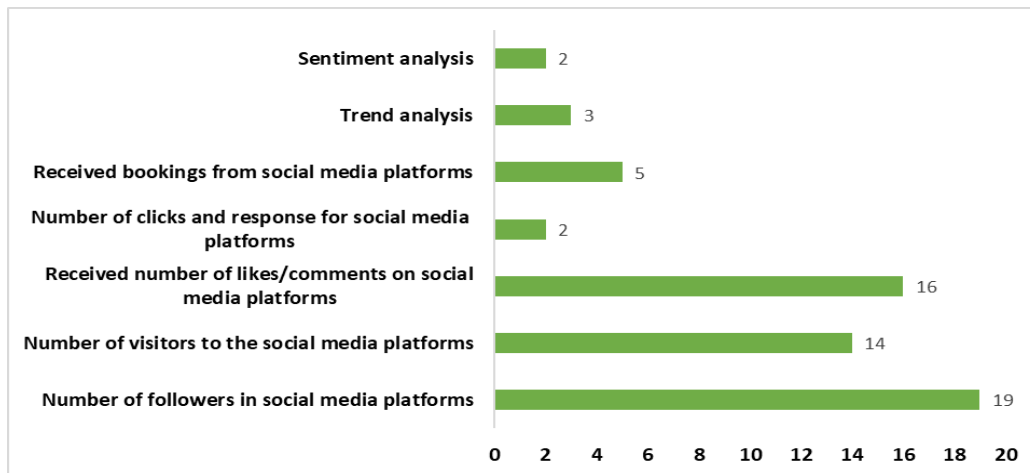


**Figure 27: The SMA tools used by tourism SMEs**

#### 4.3.22 Social Media Metrics Measured by Tourism SMEs During SMA

A total of 19 tourism SMEs who performed SMA mentioned the metrics they used to measure while they performed SMA on their social media platforms. Figure 28 shows the popular metrics performed during SMA. Two SMEs mentioned that they performed Sentiment analysis, 3 SMEs mentioned trend analysis, 5 SMEs stated that they used to

measure received bookings from social media platform, 2 SMEs mentioned that they used to measure number of clicks and response for social media responses, 16 SMEs received number of likes and comments from social media platforms, 14 SMEs track number of visitors to the social media platforms and the other 19 SMEs track number of followers in social media platforms. The finding summary is presented in Fig. 28.

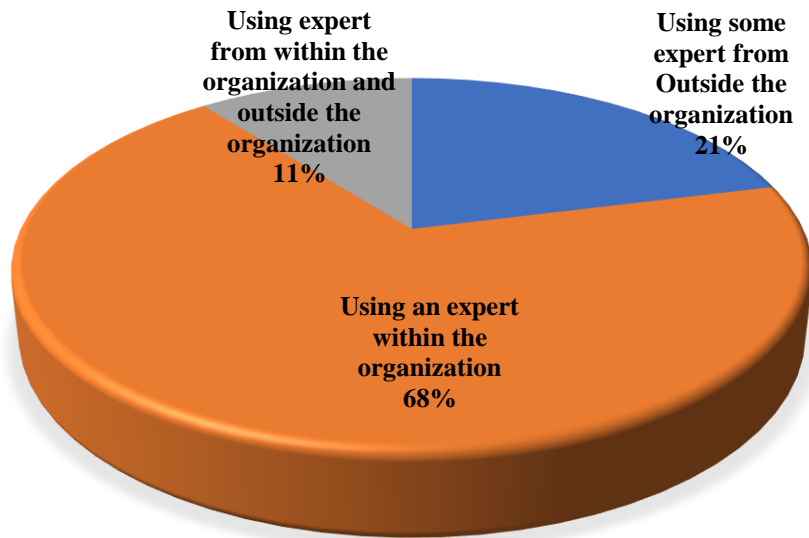


**Figure 28: Social media metrics performed by SMEs**

#### 4.3.23 How Tourism SMEs Perform SMA

The study wanted to know how the 19 tourism SMEs are performing SMA on their social media platforms and where they get an expert to perform it, whether within or outside the organisation. According to the findings, 21% use an expert from outside the organisation to perform SMA, 68% use an expert from within the organisation to perform SMA, and 11% use an expert from both within and outside the organisation to perform SMA. Figure 29 shows how tourism SMEs perform SMA.

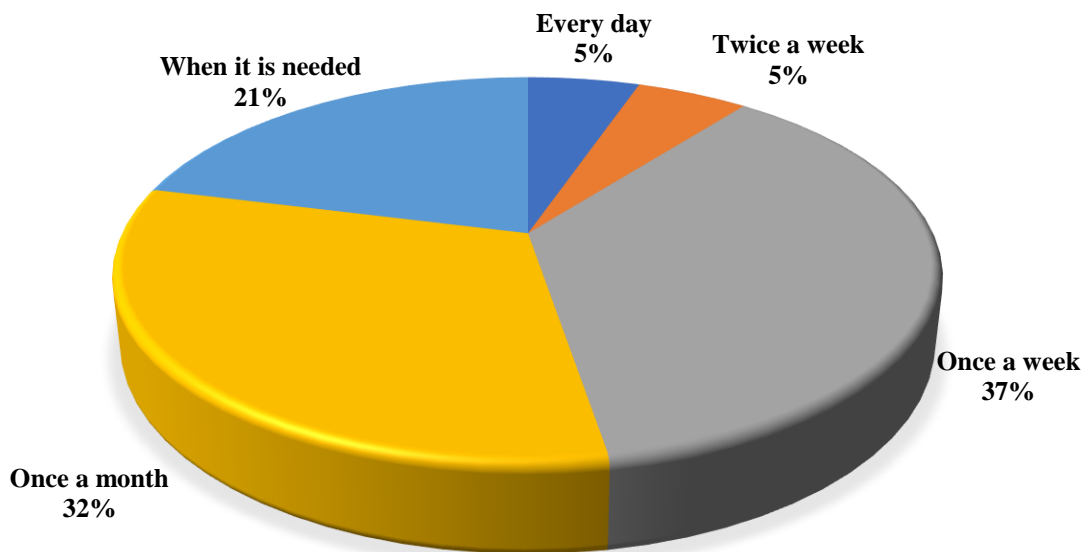




**Figure 29: How tourism smes performed SMA**

**4.3.24 How Often Tourism SMEs Perform SMA in their Social Media Platforms**

The study's goal was also to determine how frequently SMEs use SMA in their social media activities. A total of 19 SMEs responded to the question about the SMEs frequency of doing SMA as follows: SMA is performed twice a week by 5% of SMEs, once a week by 37% of SMEs, once a month by 32% of SMEs, while 21% they are performing SMA when it is needed. The findings summary is presented in Fig. 30.



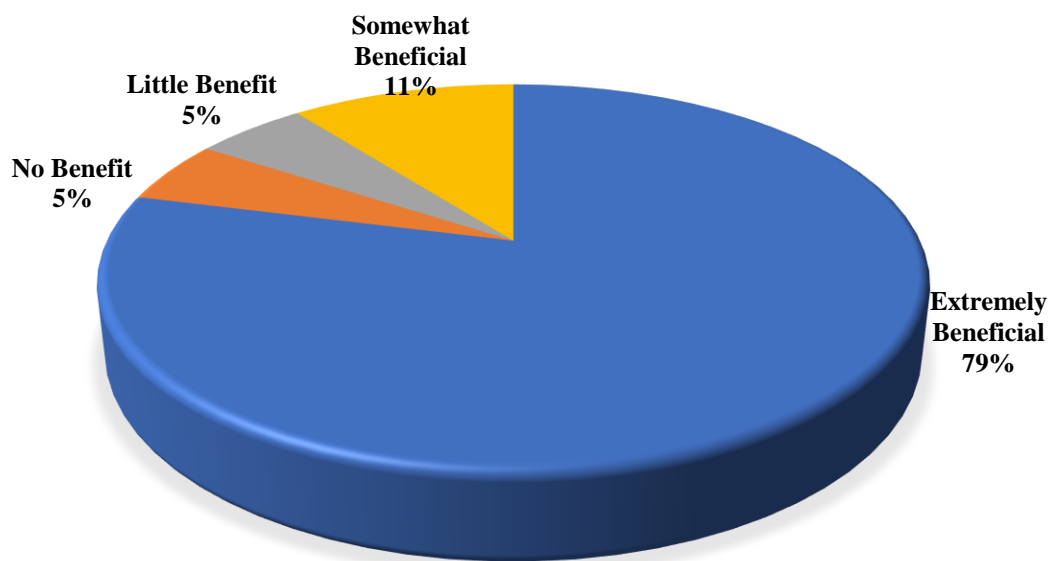
**Figure 30: How frequent tourism SMEs perform SMA**

#### 4.3.25 How Tourism SMEs Acquire Knowledge About SMA

The study wanted to know how the 19 SMEs that are doing SMA learned how to do SMA on their social media platforms. The findings indicated that 10% acquire knowledge of SMA by using formal mechanisms, 58% acquire the SMA knowledge using informal mechanisms and 32% get it from both informal and formal sources.

#### 4.3.26 How Useful is the Usage of SMA to Tourism SMEs?

A total of 19 SMEs were asked to explain how useful was the usage of SMA tools in getting insight into the social media data they are using in their business operations. Figure 31 explains the respondent's response as follows: 79% of the SMEs who conducted SMA agreed that the tools are extremely beneficial; 5% said there is no benefit; 5% said doing SMA has little benefit; , while 11% mentioned that doing SMA is somewhat beneficial, as summarised in Fig. 31.



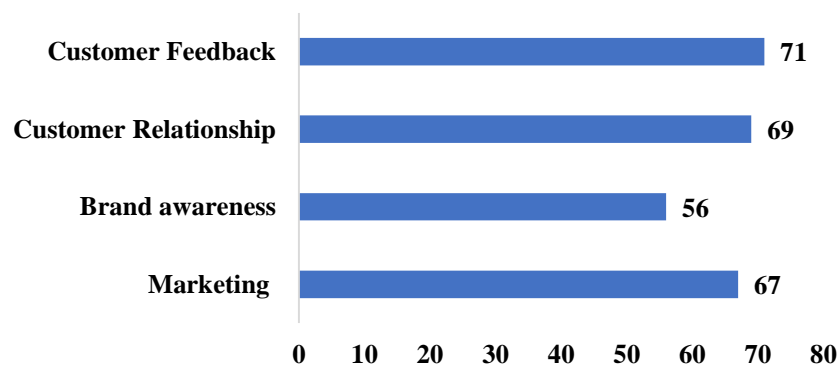
**Figure 31: Usefulness of SMA to tourism SMEs**

#### 4.3.27 Procedure for Conducting SMA

The study wanted to examine if any of the 19 SMEs have a procedure for conducting SMA to get insight from the social media data. The findings reveal that 26% are following procedures in conducting SMA and 74% mentioned that there are no known procedures they are using in doing SMA because there is no any know procedure to follow.

### 4.3.28 Social Media Information the Tourism SMEs wants to Find Insight About

A total of 71 respondents were asked about the business activities they want to gain insight by using an SMA tool. The respondents' responses regarding the areas to gain insight in business activities were as follows: 94% said they want to gain insight into marketing; 79% said they want to gain insight into brand awareness; 97% said they want to gain insight into customer relationships; and 100% said they want to gain insight into customer feedback information, as summarised in Fig. 32.

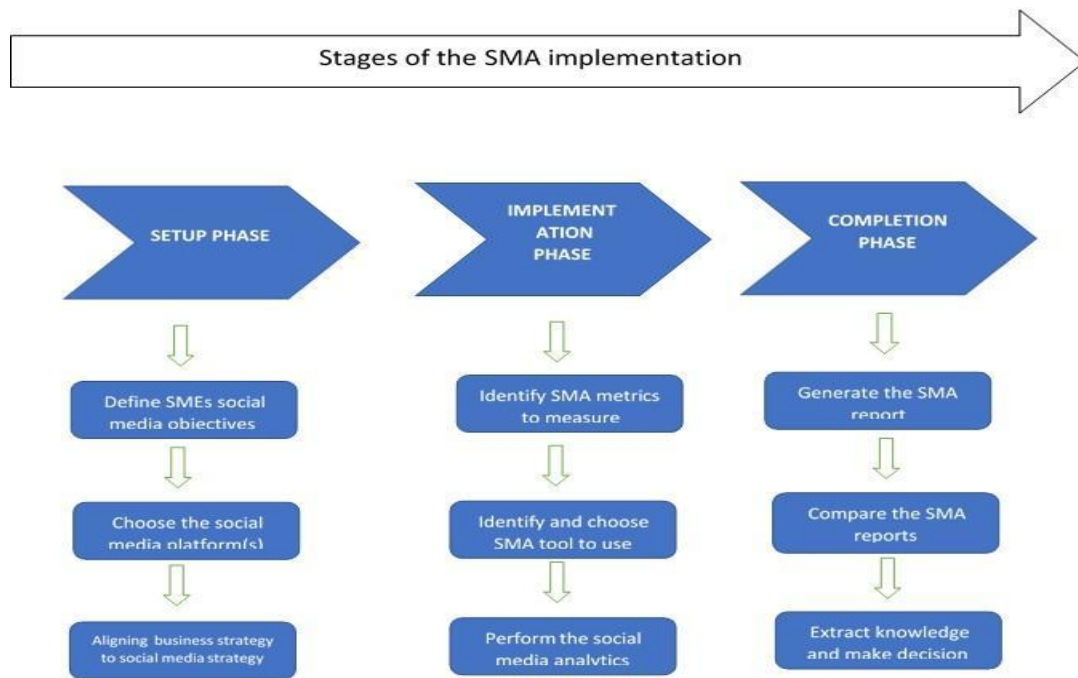


**Figure 32: Business Activities Tourism SMEs wants to Find Insight About**

## 4.4 Social Media Analytics Tourism SMEs Implementation Framework

### 4.4.1 Proposed Tourism SMEs, SMA Implementation Framework

The proposed framework is based on a literature review of various information systems and SMA studies. The framework has three phases, setup phase, the implementation phase and the completion phase. The setup phase includes tasks like, defining the SME social media objects, choosing the social media platform to use and aligning business strategy to the social media strategy. The implementation phase includes identifying the social media metrics to measure, identifying and choosing the SMA tools to use and then conducting the SMA. The completion phase includes generating the SMA report, comparing the SMA reports and creating knowledge and making decisions, as indicated in Fig. 33.



**Figure 33: Proposed SMA implementation framework**

#### 4.4.2 Set-up Phase

At this stage is where the SMEs managers are required to design, plan and define the goals of the SMA. This is the preparation stage which involves the following activities.

##### (i) Defining SMEs Social Media Objectives

The social media objectives of SMEs are the organization's goals for using social media in their business processes and determining how it will help them meet those goals. SMEs managers should consider what SMEs want to achieve by using social media such as reach many customers, increase brand visibility, receive customer's feedback etc. Social media goals should be communicated to management and all staff so that when any SMEs member posts on behalf of the SMEs they must refer to the SMEs social media objectives. The SMEs social media objectives can be for business marketing, brand awareness, community engagement, customer support and relations. Kleindienst (2015) argued that social media objectives should be aligned according to business unity and not centralised.

##### (ii) Choosing Social Media Platform

Choosing the social media platform(s) is another task during the setup phase. There are many social media platforms available that SMEs can use for their business activities. Jordan

(2018) mentioned social media platforms like Facebook, LinkedIn, twitter, snap chat, WhatsApp, Skype, and Instagram as the famous platforms used by small and medium size enterprises. Due to this variety of social media platforms SMEs need to be cautious in choosing which platform(s) to use. The purpose of using social media for SMEs is to reach people. Hence choosing the social media platform to use will depend on the audience that SMEs want to reach, their social media objectives and the resources and skills available to implement social media campaigns. Each of the numerous social media platforms available has a slightly different audience than the others. Despite the existence of several social media platforms, Facebook remains a popular social media platform and the dominant platform for business activities (Augar & Zeleznikow 2013; Ainin *et al.* 2015; Kraus *et al.* 2019).

### **(iii) Align Business Strategies to Social Media**

The use of social media in business processes has to be aligned with the general business strategies like other business processes and business technologies. It is difficult to know how to use social media for which activities in business strategy without aligning social media objectives with business strategies. The general business strategies have to be broken down into departments and units and the use of social media has to be defined for each unit and department. Zadeha and Jeyaraj (2019) argued that for social media usage to be successfully it is important for organisation to align their business strategies with their social media strategies.

## **4.4.3 Implementation Phase**

### **(i) Identify the Social Media Metrics to Measure**

In order to find the impact of the social media platforms and gain insight for business intelligence, managers and owners of tourism related SMEs should have specific goals and specific measurements to measure the SMA and SMEs social media campaigns. Many aspects can be measured in social media data, but SMEs social media metrics have to be relevant to the social media objectives identified. Tourism SMEs can choose to measure brand awareness, customer engagement on social media, make predictions, or conduct sentiment analysis on customer comments and replies.

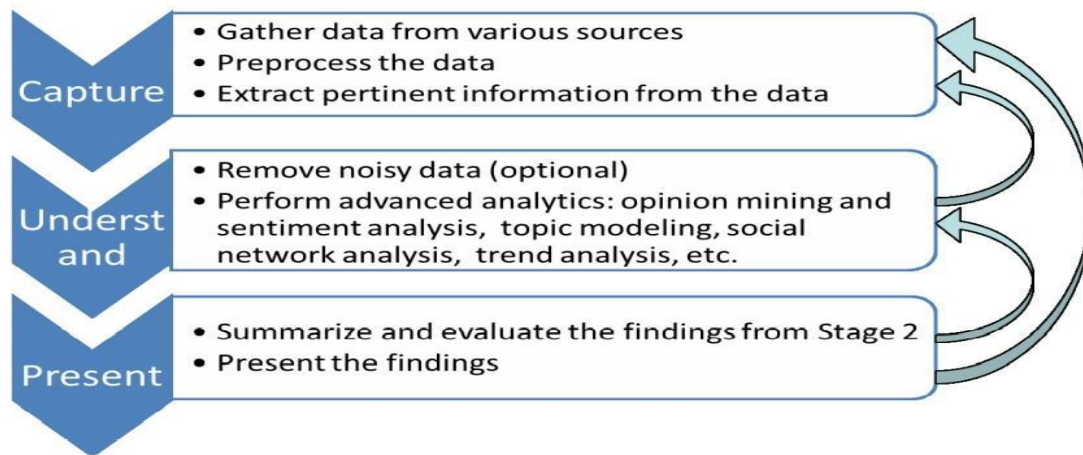
## **(ii) Identify and Choose the SMA Tool to Use**

Deciding which tool to use for analysing tourism SMEs may depend on the SMEs social media objectives, budget and organisation needs. The SMA tools are classified as commercial SMA tools, free SMA tools and SMA tools from social media platforms. These SMA tools have a variety of features and approaches to social media data, as well as operational strengths and weaknesses. A single SMA tool may not always be the best fit for a particular SME needs, thus may require additional tools to complete the SME analytics. For tourism SMEs to choose the best tool(s) for their social media measurements a number of aspects can be checked. The price and bill payments; whether SMEs have a budget for doing SMA, this will guide the managers and SMEs owners in choosing the tool(s) they can afford for their usage. Which social media platform they want to listen to or get insight about is another aspect; it is advised that if the tool(s) can be used only on one platform it is better to be connected to the social media platform that has the most usage and is essential for the business. The analytics capability is another factor to consider when selecting the tool(s) for social media measurements and listening; SMEs managers must select an analytics tool that can perform the majority of the metrics mentioned in social media objectives and business strategies. The analytics tool that performs many metrics without additional tools has to be chosen over the other analytics tools. The possibility of feature support is the lastly but not least the factor to consider; where the selected tool(s) should allow for the improvement or addition of new technologies and other features in the future without major changes or the needs for additional tool(s) and costs.

## **(iii) Perform the SMA**

This stage is where the actual process of analytics is performed. The analytics can be conducted by the SMEs using their own experts or by hiring a third-party organisation responsible for conducting SMA. The SMA process involves three stages; capture, understanding and presentation (Fan & Gordon, 2014). The capture stage involves the collection of data from the social media platforms, processing them and extracting relevant information from the social media data. Understanding stage is the key stage where different analytics techniques are performed by the SMA tool(s). The final stage is the presentation, where the findings are summarised. Different analytics techniques can be performed on social media data. Fan and Gordon (2014) classify those techniques as prediction analysis, opinion

mining for sentiment analysis, social network analysis, topic modelling, trend analysis and visual analytics. Figure 34 illustrates the SMA process.



**Figure 34: The SMA process**

#### **4.4.4 Completion Phase**

In this stage, the SMEs managers generate SMA reports from the SMA tool(s) weekly, monthly or instantly, compare the SMA report with the previously performed analytics report and finally extract knowledge and make business decisions.

##### **(i) Generate the SMA Report**

The majority of SMA tools, both commercial and social media platforms, can generate SMA reports. The SMA report is a summary of the analytics results which were performed based on social media objectives and the selected metrics to measure and gain insight. The report will provide summarised results for each metric in numbers or pictorial presentations (graphs and graphics). The SMA tool(s) allow the export of the SMA report in different formats like spreadsheets, PDFs and PowerPoint depending on the tool(s) used to perform the analytics.

##### **(ii) Compare the SMA Report**

The generated SMA report can differ from the previous report. Managers of tourism SMEs are advised to compare the current report with the previous one in order to check if there are any changes. These changes will help them measure the company’s social media strategies and determine their position in their social media campaigns. The changes can notify them of the areas for improvement, change the metrics to measure or change the social media objectives.

### **(iii) Extract Knowledge and Make Business Decision**

The main purpose of SMA reports is to allow SMEs managers to extract knowledge from those social media data analytics reports and make some business decisions. The SMEs managers and owners will use these SMA reports to gain business intelligence so that they can help them make business decisions. He *et al.* (2017) explains the knowledge that can be extracted from the SMA report, the knowledge discovered was the share of voice, theme and theme sentiment, sentiment benchmark, category clusters and category correlations.

#### **4.4.5 Social Media Analytics Implementation Framework User Evaluation**

In order to ensure satisfaction and acceptance of the proposed tourism SMA implementation framework a user evaluation was performed. Fifteen (15) tourism SMEs managers filled out the questionnaires to express their views regarding the developed framework. The Likert scale with scores strongly agree, agree, neutral, disagree, strongly disagree was used to measure the features of the developed framework. About 86% of the respondents agreed that the SMA framework is easy to understand. Another aspect was the developed system's ease of use, 87% of the tourism managers agreed that the developed framework is easy to use. The 93.33% of the respondents mentioned that they can effectively conduct SMA using the proposed SMA implementation framework. The 86.66% of the respondents were satisfied with the developed SMA implementation framework. All respondents agreed (100%) that they will recommend the developed implementation framework to other tourism SMEs managers and owners. Table 4, summarise the user evaluation results of the proposed tourism SMA implementation framework.



**Table 4: The SMA implementation framework evaluation results**

Statement	Response	Frequency
“It is easy to understand the developed SMA implementation framework”	Strongly agree	10(66.66%)
	Agree	3(20%)
	Neutral	2(13.33%)
“It is easy to use the developed SMA implementation framework”	Strongly agree	11(73.33%)
	Agree	2(13.33%)
	Neutral	2(13.33%)
“I can effectively conduct SMA implementation framework”	Strongly agree	14(93.33%)
	Agree	2(13.33%)
“Overall, I am satisfied with the developed SMA implementation framework”	Strongly agree	13(86.66%)
	Agree	2(13.33%)
“I will recommend the developed framework to other tourism SMEs managers and owners”	Strongly agree	15(100%)

#### 4.5 Tourism SMEs, Web Based SMA Tool Prototype Development

A web based prototype SMA tool was developed based on the developed framework to test and support use of the framework to tourism SMEs managers to make insight from the Facebook page that help the owners and managers make business decisions. The SMA tool is named, Tourism SMEs social media insight (TSSMI).

##### 4.5.1 Developed System Prototype Functional Requirements

Table 5, shows system prototype user requirements given by 71 tourism SMEs respondents. 95.77% of respondents propose the system to count the number of likes, and 95.77% propose the system to count the number of comments. The 98.59% of respondents propose the system to count the number of shares. The 97.18% propose the tool to count the number of posts. The 97.18% propose the system to count the number of posts or page views. The 84.50% propose the system to provide demographic information about the page visitors. The 98.59% of the respondents propose the system to track page visitors locations. The 90.14% of the respondents propose the system to perform comment sentiment analysis, and 100% of the respondents propose the system to perform customer prediction.

**Table 5: System Prototype Functional Requirements**

<b>Requirement (s)</b>	<b>Description</b>	<b>Number of Respondents</b>	<b>Percentage</b>
<b>Number of like(s)</b>	The system should be able to count number of like	68	95.77%
<b>Number of comments</b>	The system should count number of likes	68	95.77%
<b>Number of post share</b>	The system to count how the post go viral	70	98.59
<b>Number of post reach</b>	To count number of visitors who see the post	69	97.18%
<b>Number of post/page views</b>	The system to count how many visit the page	69	97.18%
<b>Visitor's demographics</b>	The system to determine the gender of the visitors	60	84.50%
<b>Visitor's location</b>	The system should be able to track the location of the visitors	70	98.59
<b>Sentiment Analysis</b>	The system to determine the sentiments of the comments (positive or negative)	64	90.14%
<b>Prediction Analysis</b>	The system should predict the future of the business e.g., Number of potential customers	71	100%

#### **4.5.2 Developed Tourism SMEs, SMA Tool System Functionalities**

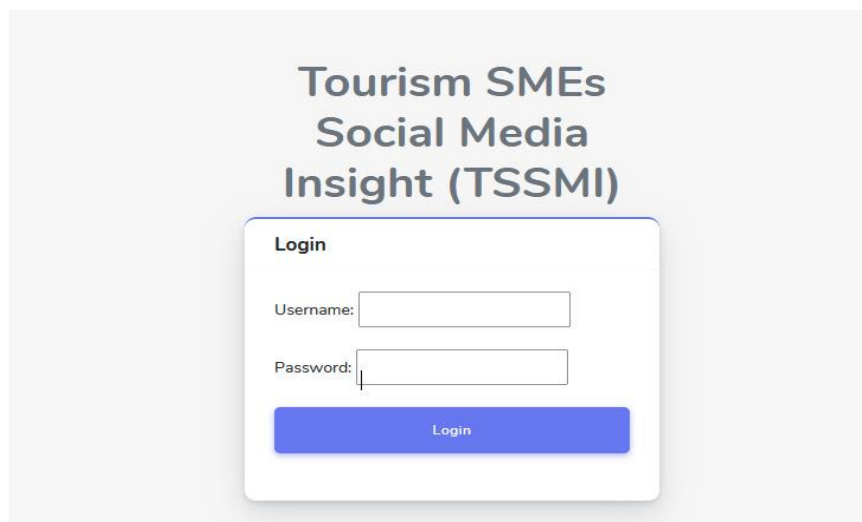
The developed web-based SMA tool prototype has six main functionalities; counting the number of likes, dislikes, comments and shares, showing age and sex of page visitors, display the page visitors language, showing the location of page visitors, performing post sentiment analysis and predicting potential customers. Table 6, summarises the system functions and their descriptions.

**Table 6: Tourism SMEs, SMA tool system functions**

Functional	Description
Likes, dislike, comments and share	The system is able to count number of likes, dislike, comments and share
Age and sex	The system is able to display the age and sex of visitors
Visitors language	The system is able to display the visitors comments language
Location of visitors	The system is able to locate the geographical location of visitors
Sentiment analysis	The system is able to perform the sentiment analysis of the page post comments
Customer prediction	The system is able to predict the potential customers

### 4.5.3 Login Interface

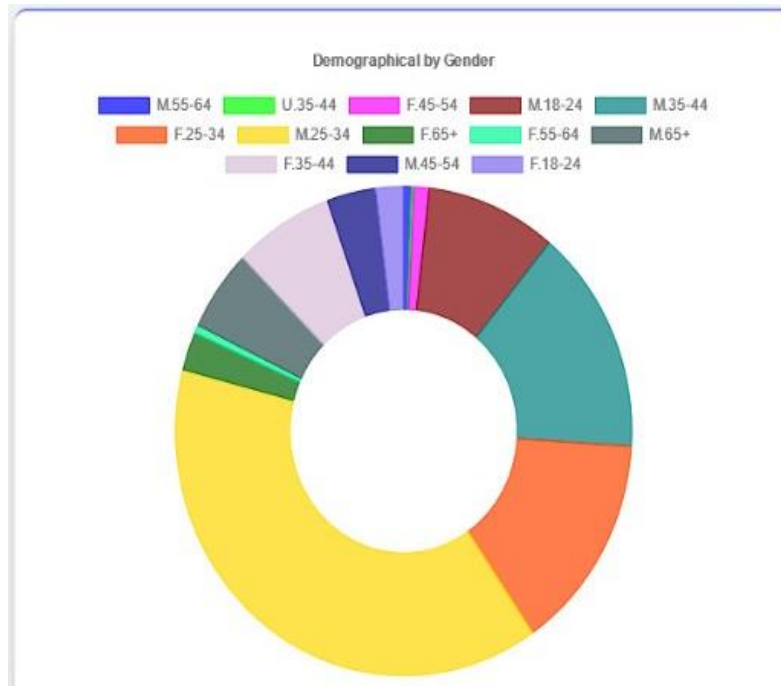
The TSSMI has a login interface to ensure that only authorized users can access the system, as shown in Fig. 35.



**Figure 35: The TSSMI login interface**

### 4.5.4 Age of Page Visitors

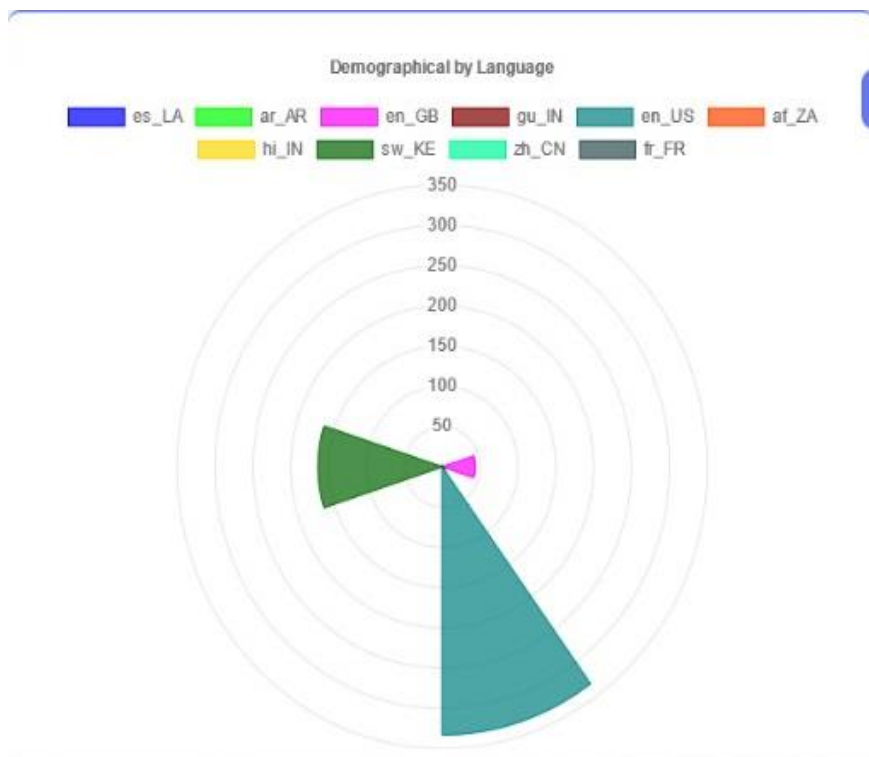
The developed TSSMI tool is able to find the gender and age of the page visitors, as illustrated in Fig. 36.



**Figure 36: Age and gender of page visitors**

#### 4.5.5 Language of Page Visitors

The newly developed TSSMI can determine the page visitor's language as shown in Fig. 37. The language was determined from the comments.



**Figure 37: Language of page visitors**

#### 4.5.6 Likes, Dislikes, Comments and Share

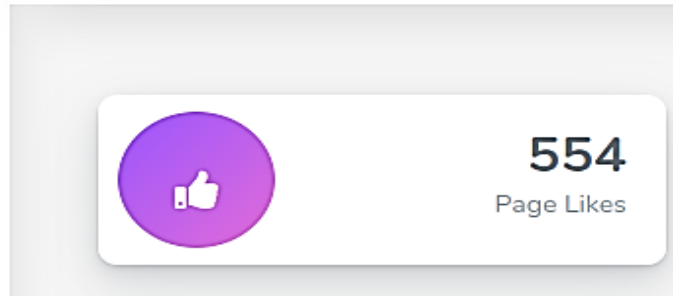
The basic SMA metrics used by most tourism managers when conducting SMA are counting the number of likes, dislikes, comments and shares. The developed tourism SMEs SMA tool is able to count the number of page visitors who like, dislike, share and comment on the SMEs Facebook and Instagram page. These numbers are displayed in the SMA tool dashboard, as illustrated by Fig. 38.

TSSMI

Dashboard

Sentiment By Post

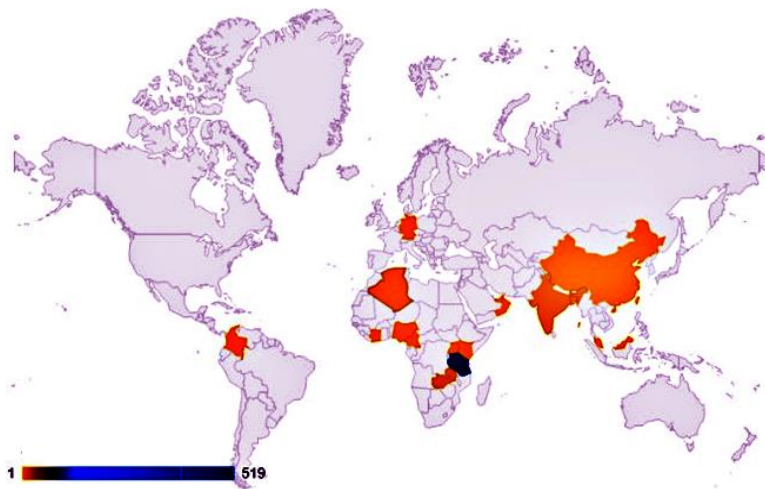
SME's Profile



**Figure 38: Number of visitors likes social media page**

#### 4.5.7 Location of Page Visitors

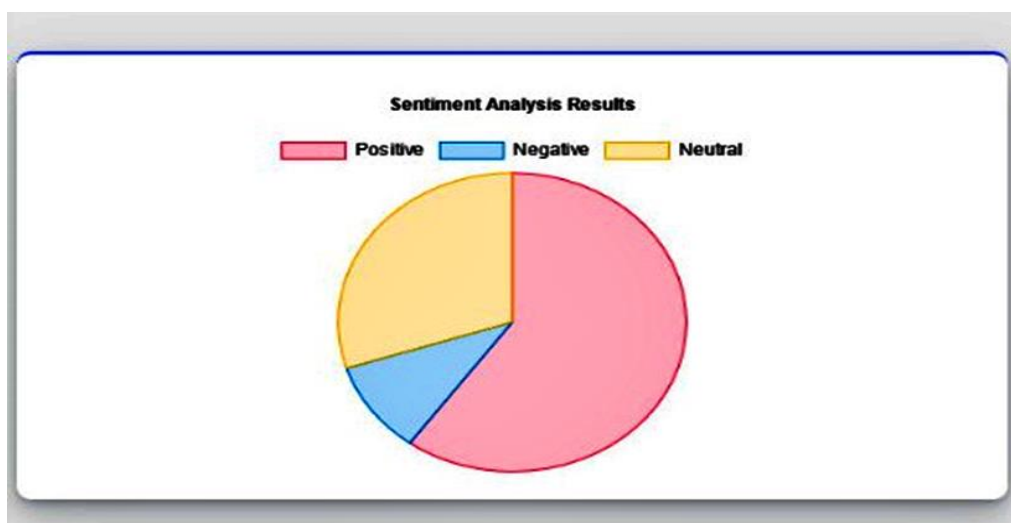
The developed web-based tourism SMA tool is able to locate the geographical location of the page visitors who 'Like' the page, as illustrated by Fig. 39. The number of visitors who like the page from different countries is located on a map. The location of the page visitors is extracted using the Facebook graph API and Instagram API, the Google charts were used to create the map and locate the geographical location of the page visitors. The visitor's geographical location will help the tourism SMEs owners and managers to track location of their potential customers and design different services and strategies based on their countries.



**Figure 39: Geographical location of social media platform page visitors**

#### 4.5.8 Sentiment Analysis

There are several techniques used to perform sentiment analysis which include machine learning, lexicon-based approach and hybrid approach. Lexicon based approach involves the collection of tokens, each token is assigned a predefined score, the score which indicates neutral, positive or negative nature of the text. Lexicon based approach does not need training data. Machine learning approach used to identify and quantify sentiment text are based on classification of supervised machine learning and unsupervised learning (Wankhade, 2022). In this study Python programming language was deployed to generate sentiments. Natural language toolkit (NLTK) Python sentiment library was used to provide sentiment analysis of the Facebook data, as illustrated in Fig. 40.



**Figure 40: Social Media Post Sentiment Analysis Results**

#### 4.5.9 Prediction Analysis

The prediction analysis was performed to predict expected customers by using the Facebook Prophet Python library. The prophet is an open-source project designed by Facebook to predict time series datasets. The Facebook Prophet has to learn trends in the points in the dataset and predict the future based on the trends. The advantages of using Prophet are its ease of use, it doesn't require stationary time series, it uses trends which can be estimated without external data and able to handle outliers by filling them with trend changes (Taylor & Letham, 2018).

The social media post comments are extracted and saved in a CSV file using the Facebook Graph API as illustrated by Fig. 41. The extracted comments are subjected to sentiment analysis to determine negative and positive comments. The number of positive comments is taken to be used for prediction. The input to the Facebook prophet is a dataset with two columns ds and Y, where ds is the timestamp column and Y column is the numeric value which is the measurement we wish to predict, as illustrated by Fig. 42. The numeric value ought to predict included the number of positive comments, hence the dataset was created which consists of the number of positive comments and the time stamp (Y vs ds). From the created data set the prediction can be performed at a specific time frequency; daily, weekly, monthly or yearly, as illustrated by Fig. 43.

```
#Retriving all comments from pages
commentsinPosts = graph.request(page_id + "/posts?fields=comments{message}")['data']
an = len(commentsinPosts)
for i in range(0, len(commentsinPosts)):
    try:
        for mesg in commentsinPosts[i]['comments']['data']:
            kitu_zote=mesg["message"]
            lower_case = kitu_zote.lower()
            cleaned_text = lower_case.translate(str.maketrans('', '', string.punctuation))
            analysed = sentiment_analyse(cleaned_text)
            if analysed == "Positive":
                positive_count = positive_count + 1
            elif analysed == "Negative":
                negative_count = negative_count + 1
            else:
                neutral_count = neutral_count + 1
```

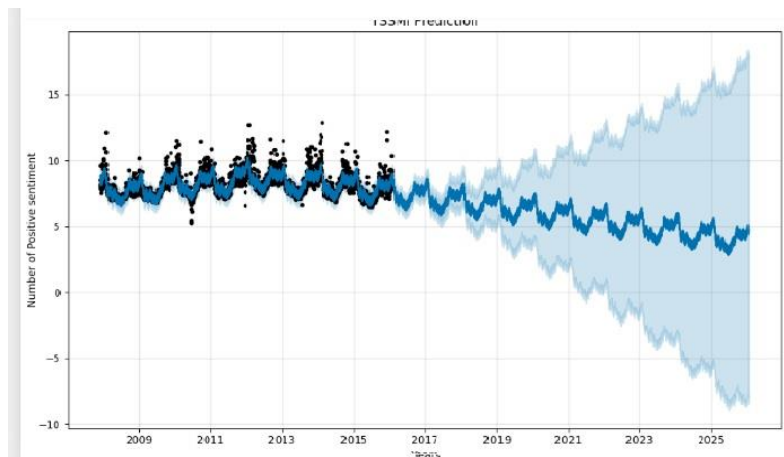
**Figure 41: Python codes for extracting data from the facebook page**

```

#Reading saved fra from excel
df = pd.read_csv('/home/godytech/Desktop/MM/fb_senti_analy/data.csv')
df['ds'] = pd.to_datetime(df['ds'])
df.columns = ['ds', 'y']
#Loading modal and feed with data
model = Prophet()
model.fit(df)
#Make prediction using modal by specifying time
future = model.make_future_dataframe(periods=365 * 10)
forecast = model.predict(future)
#creating graph
model.plot(forecast)
#preparing graph ready to be displayed in web browser
buffer = BytesIO()
plt.savefig(buffer, format='png')
buffer.seek(0)
image_png = buffer.getvalue()
model.plot(forecast, xLabel='Date', yLabel=r'Number of Positive sentiment')
plt.title('TSSMI Prediction')
buffer.close()
graphic = base64.b64encode(image_png)
graphic = graphic.decode('utf-8')

```

**Figure 42: Python codes for reading data from .CSV file and performing prediction**



**Figure 43: Prediction Results from the social media Comments**

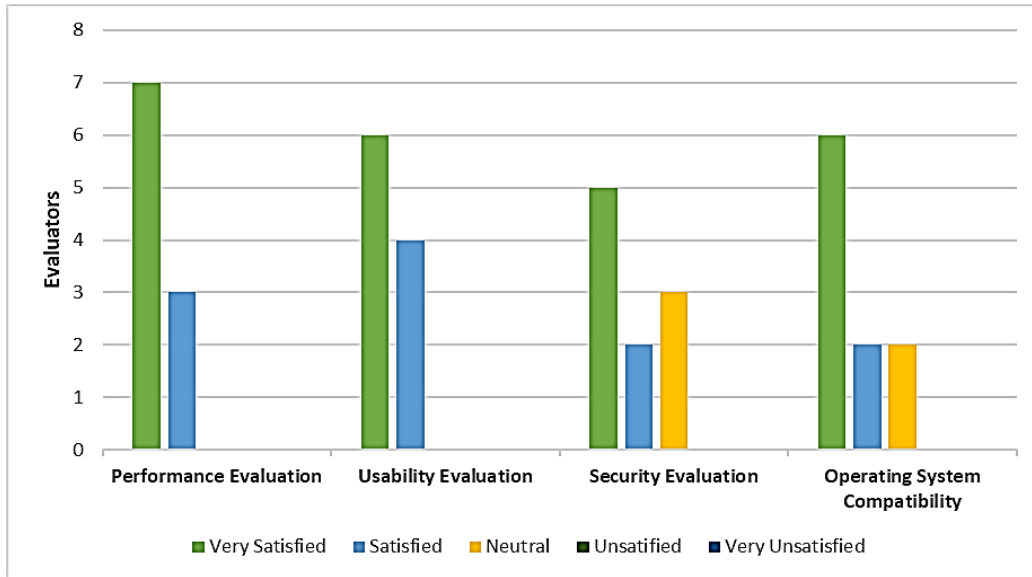
#### 4.5.10 System Prototype Evaluation

##### (i) Technical Evaluation

Ten ICT experts performed a technical evaluation of the system prototype, and a semi-structured questionnaire was distributed to the evaluators. Questionnaires consist of five points a Likert scale with very satisfied, satisfied, neutral, unsatisfied and very unsatisfied was used to measure performance, usability, operating system compatibility and security. The 70% of the evaluators agreed that they are very satisfied with the system prototype's performance while 30% mentioned that they are satisfied with the system prototype's performance. On the usability evaluation 60% of the evaluators mentioned that they are very satisfied, and 40% of the evaluators mentioned that they were satisfied with the prototype's



usability. The 50% of the evaluators are very satisfied with the security of the system prototype, 20% are satisfied, and 30% are neutral. The operating system compatibility evaluation results are as follows, 60% of the evaluators mentioned were very satisfied, 20% were satisfied and 20% were neutral with the operating system compatibility. Figure 44 provides a summary of the technical evaluation.



**Figure 44: System prototype technical evaluation results**

**(ii) Prototype User Validation**

After the technical evaluation, the user validation of the system prototype was performed. In this final stage of the system development, 15 respondents from the tourism SME community were involved. The respondents followed the proposed SMA implementation framework during the validation process. The respondents were taught to use the SMA implementation framework and applied it during the system validation and given access to the system to use and then they filled out the questionnaires to give their experiences with the prototype. The user system evaluation questions were based on the ease of use of the system, its ease to learn and understand, the navigation experience of the system, the look of the system interface and finally their system satisfaction. The respondents have to select the Likert scale as strongly agree, agree, neutral, disagree or strongly disagree. Table 7 gives a summary of the user evaluation results.

**Table 7: Summary of the SMA tool user system prototype evaluation**

Statement	Response	Frequency
“The SMA tool is easy to use”	Strongly agree	13(86.66%)
	Agree	2(13.33%)
	Neutral	0(0%)
“The SMA tool is easy to understand”	Strongly agree	13(86.66%)
	Agree	2(13.33%)
	Neutral	0(0%)
“The SMA tool interfaces are attractive”	Strongly agree	11(73.33%)
	Agree	3(20%)
	Neutral	1(6.66%)
“The SMA tool components are easy to navigate”	Strongly agree	13(86.66%)
	Agree	1(6.66%)
	Neutral	1(6.66%)
“The overall SMA tool modules are useful for tourism small and medium size enterprises”	Strongly agree	14(93.33)
	Agree	1(6.66%)
	Neutral	0(0%)
“The SMA tool does not need technical assistance to be able to use”	Strongly agree	13(86.66%)
	Agree	2(13.33%)
	Neutral	0(0%)
“I will recommend the SMA tool to other tourism SMEs owners/managers”	Strongly agree	15(100%)
	Agree	0(0%)
	Neutral	0(0%)

#### 4.6 Discussion

This section discusses the findings obtained from the study based on the research objectives. As it was mentioned in Chapter one, the main objective of the study is to develop an implementation framework of SMA for tourism SMEs business intelligence in Tanzania and the SMA tool prototype. The discussion will be divided into five sections addressing the five study specific objectives namely, to identify the SMA practices and discover enhancement requirements among tourism SMEs, to develop SMA implementation framework for Tanzania’s tourism SMEs business intelligence, to validate the effectiveness of the developed

SMA implementation framework, to develop the SMA tool for Tanzania's tourism SMEs and to validate the effectiveness of the developed SMA tool.

In identifying the SMA practices and discovering the enhancement requirements the study investigates the tourism SMEs SMA usage and the adoption factors of the SMA tools and technologies. The TAM, UTAUT and TOE models were used to perform those investigations. All the respondents used social media platforms, where, Facebook is the leading platform with 97.18%, followed by Instagram 88.73%, Twitter 39.43%, Google+ 21.12% and LinkedIn 11.26%. The results are consistent with previous research scholars (Al-sharji *et al.*, 2018; Ahmed *et al.*, 2018). The findings indicate that the majority of tourism SMEs do not employ SMA tools and technology in their business social media campaigns. This is due to the fact that many tourism SMEs' managers and owners lack sufficient understanding and information regarding SMA; 25% of the respondents have information and knowledge about SMA while 75% of the surveyed respondents don't have knowledge and information about SMA. The 19 respondents, accounting for 27% of the surveyed tourism SMEs are performing SMA, in which they mainly perform simple analytics such as counting the number of followers 19 (100%), counting the number of visitors 14 (74%), counting the number of likes/dislikes and comments in social media page 16 (84%) and few respondents perform advance metrics 2 (11%) perform sentiment analysis and 2 (11%) perform trend analysis, these findings resemble with the study by McCann and Barlow (2014).

The study findings also indicate the business area where tourism SMEs need to extract insight from the social media platforms; 94% want to get insight about marketing information, 79% want to get insight about brand awareness, 97% want to get insight about customer relations information, and all the respondents want to get insight about customer feedback information. This shows that many tourism SMEs need to know what their customers are saying about their services and products. The studies carried out by Bhatia *et al.* (2013), Ngaboyamahina and Yi (2019) and Wang *et al.* (2020) confirm these conclusions. Another finding shows the majority of the tourism SMEs that are conducting SMA in their business social media campaigns are not using any guidelines or procedures that guide them. Out of 19 tourism SMEs that conduct SMA, 26% follow their procedures in conducting SMA. The remaining 14 tourism SMEs, 74%, are not following any proper procedures in conducting and managing SMA activities. Some studies indicated that in order for organisations to implement well and maintain the full advantages of using SMA tools and technologies they must follow some

proper guidelines or procedures that are not present for tourism SMEs (Owyang, 2021; Ruhi, 2014; Zerres, 2021).

The study also found SMA tools that are commonly used by tourism SMEs, majority of the tourism SMEs are using built in SMA tools within the social media platforms like Facebook analyzer and twitter analyzer. This is about 15 SMEs out of 19, which is equal to 79%. Other tourism SMEs are using commercial tools like follower wonk 1%, cyte 1%, Google analytics 1% and Buzzsumo 1%. The built-in SMA offer basic and limited services to tourism SMEs. In order for tourism SMEs to obtain more advanced services they need to adopt and use advanced tools that are customised based on their basic requirements. These results are in line with Young *et al.* (2020) which found that the built-in SMA are mostly used followed by commercial SMA tools. The developed SMA tool also support the ICT innovation and encourage the ICT experts on generations of local digital contents as well as support the Tanzania ICT policy 2016 on the use of e-services to facilitate the easy provision of social economic services including tourism sector (URT, 2016).

The study uses the TOE framework to assess the level of SMA tool and technology adoption among tourism SMEs and identify the factors that affect this acceptance. The technology compatibility factor was determined, the study found the majority of the tourism SMEs (about 63%) use technology which is compatible to conduct SMA on their social media platforms. SMEs in tourism industries are able to access internet services and they are using computers and other digital handheld devices in their offices that can be used to perform SMA.

The results show that there is a positive influence from adopting SMA tools and technologies on the majority of the tourism organisation's employees and managers 71% of the tourism SMEs who responded agreed that there is high influence of the adoption of SMA. Nonetheless, 69% of respondents concurred that top executives at tourism SMEs are ready to employ SMA techniques and technologies These findings show that there is positive influence on the organisation side to adopt and use SMA.

The study found out the challenges facing tourism SMEs in adopting and using the SMA, 19.23% of the tourism SMEs mentioned a lack of skilled personnel to conduct the SMA, others mentioned the cost of the internet 13.46%, lack of implementation guidelines 23.07%, lack of information about SMA 21.15% and others 23.07% mentioned the velocity and speed

of social media data as the challenge they face in adopting and using SMA tools. These findings are in line with the studies conducted by Mohana (2021) and Stieglitz *et al.* (2018).

The findings reveal the external environment impact on the adoption of SMA tools and technologies. The study determined competition from other tourism SMEs and government regulations and support. All respondents agreed that other tourism SMEs competition has an influence on the adoption of SMA. About 58% of the tourism SMEs respondents agreed that the government's supports and regulations encourage the organisation to adopt and use SMEs. This finding proves that environmental factors influence and favour adoption and use of SMA to tourism SMEs.

The study proposed an SMA implementation framework which was developed using conceptual analysis methodology; involving the use of literature reviews in constructing the framework. Several research articles that explain the management of technologies and SMA issues were reviewed. The proposed framework has three phases set up, implementation and completion phase which explain the guidelines to use and manage the SMA process. The proposed SMA implementation framework will help tourism SMEs to adopt and use SMA on their social media business campaigns. Ramadhani *et al.* (2017) argued that implementation frameworks help with the adoption and management of new technologies. The SMA will provide insight from the social media data that helps tourism owners and managers to make business decisions. The proposed framework was evaluated by users in order to ensure their satisfaction. The majority of the evaluators 86.66% agreed that the framework is satisfactory for tourism SMEs to use, and all the evaluators agreed that they will recommend the framework to be used by other tourism SMEs managers.

The tourism SMEs social media insight was developed in this study. This is the web-based SMA tool prototype developed for Tanzania's tourism SMEs. The SMA tool prototype was based on the user's requirements. The system's main functions were agreed upon and suggested by the system users Matto and Mwangoka (2018) also explain the importance of considering user requirements in system development. The SCRUM agile system development model was deployed to develop the social analytics tool for tourism SMEs. The Scrum system development methodology is used to create systems with a high level of involvement from the system's final user (Ng, 2018). The developed system has five basic functions which are counting the number of page likes/dislikes and comments, tracking the page visitor's location, sentiment analysis and customer predictions. The TSSMI was

evaluated by ICT experts and the users of the system. According to the technical evaluation results, 70% of the evaluators were very satisfied with the prototype's performance, and 60% of the respondents were very satisfied with the prototype's usability. Further, 50% of the technical evaluators were very satisfied with the prototype's security and 60% of the respondents are very satisfied with the system's compatibility. The 86% of the final user's evaluators strongly agreed that the developed prototype is easy to understand and use. The 73% of the evaluators agreed that the system interfaces are attractive and about 93% of the user evaluators agreed that the system modules are very useful for tourism SMEs. All the respondents agreed (100%) that they will recommend the SMA tool to other tourism SMEs managers and owners. The user evaluation results show that the SMA tool works well with the developed framework.

## CHAPTER FIVE

### CONCLUSION AND RECOMMENDATIONS

#### 5.1 Conclusion

The study deployed a survey method to investigate how tourism SMEs practice the use of SMA in their business social media activities. The results indicate that the majority of the tourism SMEs are not adopters and users of the SMA tools and technologies. Few tourism SMEs that have adopted SMA tools and technologies are performing simple metrics analysis and mostly use built-in SMA tools with limited functions. Furthermore, the study indicates that most SMEs are performing SMA without following any proper guiding procedures.

The SMA implementation framework was developed to guide tourism SMEs to adopt and use SMA tools and technologies. The SMA framework has the potential to enhance the majority of tourism SMEs to adopt and use SMA as key business intelligence tool, to support organisation decision-making. The developed SMA implementation framework is simple and easy to use by tourism SMEs as indicated by the final user's evaluation. The tourism SMEs social media insight tool developed in this study is capable of providing insight from social media data in basic areas described by the users. The SMA tools will help tourism SMEs to count the number of likes/dislikes and comments, track the geographical location of the page visitors, perform sentiment analysis on the page and post comments as well as predict future customers.

The study, therefore it has an empirical and managerial contribution. Empirically the study contributed to the body of knowledge on general awareness among the tourism SMEs on the advantages and issues concerning the use of SMA because this is the first study of its kind on SMA to tourism SMEs in Tanzania. The study also provides the current status of the adoption and usage of SMA tools and technologies to tourism SMEs in Tanzania. The study also has a managerial contribution, the study proposes the SMA implementation framework. The proposed SMA implementation framework will guide tourism SMEs managers and owners through the SMA process. The study also developed web-based SMA tools that will be used by tourism SMEs to gain insight from social media data which will help the organisation in business decision-making.

## 5.2 Recommendations

Based on the research findings, the study recommends the following to the SMEs stakeholders, government and academicians.

Having user-friendly ICT environments stimulate the usage of SMA and other ICT services to tourism SMEs and other sectors. The study recommends the government to increase ICT user-friendly environments such as availability of internet services, reducing tax on ICT gadgets, monitoring of internet bandwidth price which will stimulate SMEs to use ICT services. The study found out that many tourism SMEs don't have information about SMA. The study recommends social media stakeholders, ICT experts and other social media stakeholders to increase awareness of the advantages of SMEs to use SMA in their business activities.

The study found that a few articles are present that are associated with tourism SMEs and SMA. Having more studies which explain different aspect of SMEs and SMA will stimulate and increase the knowledge about SMA. The study recommends academicians and researchers to conduct more research on the ICT application to tourism SMEs especially on SMA usage. The findings show that majority of the tourism SMEs are non-adopters of SMA; hence it is recommended that tourism SMEs managers and owners adopt and use SMA tools and technologies and acquire more knowledge on the usage of SMA tools and technology.

Results from the study also prompt several questions and dilemmas that require further studies. The study identified several further research areas that will ensure smooth adoption and usage of SMA tools and technologies. More follow up should be conducted on the same topic which will show adoption status and SMA usage changes over a period of time, we expect that the usage of SMA will be beneficial for the business intelligence of tourism SMEs. More studies on the investigation on the return of investment of tourism SMEs that adopt and use SMA tools and technology are needed. The ICT expertise and system developers have to create very useful SMA tools for specific types of tourism SMEs, such as hotels, tour guide operators, and so on.



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## APPENDICES

### Appendix 1: Questionnaire

#### Dear manager/Firm owner/ Firm leader

I am Shadrack Stephen Madila, Pursuing PhD at Nelson Mandela African Institution of Science and Technology major in Information Technology Systems Development and Management, Focusing on Development of the framework to Enhance social media Analytics as Business Intelligence tool for Tourism Small and Medium size Enterprises as well as Development a social media analytics tool for Tourism SME's.

Your firm is part of the representative sample of SMEs in tourism sector. Your participation to answer this questionnaire is the success of this study. The value of your time is appreciated in this study. All information you will provide will not be identified and will be used for academic purpose only.

For any questions about this study or this questionnaire please contact me with the address below,

**Shadrack Madila**

**Nelson Mandela African Institution of Science and Technology**

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#### **PART A: Organization Information**

1. What is the type of your organization

( ) Hotel/ Restaurant/ Cafe ( ) Air operator ( ) Travel Agent ( ) Tour guide Operator

Other.....

2. What is your position in the Organization

( ) Managing Director ( ) Marketing/Sales Manager ( ) IT Manager ( ) Financial Manager

( ) Operation Manager ( ) Owner

3. What is your age  
 21--- 30     30---40     40---50     50--- 60     More than 60
4. What is your education level  
 Primary school     Secondary school-O level     Secondary school-A- level  
 Bachelor Degree/ Advance Diploma     Master's Degree     Other Level.....
5. How many employees are in your firm,  
 1--- 10     11--- 20     21--- 40     41---60     60—100     More than 100
6. Where is your Organization head office located  
 Dar es Salaam     Zanzibar     Kilimanjaro     Arusha     Other.....
7. Age of the firm  
 Less than a year     1—3     3- 5     More than 5
8. What is the nature of your firm market  
 Local Market     Regional Market     International Market
9. Does your firm use social media technologies in business activities  
 Yes     No.

**PART B: Social media analytics (SMA) practice and enhancement requirements**

10. Please identify social media platform which your organization has presence  
 Facebook     Instagram     Twitter  
 Google+     LinkedIn     Other.....
11. For what purpose your organization use social media  
 Branding     Advertising and Promotion     Reach new Customers  
 Getting (likes, Shares and Followers)     Customer Relation Management  
 Receive customer feedback     Other.....
12. What was the motive for your company to use social media

- Other companies are using social media  My customers are using social media
- My staffs have knowledge and skills to use Social media and desired
- Want to use Technology in over business

13. What are the observed benefit from using social media

- Increase brand awareness  Increase better communication with customer
- Increase receiving feedback from the customer  Increase many business contacts
- Others .....

14. Did your firm perform social media analytics in their social media platforms

- Yes  No  I don't know

15. Please the best description about your knowledge about Social Media Analytics (SMA)

- I have no information about SMA  I have little information about SMA
- I have information about SMA  I have good information about SMA
- I have excellent information about SMA

16. Did your company use any social media analytics tool(s) to get insight from social media data?

- Yes  No **(If answer is YES go to QN 32)**

17. If the answer is NO how do you measures the performance of your social media campaign

- By using Built in Social media analytics (Facebook Analyser, twitter insight etc.)
- Counting number of likes/comments on social media platforms
- Not measures anything in social media platforms

18. How your firm track social media mentions of its brands and services

.....  
 .....  
 .....

19. Do you understand anything about social media analytics tools  
 Yes  No
20. Which is the best word for your organization intention to use SMA tools  
 Intend to adopt using SMA tools  Do not intend to adopt using SMA tools
21. If you will adopt the usage of SMA tools, how soon the firm will start using;  
 Less than 6 month  6 to 12 month  More than 1 year
22. If you will not adopt the usage of SMA tool please give the reasons from the below reasons;
- The enterprise will not benefit from usage of SMA tools
  - No skilled personnel to implement SMA
  - No enough (monetary) Resource
  - The firm does not have the best method to utilize SMA
  - We can do well without doing SMA
  - Fear of receiving bad feedback
23. Did you realize anything unexpected can occur if you will use SMA in your social media platform  
 Agree  Strong Agree  Neutral  Dis agree  Strong Dis agree
24. How would you define difficulties in the adoption of SMA  
 Very difficult  Difficult  Not Difficult  Either Difficult or not difficult
25. How is it compatible doing SMA in your business process  
 Very Compatible  Compatible  Not Compatible  Either Compatible or not compatible
26. Is your top managers understand the benefits of doing SMA  
 Well understand  Understand  Not understand  I don't know



27. How employees affect your decision to adopt SMA

They much affect  They affect  They don't affect  I don't know

28. Is the top management ready to support employee to do SMA

Ready  Not ready  Neutral

29. Do you agree that the competitive presence in Tourism industry will influence you to adopt and use SMA

Agree  Strong Agree  Neutral  Dis agree  Strong Dis agree

30. Do you agree that Government and Government regulations support adoption and use of SMA in your firm

Agree  Strong Agree  Neutral  Dis agree  Strong Dis agree

31. What are the challenges you are facing in adopting and using SMA

- i. Lack of skilled personnel to conduct SMA
- ii. Cost of internet
- iii. Lack of implementation guideline
- iv. Lack of SMA information
- v. Velocity and speed of social media data
- vi. Other:.....

32. If your answer is YES in question No. 16 which social media analytics tool(s) are you using

.....  
.....  
.....

33. Which metrics are you measuring for SMA

- Number of followers in social media platforms
- Number of visitors to the social media platforms
- Received number of likes/comments on social media platforms
- Number of clicks and response for Social Media Platforms
- Received Bookings from Social media platforms
- Received traffic to website from the Social media platforms
- Trend Analysis
- Sentiment Analysis
- Prediction Analysis

34. How does your organization perform SMA?

- Using some expert from outside the organization
- Using an expert within the organization
- Using expert from within the organization and outside the organization

35. How often is your organization perform Social media analytic

- Every Day  Twice a week  Once a week  Once a month  When it is needed

36. How your organization acquire knowledge about Social media analytics

- Formal  Informal  Both

37. If your organization uses a social media analytics tools, how useful it is;

- Extremely Beneficial  No Benefit  Little Benefit  Unclear
- Somewhat Beneficial

38. Did have any procedure(s) you are using in conducting Social media analytics

- Yes  No

**PART C: Framework and SMA tool development**

39. Your organization usage of social media is aligned with your business strategies?

- yes                       No

40. What are the social media information you will need to find the insight about

- Marketing    Brand awareness    Customer Relationship    Customer feedback  
 Others.....

41. What are the social media metrics your company will need to track

.....  
.....  
.....

42. What are other features the firm will need to use in the social media analytics tool

.....

43. What did you say about the capability of your organization in doing Social media analytics

- Low Capability     Moderate Capability     High Capability

44. What are the challenges did your organization face in doing social media analytics

.....  
.....  
.....

45. Will the firm need to receive the summary Report

Name                                      of                                      the                                      firm:

.....

Email

.....

46. Any other comments from the study

.....  
.....  
.....

## RESEARH OUTPUTS

### (i) Research Papers

Madila, S., Dida, M., & Kaijage, S. (2021). A review of usage and applications of social media analytics. *Journal of Information Systems Engineering and Management*, 6(3), em0141.

Madila, S. S., Marwa, J., Dida, M. A., & Kaijage, S. (2022). Tourism SMEs usage of Social Media Analytics as their Business Intelligence Tool. *International journal of Advances in Scientific Research and Engineering*, 8(1), 86-96. <https://doi.org/10.31695/IJASRE.2022.8.1.10>.

Madila, S. S., Dida, M. A., & Kaijage, S. (2022). Tourism SME's Adoption of Social Media Analytics Tools and Technology. *African Journal of Hospitality, Tourism and Leisure*, 11(1), 239-247.

### (ii) Poster Presentation

## **Appendix 2: Poster Presentation**

**DEVELOPMENT OF AN IMPLEMENTATION FRAMEWORK AND SOCIAL  
MEDIA ANALYTICS TOOL FOR TANZANIA'S TOURISM SMALL AND  
MEDIUM-SIZED ENTERPRISES**



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**Abstract**

Tourism is among the sectors that contribute greatly to the economic development of many countries. The industry contributes the growth of countries' economies and employment. Majority of organisations in the tourism sector operate as small and medium enterprises (SMEs). Tourism SMEs prominently use ICT services including social media in their daily business activities. Performing social media analytics has the potential to bring maximum advantage to social media business users as it can provide insights of social media data for added business competitiveness. Tourism SMEs are conducting SMA in their business activities even though there is no framework to govern the process. There is a need for these tourism SMEs to have an implementation framework that governs the implementation and management of the SMA process.

This study aims to develop a social media analytics implementation framework and a social media analytics tool for tourism SMEs in Tanzania. The study proposes a social media analytics implementation framework to assist tourism managers in implementing social media analytics in their social media platforms and the social media analytics tool. The study also introduces the social media analytics tool which will provide insight into the social media data of tourism SMEs. This research contributes knowledge and information about social media analytics to tourism SMEs managers and owners and provides the implementation framework and the social media analytics tool to tourism managers.

**Objectives:**

The main objective of this study is to develop a social media analytic implementation framework and analytics tool for Tanzania's small and medium-sized tourism enterprises.

**The specific objectives were:**

- (i) To identify the current social media analytics practices among tourism small and medium size enterprises in Tanzania.
- (ii) To develop social media analytics implementation framework.
- (iii) To validate the developed social media analytics implementation framework.
- (iv) To develop and validate the tourism small and medium size enterprises social media analytics tool.

**Tourism SMEs, Social Media Analytics tool Home page:**

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Social Media  
Insight (TSSMI)**

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