

# **SMEs UTILIZATION OF MARKETING INFORMATION SYSTEMS (MKIS) FOR CASE STUDIES IN DAR ES SALAAM, TANZANIA: A THEORETICAL REVIEW**

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## **Abstract**

SMEs operate in a globally competitive and turbulent environment. This has led to high closure rates for an important sector that employs many workers. MKIS facilitates decision-making and responses for businesses. Utilizing MKIS can provide critical marketing information on products, markets, and customers, enabling SMEs to survive better. Previous MKIS studies have revealed benefits in increased knowledge, business performance prediction, better products and services. This paper examines theories and models that determine the utilization of an SME MKIS. In an exploratory design, the study uses desk research methodology to review the literature on MKIS utilization by SMEs. The overall study purpose is to examine the literature on SME MKIS utilization to answer three research questions on existing theories and empirical studies on MKIS, models and research design. Key findings are that the leading theories identified are diffusion of innovation (DIT) and unified acceptance and use of technology (UTUAT). A model data bank of three theoretical and three empirical MKIS models are reviewed and presented. The role of MKIS in business, MKIS types, its drivers, and features are discussed. Finally, the paper presents study implications for the working proposition, research questions, and an analysis model.

**Keywords:** MKIS, SMEs, utilization.

## 1. Introduction

Small and Medium Enterprises (SMEs) contribute to economies in both developed and developing countries. The low survival rate of SMEs in a global competitive environment is a major challenge (Dai et al, 2021; Elly, 2010). This situation is attributed to factors such as low adoption of innovation strategies in production and marketing. Further, lack of suitable or adopted technology constraints SME growth, with inferior technology utilization a critical challenge (Prasanna et al. et al., 2019). SMEs employ 5 to 100 employees (Nyamanza, 2021; MoT-URT, 2003). The study domain is using the acceptance and use of Information Systems (IS) (Raj, 2017). Information resources are utilized in business functions, while Marketing Information Systems (MKIS) are processes that support marketing functions at the operational level. MKIS utilization refers to persons with marketing responsibility, who regularly using the technology. MKIS technology offers benefits such as: facilitating knowledge, customer information, and analysis (Wahyuni & Lestaria, 2020); significantly and positively predicting service quality (Berhani & Kitawil, 2012); providing better performance, products/services and global market reach for competitiveness (Elly, 2010). A Tanzanian baseline survey of MSMEs (MoT-URT & FSDT, 2012) determined a need for more information on marketing, such as available/good markets and the nature of competition among small businesses. These are cited as specific reasons for SME closure.

The problem and rationale for this study are identified gaps that require a literature review. There needs to be more studies to guide the implementation of MKIS and derive benefits. A knowledge gap functional exists in determining what MKIS model SMEs can use to achieve functional marketing benefits. The research gap is a qualitative study required to determine SME MKIS model descriptors, as most studies are quantitative. An adapted MKIS is required as studies reveal variable MKIS models, information sources, and quality. This paper presents the introductory Chapter One, utilizing desk research in a systematic literature review. The study purpose is to give literature reviewed on research and knowledge gaps identified, with the following research questions raised:

Research question 1 (RQ1): What are SMEs' main theories and studies on MKIS utilization?

Research question 2 (RQ2): What MKIS model are SMEs utilizing.?

Research question 3 (RQ3): What research design can guide the implementation of MKIS for SMEs?

The study's significance is the review of theories, and MKIS models will establish a solid foundation for an identified research design. This adds rigor and objectivity to the case study methodology for the PhD study. The literature

reviewed is also an important confirmatory step in establishing acceptance and utilization of MKIS. For research design, development and justification of the selected descriptive design with comparative case studies is possible. These study elements will ensure a successful research study and thesis, ultimately resolving the of the SME closure problem by utilizing MKIS.

## **2. Literature Review**

### **2.1. RQ1: Theories and Studies on MKIS**

Due to rapid technological changes, organizational research has increased to understand better and utilize technology beneficially (Gualberto, 2017). MKIS and its utilization are underpinned by technology adoption models (TAMs), information systems models, and theory. Two complementary theories are considered. First, Diffusion of Technology (DIT) by Rogers (1995) on early-stage technology adoption from markets into organizations. This is required to prove MKIS technology is in-market and has been adopted. Thereafter, the Unified Theory of Acceptance and Use of Technology (UTAUT) by Venkatesh, Morris, Davies and Davies (2003) on later-stage acceptance and use demonstrates MKIS utilization. For study purposes, adoption is a prerequisite for utilization.

#### **2.1.1. Diffusion of Innovation (DIT) Theory**

DIT is further elaborated in the marketing context as the Innovation (Consumer) Adoption Process. The communication process leading to the adoption of technology has six stages - awareness, interest, evaluation stage, trial and full and regular use (Kotler, 2000). Further, buyers are organized into five conceptual categories innovators 2.5%, early adopters 13.5%, early majority 34%, late majority 34% and laggards 16% (Kotler, 2000). For the study, SMEs are considered an early majority due to numbers and likelihood to adopt. Buttery and Tamashki (1996), in an SME study in Queensland, Australia, as reviewed by Rosario (2021), determined MKIS was recognized as valuable, but little was done to develop and use it. In Indonesia, MKIS utilization in Customer Relationship Management (CRM) is a new and innovative business practice – generally a trend to follow (Wahyuni & Lestari, 2020). In the African market, research in Ethiopia examined large companies in various sectors (Berhani & Kitawil, 2012). MKIS as a technology has been accepted and used in large firms, documented in the USA in three Fortune 500 studies (Basandra, 1999). Study results were, at first an increase in the use of computerized elements (Li, 1995), then a decline in overall MKIS utilization. German SMEs received support to encourage innovation, including technology (ZIM, 2012). Mwashuiya and Mbamba (2019) model TAM and DIT to determine the importance of acceptance of technology and usefulness in ICT adoption for

operational efficiency. This review on TAMs addresses issues of MKIS innovation status, its development and use. As MKIS's status as an innovation is established, further questions are on SMEs following the trend and MKIS components being used.

### **2.1.2. UTUAT Theory**

UTAUT has four predictors of user behavioral intentions; performance expectancy (PE), effort expectancy, social influence and facilitating conditions. PE has five similar constructs of perceived usefulness, extrinsic motivation, job-fit, relative advantage and outcome expectations (Gualberto, 2017). PE is examined by Berhani and Kitawil (2012) with MKIS predicting business outcomes in certain functions, specifically service quality. In Vietnam, Le et al (2020) industrialization that effective SME utilization management information systems (MIS) is determined by the quality of the information provided. Overall, UTAUT supports the proposition that performance criteria can predict utilization of technology. Gharibi's (2020) review of predictive models, specifically TAM 1, 2, 3 and UTAUT for tourism, indicates utilization of technology studies is important. This review of UTUAT raises questions about MKIS functional applications and information requirements. Also, indicative is what MKIS can be utilized by SMEs as a sector.

### **2.1.3. Information Systems (IS) Theory and MKIS Models**

The Delone and McLean IS Success Model (D & M), developed by William H. Delone and Ephraim R. McLean in 1992 and updated in 2003, defines and evaluates information systems (Delone & McLean, 2003). The original model has six IS success construct measures: systems and information quality, use, user satisfaction, and individual and organizational impact. The updated version includes service quality, intention to use and net benefits (Urbach & Müller, 2011). A survey of Greek hotels by Chazipanagiotou and Corticos (2010), reviewed by Rosario (2021), determined information success factors within firms and reasons for MKIS selection. These were the degree of marketing orientation adoption, systems quality, quality of information outputs and support services quality. MKIS utilization in strategy and practice is examined by Xu (1999) reviewed by Rosario (2021), determining that although strategic marketing is essential, MKIS has not been maintained. Higby & Farah (1991), as reviewed by Rosario (2021), find MKIS is best suited for mid to large firms of 100 employees, with more than USD 100 million in revenue. Midlevel managers used it for customer profile analysis, competitive analysis, market research, project design, pricing decisions and sales forecasting. In Ethiopia, Berhani and Kitawil (2012) determined that information processing positively and significantly predicts service quality and business function. Mlimbila and

Mbamba (2018), in a case study of Dar es Salaam port, utilise D & M model to determine the organizational impact on performance from the utilization of information systems. UTAUT theory can evaluate MKIS components, and the outcome of MKIS utilization should be measurable in positive business performance. This review section raises issues on possible MKIS success factors from SME utilization. Again, what information is required for MKIS and what functional uses exist for an SME MKIS?

## **2.2. RQ2: SME MKIS model**

A model bank with three theoretical models has been reviewed, complimented by three empirical models. The review outcome is an analysis of MKIS models to guide the model the SME MKIS analysis model selection. In narrative summary, Model 1 (Kotler, 2000) is a functional process model focusing on core components. Model 2 (Stair & Reynolds, 1999) has a wider business perspective of enterprise-wide applications. Model 3 (Basandra, 1999) is a simple input/output model focusing on marketing principles – the 4Ps. Such MKIS models have been used in longitudinal surveys of American Fortune 500 companies. Overall, research-based models of MKIS are numerous and categorized according to primary uses such as data gathering, data analysis, planning, decision-making, and implementation of marketing activities (Berhani & Kitawil, 2012). In their study, the MKIS model incorporated dimensions of data acquisition, IT infrastructure, information processing and business function. These were selected from a six-category classification system and adapted to reflect their research purpose (Berhani & Kitawil, 2012). In a review, Rosario (2021) presents studies on MKIS data and information characteristics. Ashill & Jobber (1999 & 2002), as reviewed by Rosario (2021) in two studies, developed and tested information usefulness and system needs. Talvinen and Saarinen (1995) present an operational MKIS for implementing marketing activities. They selected variables of information content, marketing process management, MKIS subsystems in implementing and controlling marketing efforts and perceived improvements in MKIS usage (Talvinen & Saarinen, 1995). From the empirical studies, the study gap is that model development studies that were carried out two decades ago, primarily for large firms. The MKIS study will determine an updated MKIS model that is relevant for SMEs considering these theoretical and research-based models. This section raises issues of a suitable operational model for this study and SMEs in the African market.

## **2.3 RQ3: Research Design**

### **2.3.1. Research Philosophy**

MKIS theory is ontologically established as a working concept through the different component and whole systems studies conducted regularly for large corporations. Empirical studies in MKIS are primarily quantitative (Antwi & Hamza, 2015). in nature, an objective ontology and optimistic epistemology. These examine results of MKIS utilization with specific measurements - for businesses what they get from MKIS utilization. However, there are fewer studies on MKIS model development, with qualitative case studies notably different in approaches. These are subjective in ontology and anti-positive in epistemology. Being subjective and idealistic, these indicate what businesses say regarding utilizing MKIS. The main philosophical difference is that empirical studies are predetermined and measurable. A qualitative case study (Antwi & Hamza, 2015) is an interpretive philosophical stance, a new and interesting outlook on MKIS utilization.

This incorporates business views such as performance and information quality, enabling the development of relevant MKIS models. These models incorporate practical utilization, aligning subjective research to deliver higher user engagement and customization for technology purposes. This aligns well with core subjective reality ontological assumptions, with discourse and primary symbolic user. It relates to the fundamental epistemological stance that the study seeks to understand the patterns of symbolic discourse (Antwi & Hamza, 2015).

### **2.3.2 Research Design**

MKIS is present theoretically, with empirical studies (Basandra, 1999; Ashill & Jobber, 2001/2, Talvinen & Saarinen, 1995, Hakhu et al, 2012-3). The study will utilize a deductive, qualitative research approach and is largely interpretive. The descriptive research design evaluates MKIS utilization by collecting data to support/uphold the working hypothesis.

### **2.3.3 Data Collection and Analysis**

Secondary and primary data will be collected using desk research, case studies and organization interviews. In the literature review, an exploratory stage will be collected through review of books, articles, and journals. This will develop the working proposition from an operational point of view (Kothari & Garg, 2014). It is important and considered a simple and fruitful method. The field data collection stage, which is descriptive - will collect data in an internal survey

using in-depth organization interviews. An interview list (Cooper & Schindler, 2000) will be administered, developed from the working proposition and research questions to guide partially. Questions will be both open-ended and closed, with a rating measurement scale.

Data analysis will utilize a logic flow process model to present theoretically predicted components and on application, demonstrate or match these to empirical observations/documentation of the said components (Hollweck, 2016). Data collected during the literature review and in-depth interviews will be analyzed using the working proposition and research questions. Qualitative data analysis will utilize four steps: prepare, code (categories/theme assignment), analyze, report. Specific methods will include conventional content analysis, cross-tabulation, simple descriptive statistics. Data validity will be based on conformance to the MKIS model. The presentation will be a case study narrative, graphic model, graphs, and tables. Quantitative data analysis will utilize simple descriptive statistics, for example, ratings with percentages reported.

### **3. Methodology/Methods**

The research philosophy guiding this paper is pragmatism, using multiple theories strategy. In terms of ontology, this asserts that there is no single real world; rather individual have different interpretations. Concerning epistemology, this postures that - because there is no one best way of knowing reality, both subjective and objective stances are necessary (Antwi & Hamza, 2015). With this in mind, the research methodology involves collecting and reviewing various sources with qualitative narrative content analysis. To answer the three research questions, literature was reviewed from reputable research repositories for scientific journals. Relevant marketing research and marketing and information systems textbooks were also reviewed. The online research repositories and resources included: Google Scholar, Research Gate, Elsevier /ScienceDirect, Wikipedia and University of Dar es Salaam Online Research repositories. The timeline for the search included materials from 1980 to current (2020). The search terms for online and hardcopy materials were adapted to reflect the information sought e.g. 'IS theories', 'SMEs' , 'MKIS models', 'case studies' etc. These were then reviewed, and relevant content summarized under the six (6) paper sections to answer the three (3) research questions. This has been carried out in the narrative format aof over 60 materials obtained; a total of 42 were retained and comprise the references for this paper.

## **4. Data Analysis and Results**

### **4.1. RQ1: Theories and Studies on MKIS**

Berhani and Kitawil (2012) examine MKIS's impact on Ethiopian firms from multiple sectors and determine quality determine positive and significant service quality prediction. This implies MKIS is an utilize essential technology for SMEs to use for business prediction. Research suggests that low SME survival rates in a, globally competitive environment are attributable to low adoption of innovation strategies in production and marketing functions. Further, the lack of suitable or adopted technology constraints SME growth, with a low level of utilization of technology, are critical challenges (Prasanna et al., 2019). In China, a study in the SME sector, due to its importance in employment, demonstrates the importance of information systems for SMEs in an increasingly turbulent global environment. This can be generalized for developing countries' SMEs to cope with severe economic challenges (for example) as caused by the COVID pandemic and resulting business closures (Dai et al., 2021). Le et al. (2020) in Vietnam determined that (2020) in Vietnam determined MIS effectiveness in improved business performance. Lipac and Davidavicieni (2013), in a Lithuanian study, indicate reasons for utilizing integrated information systems as businesses seek to improve their economic results, productivity, efficiency, reduce costs and other benefits. The systems are seen to improve internal business processes and financial performance.

In Tanzania, information technology (IT) infrastructure and supporting services guarantee better performance, enable firms offer better products and services and reach global markets for competitiveness (Elly, 2010). SMEs indicate some critical information needs, identified as priorities – rated second and third are information on markets and customer's products - accounting for 23% of priority information (MoT-URT and FSDT, 2012). Further thoughts are on the value of predictive models for the future, mostly in facilitating marketing decision-making (Gharibi, 2020). This review section raises questions on how MKIS can be utilized for business prediction and responding questions to business closures and turbulence in global environments. Further, and repeatedly - what specific information is required for MKIS?

### **4.2. RQ2: MKIS models**

Three theoretical models are reviewed. Model 1 has four components: an internal records system for order processing and sales; marketing intelligence system that collects information using procedures and sources; a marketing research system that collects, analyses and uses data/information for marketing problems; and a marketing decision support system enable managerial



decisions (Kotler, 2000). Model 2 has a Marketing Management Information System (MIS) supporting managerial activities in product development, distribution, pricing decisions, promotional effectiveness and sales forecasting. It has inputs from internal sources, e.g., strategic plans and external sources, e.g., journals, customers, etc. At the centre is a transaction processing system with sales and marketing data on products, customers and sales force. External data sources include competitors and markets. Outputs are reports on sales, customers and service (Stair & Reynolds, 1999). In Model 3, the technology-based MKIS approach is a simple logical flow model with inputs and outputs, a central database with end-user interaction based on marketing principles (Basandra, 1999).

In terms of the role of MKIS and the types of companies utilizing MKIS, Rosario (2021) provides research-based MKIS guidelines for decision-making and environmental responses. MKIS is used by large firms and SMEs in different sectors. Basandra (1999) documents utilization of MKIS in large and prominent US-based companies, the Fortune 500 companies, during the 1980s and 1990s. Recent studies indicate utilization of MKIS in service sectors such as global tourism (Gournaris et al, 2007; Rosario, 2021); multiple industry sectors (Berhani & Kitawil, 2012); financial services (Kumar & Katyayani, 2014); the manufacturing sector (Hakhu et al. et al., 2012/3).

The main drivers for MKIS utilization in technology optimization (Rosario, 2021) are for information collection (Heinen, 1999), to development of better customer databases (Rowley, 1999), the creation of higher visual content for more sustained product involvement (Vasquez, 2019); as an inter-organizational system (IOS) by to reduce costs, increasing business networks Watson and (McKoevn, 1999); for knowledge acquisition by reducing restrictions on price, marketing strategies, internal communications and distribution channels (McIntyre & Sutherland, 2002).

MKIS features (also referred to as study variables) used in impact assessments are systems quality, information quality, support service quality, compatibility and flexibility (Kumar & Katyayani, 2014; Ashill & Jobber, 2002). These are financial sector metrics with specific definition task definitions required to guide MKIS utilization. Hakhu, Kiran and Goyal (2012/3) determine predictors of MKIS features for successful utilization MKIS sophistication, design characteristics, capabilities and primary characteristics. MKIS-specific component features and performance are presented by Rosario (2021). Li et al. (1993) evaluates information source importance rating that lists data processing, marketing research, and intelligence components. Further, Li (1995) noted a decline in mathematical modelling component while computerized aspects for storage, retrieval and processing increased. Internal accounting was

widespread, with marketing research and intelligence components rated equally (Rosario, 2021). In a third study, Li et al. (1999) developed guidelines for developing a Marketing Intelligence System. This component is a focus for Lackman & all (2000) and Britannia, 2002), as summarized by Rosario (2021). These studies indicate variable models used to evaluate MKIS. This review section poses questions such as what MKIS SMEs in an African context can use. Further, what are the functional marketing tasks an MKIS can address? A critical issue is what are the primary characteristics of an SME MKIS?

### **4.3. RQ3: Research Design**

A case study is an empirical enquiry investigating a contemporary phenomenon in depth and within its real-world context. It is frequently used in business and, therefore, suitable for SMEs. The process includes a case study plan, design, preparation, data collection, analysis, and reporting (Hollweck, 2016). High-quality case studies can provide rigour, validity, and reliability with multiple qualitative and quantitative applications, e.g., by use of logic flow models (Hollweck, 2016) from model databases with logical flow process models Kotler (1987). The rigor of case studies enables usage as a primary method for evaluating exploratory data. However, the evaluation situation and the evaluator skills and experience are also important. (Hollweck, 2016).

## **5. Discussion of the Findings**

### **5.1. RQ1 MKIS Theories and Empirical Studies**

Based on this literature review, the study assumptions are:

Assumption 1: Utilization of SME MKIS may over a predetermined time, result in improved positive business prediction.

Assumption 2: Utilization of SME MKIS is likely to be more effective with quality information collected.

Assumption 3: Utilization of SME MKIS is likely to be more effective with a quality functional system in place.

The study's working hypothesis/proposition is:

*SMEs are utilizing MKIS predicting predict business performance using a functional marketing model.* The overall purpose of the study is to determine technology utilization, precisely that of MKIS in SMEs. This is supported in DIT by Rogers in 1995 (Gualberto, 2017). complete. Complete and regular use is anticipated for study purposes as the last stage of technology adoption. Gualberto (2017) presents UTAUT by Venkatesh, Morris, Davies, and Davies (2003), supporting the proposition of SME SMEs utilizing MKIS with performance expectancy, specifically, precise outcome expectations. MKIS role

in SMEs can, therefore predict business performance. MKIS applications in managing customer relationships strengthen MKIS position as a new and innovative business practice – a trend to follow (Wahyuni & Lestari, 2020). Performance expectancy is examined by Berhani and Kitawil (2012) with the ability of MKIS to predict business outcomes, specifically service quality determined.

## 5.2. MKIS Models

The following are three research questions:

*Research question 1 (RQ1): What is SME MKIS requirements for predicting business performance?*

UTAUT indicates performance expectancy, precisely outcome expectations, while the D & M IS model looks at organizational impact. For study purposes, these are indicative requirements for an SME MKIS, not predictors.

Empirical research by Berhani and Kitawil (2012) determines the role or impact of MKIS in Ethiopian firms in multiple sectors to positively and significantly predict service quality. Tsai et al. (2011) determined business performance evaluation methods by examining internal processes and financial performance (Lipac & Davidavicieni, 2013). This study will consider SME MKIS requirements in internal process performance and financial performance.

*Research question 2 (RQ2): What is SME MKIS information needs?*

The D & M IS model states information quality is essential. Kumar and Katyayani (2014) empirically determine that an SME MKIS is well suited for budgeting, product and sales forecasting, analysis, and project management. As marketing activities that describe utilization, these are indicative areas for MKIS functional utilization.

*Research question 3 (RQ3): What is SME MKIS functional design factors?*

The D & M IS model indicates systems quality is important. Hakhu, Kiran and Goyal (2012/3) determine success factors, namely MKIS sophistication, design characteristics, capabilities and primary characteristics. These will describe MKIS system features for utilization. The study aims to determine an MKIS model that meets SME requirements of a quality system for utilization in a marketing function.

## 5.3. RQ3: Research Design

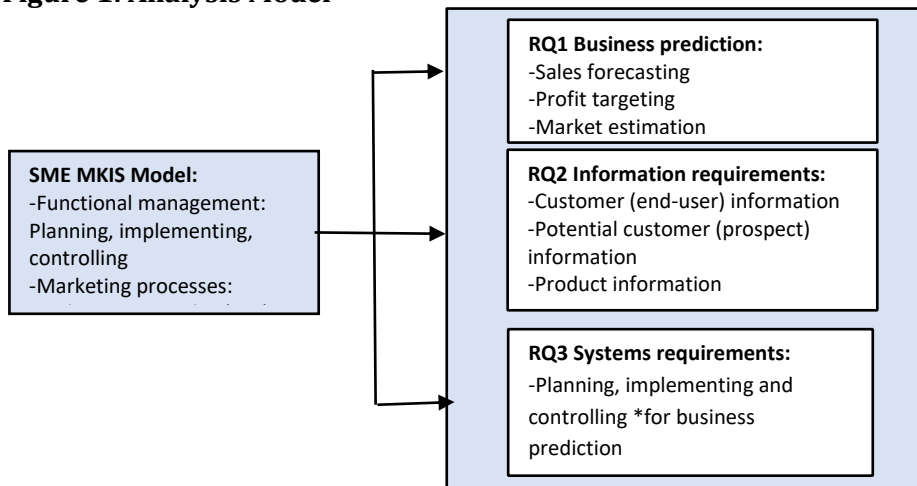
Empirical studies using quantitative methods have been useful where MKIS utilization is clear e.g., in large manufacturing and financial service sector organizations (Berhani & Kitawil, 2012; Kumar & Katyayani, 2013). Utilization of MKIS by SMEs as the phenomena under study, is relatively unknown. and is multi-disciplinary, combining information systems, management and marketing. The research design is descriptive, evaluating MKIS utilization by

collecting data to support/uphold the working hypothesis. Case study is an empirical enquiry that will compare two SME, describe similarities and differences of MKIS utilization from two different sectors – services and manufacturing. Current business cases feature large and well-established companies, with fewer SME business cases for an important segment. Data collection methods will include document review and interviews (UDSM Research Agenda, 2018).

## 6. Conclusion and Policy Implications

The two main theories on MKIS utilization are Technology Adoption Models (TAMs) Diffusion of Innovation (DIT) by Rogers (1995) and the Unified Theory of Acceptance and Use of Technology (UTAUT) by Venkatesh, Morris, Davies and Davies (2003). The Delone & McLean Information Systems Success (D & M) model (Delone & McLean, 2003) provides useful success indicators. Empirical studies indicate both MKIS acceptance with full and regular use as a technology. However, studies are predominantly in large companies, with few studies on SMEs. MKIS models exist both theoretically and in empirical studies. These are variable, with different applications and in different sectors. There are few standardized models for SMEs that can be used of MKIS implementation. MKIS research study designs are mostly quantitative surveys. Qualitative case studies on MKIS are few. For the PhD study - a descriptive research design will utilize two comparative case studies on MKIS utilization from two different sectors – services and manufacturing. The following analytical model will be utilized.

**Figure 1: Analysis Model**



Source: Literature Reviewed by Author

The study will contribute to an MKIS model for SMEs to implement and a qualitative case study that describes how SMEs utilize MKIS.

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