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An exploratory study on digital payments on B2B vehicle fleet expenses: A South African perspective

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An exploratory study on digital payments on B2B vehicle fleet expenses: A South African perspective

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A research proposal submitted to the Faculty of Commerce, Law and Management, University of the Witwatersrand, in partial fulfilment of the requirements for the degree of Master of Management in the field of Digital Business

Johannesburg, 2023

DECLARATION

I, _Justin Nicholas Thomas__, declare that this research report is my own work except as indicated in the references and acknowledgements. It is submitted in partial fulfilment of the requirements for the degree of Master of Management in the field of Digital Business at the University of the Witwatersrand, Johannesburg. It has not been submitted before for any degree or examination in this or any other university.

Name: Justin Nicholas Thomas Signature: JNT

Signed at ……Fairlands……

On the …26th ….. day of …May .. 2023…..

ABSTRACT

Managing vehicle fleet expenses is crucial for businesses worldwide, as they significantly impact profitability. In this research study, we investigate the realm of digital fleet payments, covering aspects of fleet management and digital payment adoption. Our findings shed light on the prevailing practices and provide valuable insights to enhance existing research. Fleet expenses, including fuel, tolls, and repairs, rank among the top costs for companies, often comprising up to 60% of operational expenditure. Effective fleet management is vital to control costs and maximise profitability. While transport-focused businesses typically have dedicated fleet management resources, non-transport-focused companies often rely on outsourcing fleet solutions. These solutions encompass various services beyond telematics devices, assisting in cost control, driver management, and vehicle performance optimisation. Key players in the industry include banking institutions, insurance companies, telematics providers, vehicle manufacturers, oil companies, and data analytics firms. Fuel and repair costs alone constitute 35% of the total cost of owning a vehicle fleet, making cost management a crucial aspect of remaining competitive. For many businesses, fleet-related expenses, such as fuel, tolls, and maintenance, account for approximately 50% of operational costs. Ensuring comprehensive cost visibility and appropriate management has become an imperative business goal.

To conduct this research, we conducted a qualitative study using semi-structured interviews with a sample group of eight participants, consisting of CEOs, executives, senior managers, and industry experts in digital fleet payments in South Africa. Our findings revealed that fleet cards, still utilising magstripe technology, are the primary digital payment mechanism businesses in South Africa employ. However, the market is evolving with the emergence of safer options, such as contactless payments and EMV (encrypted chip and pin). Digital fleet payment solutions offer numerous advantages, including simplicity, spending control, billing consolidation, and fuel and maintenance information access. However, obstacles like the outdated three-party paradigm, limited international transaction utility, and credit restrictions for Small, Medium and Micro Enterprises (SMMEs) hinder the adoption of digital fleet management systems. Security concerns, including fraud and fuel theft, also pose

challenges. Despite these obstacles, digital fleet payments have shown the potential to enhance B2B fleet management through improved efficiency, cost reduction, and innovative solutions.

Overall, this study bridges a crucial knowledge gap by investigating both digital payments and fleet management. The insights gained contribute to the existing research landscape and provide a comprehensive understanding of digital fleet payments.

KEYWORDS:

Corruption, Digital Adoption, Digital Payments, Digital Trust, Emerging Market, Fleet Payments, SMME's Digital Transformation

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LIST OF ACRONYMS

4IR	4th Industrial Revolution
ABT	App-Based Technologies
ACBT	Account-Based Technologies
AEBA	Aadhaar Enabled Bank Accounts
AEPS	Aadhaar Enabled Payment Service
AI	Artificial Intelligence
B2B	Business to Business
B2C	Business to Consumer
CBT	Card-Based Technologies
ECS	Electronic Clearing System
EM	Emerging Markets
EMV	Europay, Mastercard, Visa
EU	European Union
IoT	Internet of Things
NFC	Near Field Communication
PASA	Payments Association of South Africa
POS	Point of Sale
PSO	Payment System Operator
QR code	Quick Response Code
RFID	Radio Frequency Identification
RSA	Republic of South Africa
RTGS	Real-Time Gross Settlement
SBT	Social Security-Based Technology

SMME	Small, Medium Micro Enterprises
TAM	Technology Adoption Model
TCE	Transaction Cost Economics Theory
UR	Unorganised Retailer
UTAUT	Unified Theory of Acceptance and Use of Technology

CHAPTER 1. INTRODUCTION

An exploratory study on digital payments on B2B vehicle fleet payments: A South African perspective

1.1 Statement of Purpose

An exploratory study assessing digital payments on B2B vehicle fleet expenses.

1.2 Background of the Study

Businesses around the world rely daily on vehicles to facilitate their ongoing operations, whether through the pursuit of sales or the fulfilment of services (Arrive Alive, 2019; Karmańska, 2021). The ability to pay for vehicle-related expenses like fuel oil, toll, and repairs is vitally important. Additionally, they need to ensure that payments for these services are justified and that money is not lost due to inadequate management of a fleet, counterfeit, internal fraud, and poor driver behaviour (Gilibert Junyent, 2019). Inadequate control and management of a business's vehicle fleet can dramatically increase the business's cost and thus impact overall profitability (Skala, 2022). For most companies, vehicle fleet expenses are one of the top 4 expenses on their balance sheet (Kagan, 2020). Like companies in the transport and logistics sector, vehicle-related expenses like fuel and tollgate fees can reach up to 60% of overall operational expenditure (Lalchandani & Mirchandani, 2019).

The business justification for managing vehicle fleet-related expenses is unquestionable and significantly impacts profitability (Urciuoli, 2020). There are, however, a few challenges that businesses need to overcome. In a typical transport-focused business, like courier companies and long-haul freight companies, having dedicated resources and controls in place to oversee fleet management makes financial sense (Fayez et al., 2021). It ensures any slippage, fraud risk or abuse is managed proactively (Hennigan & Bottorff, 2022). For most businesses whose core operations are not transport-focused, it is improbable to have dedicated resources

managing fleet operations. Having outsourced fleet solutions to do this is an absolute necessity (Deloitte, 2017).

This is where the discipline of fleet management comes in, a very broad collection of services and solutions that assist businesses in controlling vehicle-related costs, managing drivers and ensuring vehicles are optimally managed (Karmańska, 2021). The common solution that comes to most people's minds when discussing fleet management solutions would be telematics devices (Deloitte, 2020). However, telematics devices are just one aspect of a host of services and solutions provided by many companies (Deloitte, 2017). Businesses and organisations from various industries, large and small, use fleet solutions to manage and oversee various types of vehicles, from passenger cars to trucks, planes, and off-road construction vehicles (Skala, 2022). They also operate in various areas, such as freight to delivery, sales and service, oil and gas, and emergency services (Festini & Roth, 2021).

Participants in this industry are as diverse as banking institutions, insurance companies, telematics providers, vehicle manufacturers, oil companies and specialist data analytics companies (Festini & Roth, 2021). The services they provide can range from acquiring a vehicle to the ongoing in-lifecycle management of the vehicle and then finally to the disposal of the vehicle through various channels (Gilibert Junyent, 2019). According to a report from Deloitte (2017), only 40% of actual fleet costs are related to the vehicle; the rest, 60% of costs, are incurred during the use of the vehicle (running costs). According to the study, the most significant contributor is fuel and repair costs, which comprise 35% of the total cost of owning a vehicle fleet (Deloitte, 2017). These costs are variable, and businesses can reduce these costs.

1.2.1 *Fleet Payments*

The most common solution to managing these costs is fleet cards, which are magnetic striped cards widely used by businesses across every industry. Introduced in South Africa in 1975, over a million fleet cards were issued to vehicles travelling in South Africa (Arrive Alive, 2019). They perform a vital function in helping businesses pay for vehicle-related services and, through smart refuelling criteria, ensure only justified payments are being made and that those expenses are attributed to the specific vehicle to which the card was issued (Fayez et al., 2021).

According to Kagan (2020), fleet cards with vehicle details are issued; these include the make, model, registration number, vehicle colour and tank capacity. Validation of the vehicle is done at the forecourt against the fleet card details. Once refuelling is completed, the fleet card is swiped for payment with the point-of-sale device prompting an odometer reading to be provided (Arrive Alive, 2019). A pin is not required to be put into the point-of-sale (POS) terminal. The transaction details are then transmitted with the vehicle odometer to the Fleet card issuer. The odometer reading and the transaction details are used to provide the business with insight into fuel economy, location, time of fill-ups etc. (Kagan, 2020).

These fundamentals have been in place for fleet payments for over five decades and have remained consistent with little change (Fayez et al., 2021). In fact, Fleet cards outside of cash are still the payment method available to businesses with fleets (Arrive Alive, 2019).

1.2.2 *The South Africa Fleet Payments Landscape*

The South African National Payments system used to be one of the leading payment systems in the world. According to Deloitte (2019), several industry experts have noted that the South African payments system used to be rated among the best in the world. However, that has changed, and the national payments system (NPS) now lags behind other countries. Innovation, however, has not stopped, and where the core national payments system has lagged, financial institutions have managed to continue to innovate (Deloitte, 2019). This innovation has predominantly been focused on the B2C market, with banks and fintech focused on solutions like QR code payments, contactless payments, mobile payments, and wearable technology solutions like Apple Pay and Samsung Pay (Bradford, 2021). Edgar Dunn (2022) states that approximately one-third of total B2B global expenditure is processed electronically, compared to just two-thirds of B2C global expenditure.

1.2.3 *Digital Payment Innovation Lagging for B2B*

Business-to-business payments are inherently more complex transactions to fulfil compared to B2C payments (American Express, 2022; Karmańska, 2021). With B2C payments, the authority and execution of the transaction are in the hands of the

individual, the repercussion of which rests with them (Skala, 2022). In a B2B payment, an exhaustive evaluation process is usually considered for every transaction, like the availability of funds, whether the necessary approvals have been received and is the transaction within the delegated mandates (Fayez et al., 2021). Due to the hierarchical nature of a business, decision-making is also usually performed by multiple people in an organisation (Arrive Alive, 2019). This is an onerous process but necessary to ensure adequate cost management and controls are in place (Festini & Roth, 2021).

1.3 Research Problem

Businesses across the globe are under immense pressure to manage and reduce costs to remain competitive (Armengaud et al., 2020). Ensuring complete visibility of costs and that they are appropriately managed has become a business imperative (Urciuoli, 2020). Fleet-related costs like fuel, toll and maintenance represent significant for business and, for some, can entail 50% of all operation costs (Huertas et al., 2022).

The literature on fleet management is filled with information on how cost savings can be achieved with respect to the adoption of IoT devices (Deloitte, 2020) and, in time, how the electrification of vehicles will help drive down costs (Beermann & Mastny, 2020). The problem with the existing body of knowledge is that most of the suggestions made for improvement would require significant investment for a business to make that could be costly to implement (Fayez et al., 2021). In addition, a lot has been made about digital payments and their ability to help consumers and businesses manage business expenses and avoid fraudulent activity (Armengaud et al., 2020).

There is however a gap in the research papers reviewed from both fleet management journals as well as the digital payment journals is the opportunity. To this author's best knowledge, there are no papers focusing comprehensively on digital payments that contribute to fleet management by helping businesses manage and control their fleet operational expenses more effectively.

Recognising this gap, a qualitative study is proposed that aims to survey important stakeholders from South Africa to better understand the landscape of digital payments in businesses with a primary focus on their vehicle fleet operational expenses. This will research will provide meaningful insights into the benefits and challenges of

incorporating digital fleet payments into businesses operational management of their vehicle fleets. (Beermann & Mastny, 2020). Through a comprehensive examination of the perspectives and experiences of these key stakeholders, this study seeks to illuminate the path for businesses towards more effective and efficient fleet management practices through digital payment innovations.

The study's importance is particularly profound with escalating fuel prices and the ever-higher inflationary impact experienced globally (Festini & Roth, 2021). It also contributes to the existing body of knowledge as it provides insights into a critical business function that has not been researched before.

1.4 Research Questions

1. What is the state of digital payments in B2B fleet management in South Africa?
2. How do digital payments enhance B2B fleet management in South Africa?
3. How does the absence of digital payments impede the performance of B2B fleet management in South Africa?
4. What challenges are encountered in adopting digital payments for B2B Fleet management in South Africa?

1.5 Significance of the Study

The study will provide insight into an under-researched part of fleet management and digital payments. Fleet payments are significantly operational for businesses, and optimally managing them with the associated risk management benefits provides real and meaningful benefits (Skala, 2022). Crime in South Africa continues to increase; as such, along with facilitating a justified and mandated payment, it is now even more important for businesses to ensure they have the proper controls and solutions to mitigate fraudulent activity opportunities (Gilibert Junyent, 2019). The study will aim to provide valuable insight to businesses on the best approaches to managing their vehicle fleet with digital fleet payments. The study also investigates the current state of digital fleet payments in South Africa and the important role regulators can play in advancing more secure digital fleet payments . It determines the current challenges to

adopting digital fleet payments in South Africa and how digital payments could further enhance fleet management in South Africa in the context of a businesses fleet expense payments.

1.6 Delimitations of the Study

The study aimed to collect qualitative information from businesses with a national footprint. The study asked qualitative questions for key decision-making stakeholders from fleet companies. The criteria for selection were companies and industry experts that build, manage or make use of digital fleet payments for vehicle fleet expenses.

1.7 Definition of Terms

Digital Payments: Digital payments are made digitally (Franciska & Sahayaselvi, 2017). In this transaction, a payer and the payee use digital modes to send and receive money (Franciska & Sahayaselvi, 2017). No cash (physical money) is involved in a digital payment transaction. These digital modes can be anything from Cards, RFID, biometrics to mobile payments.

Fleet Management: this is an administrative approach that gives companies solutions and services to organise and coordinate work vehicles to improve efficiency, reduce costs, and comply with government regulations (Fayez et al., 2021).

1.8 Assumptions

The first assumption is that all business is indeed concerned with maximising their ability to manage and reduce operational fleet costs. This assumption was made due to the topical nature of rising fleet costs for businesses currently (Skala, 2022). The second assumption is that all my study participants have an underlying foundational knowledge of the digital payment methods used to pay for fleet expenses in their business, along with the associated challenges, if any. This assumption was made since the study focuses on senior stakeholders in the business. And lastly, the assumption would be that all participants would answer truthfully and without fear. This assumption was reasonable as anonymity was guaranteed to participants.

1.9 Chapter Outline

Chapter 1 outlined the study's purpose, research problem, objectives, questions, and significance.

Chapter 2 is the study's literature review; this chapter provides comprehensive definitions of fleet management and digital payments based on available literature. This chapter also summarises prior studies in fleet management and digital payments.

Chapter 3 outlines the methodology used in the study; it covers the research design, research method, population and sampling, quality control, data collection, limitations of the study and ethical considerations.

Chapter 4 presents the results obtained from the data analysis of the interviews.

Chapter 5 discusses the results and findings of the study and contrasts them against existing literature.

Chapter 6 outlines the study conclusions, recommendations, limitations and areas for future study.

1.10 Summary

The research paper "An exploratory study on digital payments on B2B vehicle fleet payments: A South African perspective" begins with an overview of the context and goals of the study. It illustrates the significance of controlling vehicle fleet expenses for organizations around the world and the difficulties brought on by insufficient control. The chapter examines how fleet management affects operation vehicle cost management and introduces fleet cards as a widespread solution. Additionally, it discusses how South Africa's payment systems are evolving and highlights an innovation lag in B2B digital payments. The study issue is presented, with a focus on the importance for companies to control and lower costs associated with their fleets. There is a significant knowledge gap about digital payments in fleet management. The chapter proposes four research questions and underlines the importance of the study in shedding light on understudied areas of fleet management and digital payments, particularly in the South African context. It establishes the boundaries of the study's

scope, defines important terms, and lists assumptions. In conclusion, Chapter 1 offers a introduction to the research, laying the groundwork for an exploratory study on digital payments in B2B vehicle fleet management in South Africa and stressing its significance, difficulties, and research issues.

CHAPTER 2. LITERATURE REVIEW AND THEORETICAL FRAMEWORK

2.1 Introduction

This chapter aims to unpack the existing literature on digital payments and fleet management to better understand how businesses can derive operational and risk mitigation for their fleet vehicles (Hennigan & Bottorff, 2022). Businesses are increasingly under pressure to optimise operations and reduce unnecessary costs to remain profitable (Deloitte, 2017). This is compounded in an environment constantly changing with wars, economic uncertainty, vehicle cost, digital technology evolution, fuel prices and fraud, and the cost of living becoming key factors for consideration (Heinbach et al., 2022).

2.2 Definition of Topic and Background Discussion

2.2.1 *Fleet Management Discipline*

Fleet management is a discipline area in which businesses look for solutions to manage and reduce related costs and is designed to help businesses optimise their fleet operational expenses (Fayez et al., 2021). According to Huertas et al. (2022), at an aggregate level, fuel consumption represents 50% of the operating costs of road transportation. Efforts to manage fleet costs now also include IoT devices. According to Eswar et al. (2018), the Internet of Things is a network of physical devices like vehicles, which are embedded with electronics, sensors, actuators, and network connectivity, enabling them to connect and receive data and communicate with each other in real time.

2.2.2 *Data Analytics and Fleet Management*

Typical solutions in fleet management span a broad array of solutions and service providers (Gilibert Junyent, 2019). These solutions generate data that provides an additional component of fleet management (Hennigan & Bottorff, 2022). According to

Brunherotoa et al. (2022), using advanced technologies that facilitate real-time data availability has helped improve fleet operations. According to Brunherotoa et al. (2022), fleet operations are often associated with Fleet Management, which involves the overall management of an organisation's assets and related activities, including driver management, fuel management, and maintenance management (Hennigan & Bottorff, 2022).

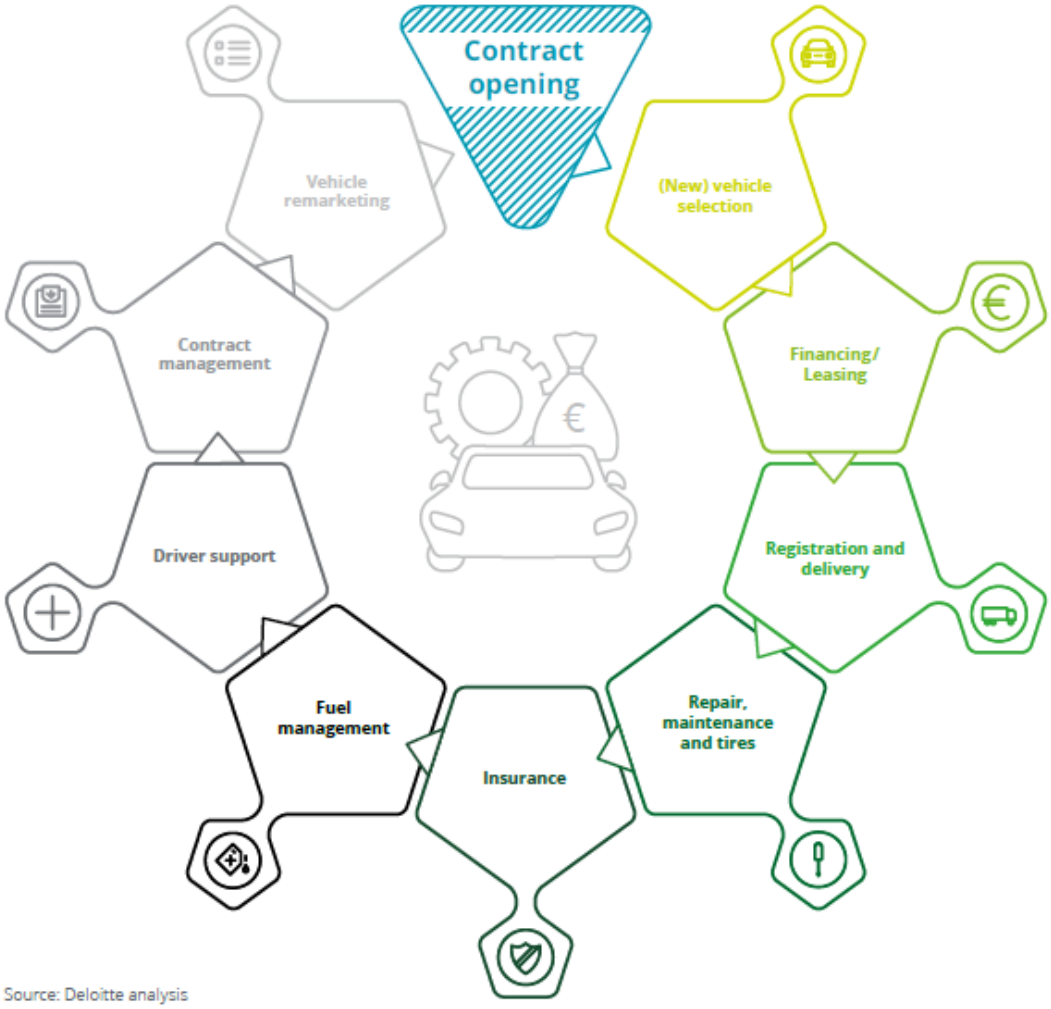


Figure 2.1: An overview of Fleet Management

Source: (Deloitte, 2020).

2.2.3 *Digital Payments Overview*

Digital payment is a payment made through digital modes (Franciska & Sahayaselvi, 2017). In a digital payment transaction, the payer and the payee use digital modes to

send or receive money (Bradford, 2021). No cash (physical money) is involved in a digital payment; all transactions are completed through an electronic medium. The most common digital payments are listed in Table 2.1.

Table 2.1: An Overview of Digital Payments

Digital Payment modes	Explanation
Payment Card	• The most common are payment cards, e.g. credit cards and debit cards, smart cards, charge cards, store cards and, • Fleet cards are payment cards used for fuel purchases, tolls and maintenance repairs.
Unstructured Supplementary Service Data (USSD)	• USSD is a protocol used by cellular providers to communicate with the service provider's customer cell phones. This can be used for banking services and data top-ups.
Aadhaar Enabled Payment Service (AEPS)	• The AEPS system leverages the Aadhaar online authentication, which permits Aadhaar Enabled Bank Accounts (AEBA) to operate full-service banking through Micro-ATMs.
Unified Payments Interface (UPI)	• A technological interface powers bank accounts to use banking services like fund transfer and merchant payments in a single mobile application.
Digital Wallet	• A Digital wallet is a digital means to carry cash. Credit card /debit card information can be linked to a mobile phone with a digital wallet application.
Point of Sale machines	• The point of sale (POS) device is where a retail transaction is completed. It is the terminal a customer uses to pay the merchant in exchange for goods or services.
Mobile Banking	• It is a mobile application that can be downloaded from Android, IOS and Windows mobile platforms. Banks and financial institutions usually provide this.

Digital Payment modes	Explanation
Internet Banking	• Internet banking is an electronic payment system that enables customers of a bank or other financial institutions to conduct a variety of different financial transactions through their website.
Real-Time Gross Settlement (RTGS)	• RTGS, known as Real Time Gross Settlements, is the continuous (real-time) settlement of funds transfers individually on an order-by-order basis without netting.
Electronic Clearing System (ECS)	• ECS is a method for effecting payment transactions in respect of utility bills such as telephone bills, electricity payments etc.

Source: (Franciska & Sahayaselvi, 2017).

2.3 What is the state of digital payments in B2B fleet management?

In reviewing the literature on digital payments and fleet management, there is a gap in the existing body of knowledge to discuss the state of digital payments in B2B fleet management. The existing literature on fleet management is clearly focused on fleet concepts like fleet safety, telematics devices and the benefit they provide in identifying events on a vehicle and electric vehicle fleet adoption (Le Pira et al., 2021).

The existing literature on digital payments focuses on understanding adoption in the context of consumers and small micro-enterprises (Kuchi & Gupta, 2023). This is then extrapolated against predominantly emerging markets like India and Peru. There does not seem to be existing literature on digital payments with respect to B2B feet management, especially with a South African focus.

This is the gap that has been identified and what the research study intends to understand and provide insight on.

2.4 How do digital payments enhance B2B fleet management?

2.4.1 *Digital payments and their impact on performance*

Another important consideration for digital payments is their impact on business performance and whether this can be positively correlated. In their research study, Adhikary et al. (2021) discuss how the adoption of digital payment technologies influences unorganised retailers' revenue performance. This is in the context of an emerging market country, namely India. The study addresses three specific research questions that have their own individual research methods.

According to Adhikary et al. (2021), the majority of digital payment technology growth happens in emerging markets, with Russia and India at the forefront. They further highlight that these technologies will penetrate new emerging markets at 19.6% per annum, three times the rate compared to developed markets. Adhikary et al. (2021) posit that the factors that contribute to this growth are multiple and include fintech innovations, government interventions, the rise of eCommerce and young populations. The research aims were to answer three questions in the context of unstructured retailers, namely, would adoption of digital payment technologies increase the economic performance of emerging markets (EM) unorganised retailers (UR), what are the effects of diverse types of digital payment technologies on UR performance, and what quantity and which combinations of digital payment technologies should URs adopt to optimise revenue performance.

On the first research question, Adhikary et al. (2021), using a qualitative survey approach, considered whether the adoption of digital payments increases revenue performance; the study found that there was a positive impact on revenue performance. On the second question, what were the effects of diverse types of digital payment technologies on UR performance (Adhikary et al., 2021)? The research study identified four types of digital payment technologies, namely card-based technologies (CBT), account-based technologies (ACBT), App-based technologies (ABT) and social security-based technology (SBT). According to Adhikary et al. (2021), from the four digital payments technologies categorised, two digital payment technologies were found to be strongly correlated with positive performance, the first being App-based

technologies, including mobile wallets, USSD and unified payment interfaces. For URs, most ABTs require little investment in digital infrastructure (e.g., QR codes) and card-based technologies, including debit cards, credit cards, smart cards, and prepaid cards, representing the most common digital payment technologies.

The third question is about the quantity and which combinations of digital payment technologies URs should adopt to optimise revenue performance (Adhikary et al., 2021). The research results reflect that an average of two digital payment technologies are needed to positively affect economic performance. The study provides promising information on the impact of digital payments on the performance of businesses. In this example, for small retailers, however, there could be a clear directional benefit for other businesses.

2.4.2 *Digital payment transactions and their positive impact on corruption*

Corruption and fraud are other factors for consideration in adopting digital payments and whether they benefit from reducing instances (Souza et al., 2022). The research study by Setor et al. (2021) explores the correlation between digital payments and corruption. With a particular focus on 111 developing nations, the research uses a fixed-effects analysis incorporating a global dataset of digital payments matched against Transparency International's corruption perception index (CPI) (Setor et al., 2021). The results reflect a clear association that digital transactions reduce corruption (Kumar et al., 2019).

Corruption can be defined as a global problem with economic, political, and social consequences that negatively affect people, businesses, and society in general (Shankar & Datta, 2018). Setor et al. (2021) note that many claims have been made about the potential of digital payment technologies to reduce corruption. However, their research has not uncovered any studies that have examined the impact of digital payments on corruption in developing countries. Corruption is generally classified into two distinct categories: grand and petty (Ang, 2020). Grand corruption is typically identified as embezzlement and bribes, most notably in governments, politics, and wealthy elites, whereas petty corruption is the solicitation of smaller payments to lower-level officials (Cimova, 2021). The research highlights that the use of cash is

associated with illicit activities, including money laundering, tax evasion and concealment of income (Roaz & Cantner, 2020).

The results of the study by Setor et al. (2021) find that digital payments are a feasible tool to reduce corruption in developing countries. This is with the caveat that developing countries need to make the appropriate investment to ensure infrastructure to support digital payments is available (Kumar et al., 2021). That effort is applied to digital literacy to ensure widespread understanding and subsequent adoption. Setor et al. (2021) advocate that their research opens opportunities for future research in financial technologies. Namely, how specific modalities of digital payments, i.e., card payments, online payments, mobile payments etc., could influence corruption.

This is an important research study in the context of understanding the role digital payments can play in positively impacting a reduction in fraud and corruption at an organisation level.

2.4.3 *Digital payment technology and perceptions of trust*

Having dealt with corruption and fraud, a related study deals with digital payments and the inherent trust levels associated with various payment form factors. Szumski (2020) analysed the state of technological trust in various digital payment methods, providers, and demographic. The research used a qualitative lens through focus groups, selecting a random sample of 400 people. The key questions to be answered are the popularity of using different digital payment methods, the technological trust aspects, and the demographic data of participants (Szumski, 2020).

With the adoption of digital technologies becoming more pervasive, the research highlights that trust has become an essential driver for adopting these technologies. Szumski (2020) highlighted two forms of trust, namely human-like trust, which have the characteristics of benevolence, integrity and ability, and a system-like trust factor of helpfulness, reliability, and functionality. The importance of technology trust should be a focal point for business when innovating, with a particular focus on ensuring that trust is maintained.

Szumski (2020) notes that technological trust has not been explicitly defined. Though a number of publications and authors have varied on the concept, for the purpose of the research focus groups, Szumski (2020) defined technological trust as "... the expectation of efficiency, reliability, and effectiveness of technological devices and systems."

Szumski (2020) posits that the importance of the research is due to the increasing emergence of digital payment methods; thus, it would be beneficial to know what characteristics might increase the acceptance of these digital payment methods as well as what aspects might increase technological trust.

The study's results highlighted that the digital payment methods most frequently used were physical cards (91%), followed by payments made via electronic banking (85%), mobile app payments (73%), payments made via e-wallet (40%) and lastly payments made via cryptocurrency at (2%). Another aspect of the study is the relation between the popularity of the use of the leading digital payment methods compared against the level of trust that participants declared for the respective digital payment method. Figure 2.2 shows that the trust level is also reflected in the rating of the use of particular payment methods.

Another important research investigation result from Szumski (2020) was that female participants in the study were generally less likely to provide complete trust in digital payment methods than men. The study suggests that this could be due to women being more sceptical than men on this or just requiring different attributes to increase their level of trust in new digital payment methods. And finally, the study makes it clear that participants considered banks more trustworthy than payment operators, sellers, or the government. This does affirm that institutional trust is an important consideration point (Kumar et al., 2021). This is particularly important for the proposed study with respect to understanding who the provider of the fleet payment solutions is and whether they have developed the necessary trust with their business clients beyond just the payment capability (Kumar et al., 2019).

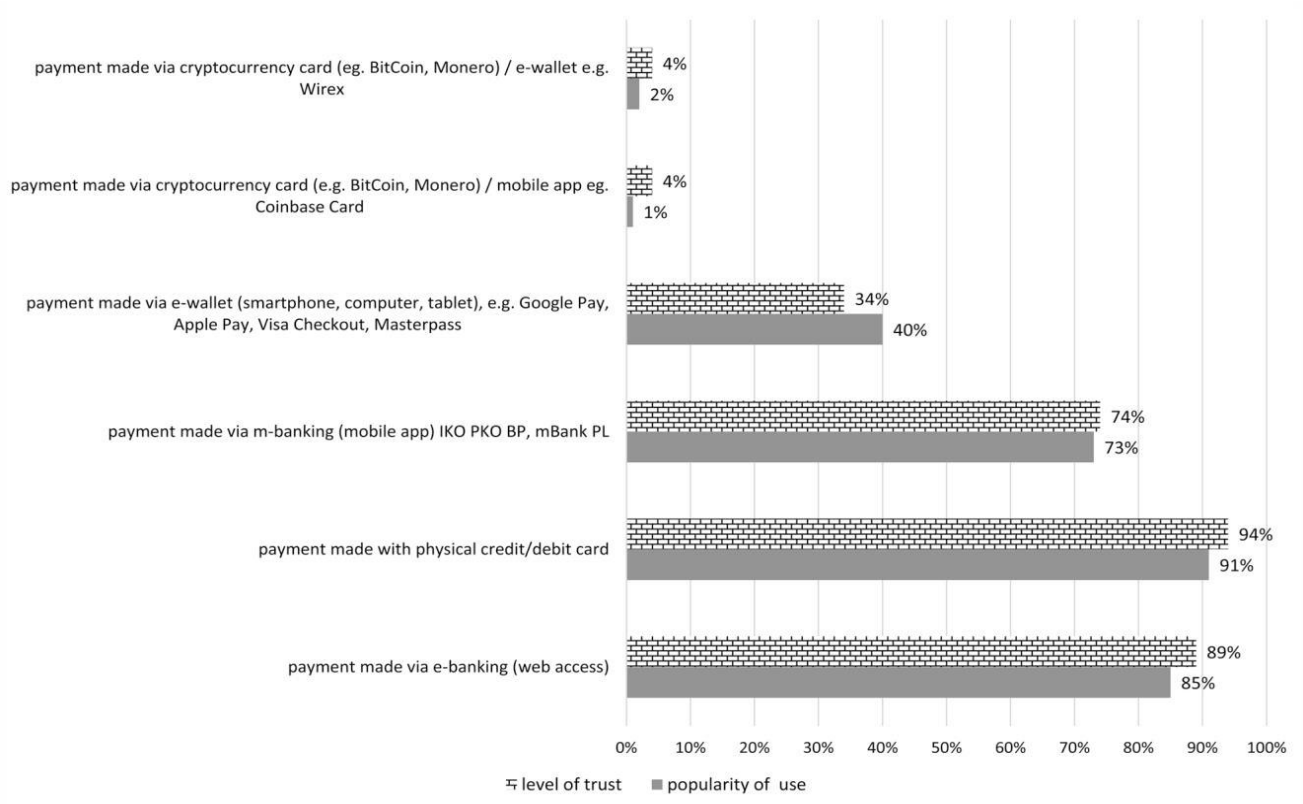


Figure 2.2: Level of Digital Payment Trust Compared to its Popularity of Use

Source: (Szumski, 2020).

2.5 How does the absence of digital payments impede the performance of B2B fleet management?

2.5.1 *Impact of fuel fraud*

According to Urciuoli (2020), fuel is considered an important fleet expense item that transport operators include in their freight rates. It has been established that changes in fuel costs influence logistics performance and profit margins (Urciuoli, 2020). The study identifies transport security as illegal acts against transportation systems, inclusive of freight and passenger systems. The research study states that experts have tried to estimate the cost of transport insecurity, with the European Commission estimates amounting to €8 billion per year. The consensus is that this is a grossly underestimated number and that some instances of fraud go unreported (Urciuoli, 2020). The study notes that the theft of fuel is a major crime that has not been sufficiently researched and explains that anecdotal evidence suggests that the problem

exists and has detrimental consequences for businesses with respect to vehicle breakdowns, lost/late deliveries, and customer satisfaction (Urciuoli, 2020). This is further exacerbated by the fuel cost increase, revenue loss, and declining profits, impacting the market's ability to compete.

Urciuoli (2020) further explains that business organisations that cannot deploy suitable systems to enhance visibility will incur financial losses due to theft. Interestingly Urciuoli (2020) lists countries where syndicates target high-value electronic goods. South Africa, Brazil, Mexico, the USA, and Russia ranked high. Appropriate risk management approaches, however, can support managers in making choices around appropriate technologies to reduce fraud (Singaraju & Niininen, 2021).

The study is at the nexus of the proposed study in determining the state of digital payments for fleet expenses in South Africa and the challenges in adoption.

Scant information on existing literature exists on fleet payments as a subset of fleet management. Whilst IoT devices like telematics devices are helpful in determining driver and vehicle behaviour, they lack the understanding of the cost of that behaviour (Gini & Ambrosino, 2022). Fleet payments provide a meaningful view of fleet costs related to the vehicles in a business fleet (Arrive Alive, 2019). They also provide insights into how a fleet operates and whether expenses align with the operational benchmark (Brunherotoa et al., 2022).

A significant factor in fleet management is understanding whether the vehicle performs within an optimal benchmark (Fayez et al., 2021). This could be through identifying whether the same type of vehicle performing similar operations is within the appropriate fuel consumption range (Karmańska, 2021). Any increase in consumption could be alert for potential misuse, abuse or fraud.

2.6 What challenges are encountered in adopting digital payment in B2B fleet management?

2.6.1 *Digital Payment Adoption*

The research study focuses on digital payment use and the factors that impact the low adoption rate of digital payments in Peru (Aurazo & Vega, 2021). The study on digital payments is concentrated on the use of technology in the context of Peru, which is considered a developing nation. The study considers various payment methods for purchasing, namely, cash, credit card, debit cards and mobile payments. And the associated likelihood of adoption of digital payments in the categories of education levels, formal employment, urban vs non-urban areas and per capita household spending (Aurazo & Vega, 2021). In addition, the work considers the consequence of the Covid-19 pandemic on digital payment adoption.

The research survey adopted Heckmans two-stage model econometric strategy to assess the adoption and the use of the various payment instruments. This also facilitated the elimination of sample selection bias in the study. Aurazo and Vega (2021) determined through the study that digital payment use is more likely among the age group 25-40 years old, with some form of higher education and formal employment. Other amplifiers of digital payment adoption were access to the internet and whether the domicile is within an urban area (Kumar et al., 2021; Kumar et al., 2019).

The study clearly outlines a definite correlation between higher digital payment adoption in younger people and older people (Aurazo & Vega, 2021). Interestingly, amplifiers of digital adoption and the domicile are within an urban area.

Sahi et al. (2021) conducted a meta-analysis of 193 research articles covering the analysis of affecting the use, adoption, and acceptance of digital payment methods. The study identifies the fact that not a single theory has been able to explain the complex nature of payment adoption. Sahi et al. (2021) note that the main limitation of the existing theories is that they are unable to consider the role of social and cultural facets. Still, the study was unique in adopting a systematic review methodology that uses defined processes and criteria. The literature review gathered on electronic

payment adoption is the first on which a systematic review is being done (Sahi et al., 2021). The paper offers an up-to-date research study on digital payments from a customer perspective.

The research by Sahi et al. (2021) highlights a few key results from the meta-analysis. Namely that there have been very few empirical studies conducted in the area of digital payments. And where those have been done, the focus has been on switching behaviour, actual use, continuous use, and satisfaction of digital payment users (Kuchi & Gupta, 2023). A key recommendation for future areas of study would be to focus on digital payment providers. The vast majority of studies have primarily concentrated on the customer adoption of digital payments (Kumar et al., 2021; Kumar et al., 2019).

2.6.2 *Digital technology adoption for small business*

Another important research study by Trinugroho et al. (2022) delves into the adoption of digital technologies for micro and small businesses; the study surveyed 2222 small enterprises in Indonesia, using an empirical model on the determinants of the use of technology-based innovation. The results highlight business factors and owner characteristics that explain the barriers to adopting digital innovation (Trinugroho et al., 2022). For the firm feature aspect, there was also a disparity in the use of digital technologies across demographic characteristics of business owners. Older business owners are less likely to exploit digital technologies for their business compared to younger business owners who are more tech-savvy. This dynamic is not too dissimilar to the research study by Aurazo and Vega (2021) and Trinugroho et al. (2022). Furthermore, internet connectivity facilitates a significant role in explaining the barriers to adopting all innovation-based technologies. This is an important consideration in the context of the proposed research study, as these factors would need to be considered in determining the adoption of digital payments for fleets' operational expenses.

2.6.3 *Policymaking influence on Digital Payment Adoption*

Expanding on the importance of trust, Ferrari (2022) examines how European Union (EU) policymakers' views of customers reflect the inclusion and acceleration of the evolution of payment infrastructures into digital payments infrastructures in the digital platform economy. They speculate that this view is incomplete and that the vision of

the digital payment infrastructure compiled from the document analysis has two main problems (Ferrari, 2022).

The first is that the technologies portrayed as desirable were chosen based on industry interests and trends, forsaking the evaluation of benefits and risks that emanate from the technologies (Kuchi & Gupta, 2023). This is an important factor for consideration if digital technologies posited by policymakers and industry are fit for purpose and are the most beneficial digital payment methods for customer use (Kumar et al., 2021).

Secondly, the assumption that a liberalised market free of controls would promote better choices is flawed. Ferrari (2022) suggests that policymakers should be more sceptical about the risks involved in the platformisation of digital payments. According to the study by Ferrari (2022), European institutions are of the view that large technology platforms pose regulatory challenges as they are likely to create competition issues. Because of the span of both regulated and unregulated activities, varying regulatory bodies would need to be involved in complicated matters (Ferrari, 2022). A domestic digital payment ecosystem is thus a protectionist as well as a defensive strategy against large technology platforms (Kumar et al., 2019).

2.7 Analytical Framework

2.7.1 *Theoretical Framework*

The literature reviewed highlighted some of the more common theories adopted by researchers on digital payments, namely the technology adoption model (TAM) and the unified theory of acceptance and use of technology (UTAUT) theories on digital payments. In the systematic literature review from the research study conducted by Sahi et al. (2021), it was clear that the TAM and UTAUT were by far the predominant methods used.

TAM and UTAUT were not chosen for this theoretical model as the primary research aim is not to determine adoption factors but to better understand and assess the current state and impact of digital fleet payments on businesses in South Africa. This is why the Transaction Cost Economics theory (TCE) was better aligned with the research objectives. According to Williamson (1981), transaction cost economics

theory provides an understanding of the transaction costs between parties in economic exchange and, where these transactions may be high, posits that businesses are likely to perform these transactions internally.

Businesses manage their vehicle expenses through a range of manual processes, such as filling out expense sheets, submitting invoices, and processing payments. These manual processes can result in significant (Williamson, 1981) transaction costs, like manually listing fleet transactions against the correct vehicles, the cost of keeping and using cash for vehicle fleets, reconciling payments to fuel and repair suppliers and the overall administrative cost of a vehicle fleet payment. The opportunity for fraud and abuse is significant and could increase operational costs for a business. Fleet payment systems can help to reduce these transaction costs by automating many of the processes associated with managing vehicle-related expenses. For example, a digital fleet payment system can automatically track fuel usage and costs, eliminating the need for manual record-keeping and reducing the potential for errors and fraud. It can also provide businesses with real-time access to data on fuel usage and costs, allowing them to monitor expenses more closely and identify areas where they can save money.

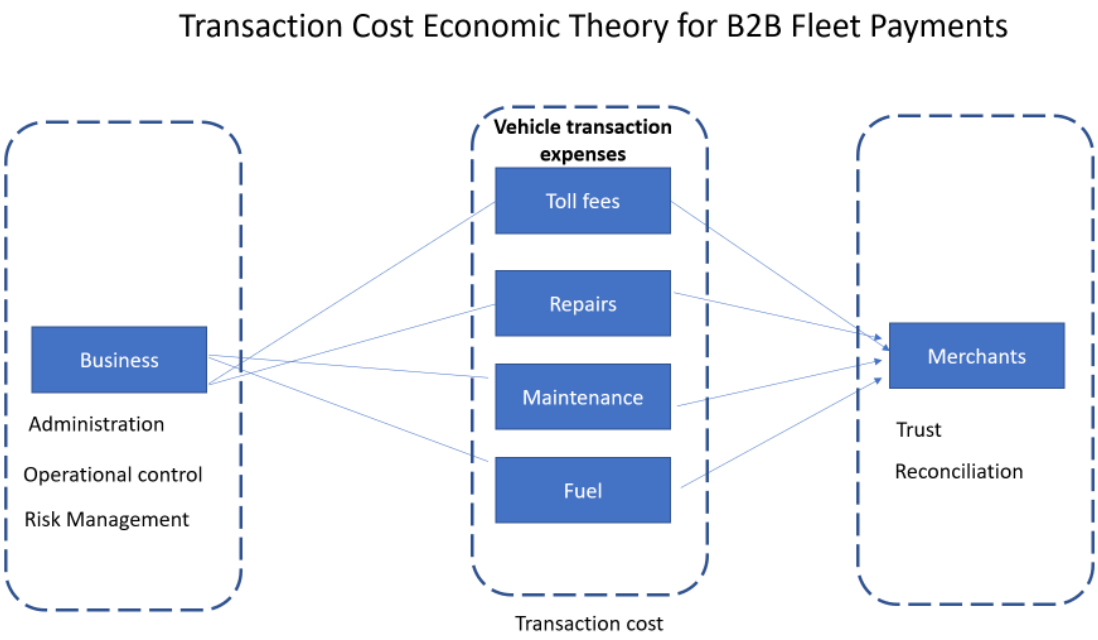


Figure 2.3: Transaction Cost Economic Theory

Source: (Williamson, 1981).

2.8 Conclusion of Literature Review

Key concepts and theories are clear in the literature on fleet management and digital payments. However, the literature has very little information on digital fleet payments in the context of Fleet management. These are the payment mechanisms used by businesses to pay for fuel, tolls, repair, and vehicle maintenance. They also provide valuable insights regarding a vehicle's fuel consumption, unauthorised refuelling, and alerts on suspicious transactions.

Fleet management is a crucial business operational discipline. The body of knowledge, however, has a clear focus on IoT devices and technology devices as a primary mechanism for managing a fleet. What is evident is that fleet payments are not widely considered or researched in the context of fleet management.

There is no single research paper that spans both digital payments and Fleet management. This is a gap that, if understood, could provide valuable insight. In the context of digital payments, adoption is a widely considered concept, as developing nations still have an apparent propensity towards using cash. What is positive is that digital payment adoption is increasing post covid in both consumer (B2C) and business (B2B) markets. This can be related to the clear benefits derived from digital payments with respect to trust and the strong correlation towards a reduction in corruption which has significant positive implications.

CHAPTER 3. RESEARCH METHODOLOGY

This chapter outlines the proposed research methodology of the study. A qualitative exploratory approach was adopted based on the research objectives and the literature reviewed. The first point of departure is the research approach to be followed, followed by how the research will be designed. Consideration for the data collection methods, the population and sample, as well as the profile of participants. The research instrument and the limitations of the study are deliberated on, which then concludes with a discussion on the data analysis approach and ethical considerations of the study. This research aims to answer four research questions that have been developed from the literature review.

3.1 Research Approach

A qualitative research design was chosen for the study as it provides an opportunity to answer the research question more conclusively (Aspers & Corte, 2019). According to Bryman (2012), qualitative research is a strategy that usually emphasises words rather than quantification in the collection and analysis of data. In addition, Maxwell (2012) notes that a major strength of qualitative studies is their ability to get at the processes that lead to these outcomes, processes that experimental and surveys are often poor at identifying.

3.2 Research Design

A cross-sectional research design was used for the following reasons it provided a means f obtaining a broad enough overview of the research topic within the constraints caused by the research project timelines (Saunders et al., 2019). The study used semi-structured in-depth interviews through face-to-face interaction with participants. Each participant was interviewed once, and the research presented a snapshot of the current landscape (Austin & Sutton, 2014). The research took an inductive approach where data was collected to develop new insights on a subject that has not been conclusively covered in the literature/body of knowledge (Azungah, 2018; Young, 2019).

3.3 Data Collection Methods

The research study collected primary data from participants through in-depth face-to-face interviews performed primarily in person or facilitated via the Microsoft Teams tool where concerns may still be around Covid (Creswell & Poth, 2018). The researcher used their professional network to develop the sample group and sampling methodology (Lester et al., 2020). The in-depth interview session lasted a maximum of 60 minutes; however, consideration was giben for an increase in time if required.

The researcher gathered information on the companies and individuals to be researched before the interviews were scheduled. Semi-structured interviews have the potential to be more biased when it comes to interviewer error (Cresswell & Miller, 2000). Careful consideration was therefore taken to use consistent interview techniques that yielded valid and reliable findings (Majid, 2018).

Interviews were recorded and transcribed into Word to ensure that during the interview (Leedy & Ormrod, 2016). Research questions were asked from a broad set of open-ended questions with care taken that no leading questions were asked, and participants had the opportunity to emphasise the important issues (Rahi, 2017). The researcher was also mindful of interpreting responses objectively (Bryman, 2012).

3.4 Population and Sample

3.4.1 *Population*

The population and sample considered for the study were participants who fulfil the role of industry experts, fleet managers or senior managers in a South African headquartered organisation with a national footprint. The population describes the entire pool from which a sample will be taken (Saunders et al., 2019). The population pool identified as being relevant to this study included senior managers and executives working within organisations with existing fleet management operations in South Africa.

It is vital to collect data from the most accurate source to sufficiently answer the research questions (Bryman, 2012). The research reasoning behind dealing with

people in senior roles in an organisation is that they would have a much broader understanding and expertise on the strategic and operational factors of a business fleet operations (Rahi, 2017). The instrument questions posed would require this level of knowledge and insight.

3.4.2 *Sampling*

Interviewing the entire population would not have been feasible due to the level of seniority of the population pool and the associated time and resource constraints (Mujere, 2016). Data was therefore to be collected from a sample of the population. A complete list of the population is not available, and a sample cannot be selected at random; thus, non-probability and purposive sampling was used to identify participants (Bryman, 2012). This technique is well suited for inductive qualitative research, as was the case with this study (Bryman, 2012).

Sampling was conducted across various organisations from different industry sectors. A heterogeneous form of purposive sampling was adopted to ensure that the sample was sufficiently diverse and had significant variation (Saunders et al., 2019). According to Maxwell (2012), purposeful sampling can adequately capture the heterogeneity in the population.

As the study is qualitative, there were no mandated rules for establishing sample size when using non-probability purposive sampling (Bryman, 2012); thus, eight participants were chosen. The expertise of the participants provided the required depth of insight and knowledge into the research study.

	Designation	Industry	Status	Industry experience
1	Chief Executive officer	Fintech Payments	Interviewed	30 years
2	Chief Executive Officer	Fintech Payments	Interviewed	22 years
3	Senior Director	International Payments organisation	Interviewed	10 years
4	Chief Executive officer	Fleet management	Interviewed	28 years
5	Senior Manager	South African Bank A	Interviewed	32 years
6	Senior Manager	South African Bank B	Interviewed	22 years
7	Senior Manager	South African Bank C	Interviewed	23 years
8	Senior Manager	South African Bank A	Interviewed	15 years

3.5 The Research Instrument

The research instrument used to conduct qualitative exploratory research was detailed semi-structured interviews (Bryman, 2012). It consisted of a set of open-ended questions to allow for a conversational discussion with the participants allowing them to engage with more thought on the questions being asked (Rahi, 2017). According to Bryman (2012), “Research methods such as participant observation and semi-structured interviewing are used so that the researcher can keep more of an open mind about the contours of what he or she needs to know about so that concepts and theories can emerge out of the data”.

3.6 Procedure for Data Collection

- A list of businesses were developed that met the criteria of having a national footprint in South Africa.
- The researcher used his professional network to develop a sample pool used.
- Once the participant’s details were received, an email with an introduction to the research brief was sent to the recognised Senior Manager/ Executive or Industry expert in the business, who was able to facilitate an informed discussion on the topic (Barret & Twycross, 2018). See Appendix A.
- Participants were asked to review and sign a consent form before commencing with an interview (Arifin, 2018). See Appendix B. The consent form indicated that participation in the interview is voluntary and that the participant may withdraw from the interview at any time (Arifin, 2018).
- It was further explained to the participant the confidential nature of the interview and that neither their identity nor their company identity would be used in the research (Brough, 2019).
- The interview was conducted in person at the headquarters of the business if they were in Johannesburg or alternatively through the Microsoft Teams online meeting application.
- When beginning the interview, a short introduction was given to help build rapport with the participant (Ghauri et al., 2020).

- Permission was then asked from the participants to record the interview (Arifin, 2018).
- During the data collection, the instrument was an interview guide to ensure stimulating and consistent discussion among participants (Majid, 2018). See Appendix C.
- The open-ended questions within the guide were developed from the major concepts identified during the literature review and the research questions (Morse, 2015).
- Interview questions were reviewed for suitability of the questions regarding comprehension, clarity, reliability, and verification of the content (Bryman, 2012).

3.7 Data Analysis Strategies and Interpretation

Qualitative data analysis was used to make sense of complex phenomena within the transcribed recordings, and care will be taken to follow a good data analysis approach to accurately interpret the qualitative data (Bryman, 2012). The codes-to-theory model, developed by Saldana (2016), was used to analyse data gathered during interviews. Voice recordings from the in-depth interviews were transcribed into a Microsoft Word format, converting qualitative audio data into qualitative text data. During the next stage, significant phrases and interesting ideas that emerged from the data were coded systematically (Linneberg & Korsgaard, 2019).

Atlas.ti was used to code the data. The coding process commenced as soon as transcribed text data became available to ensure a fresh recall of events and context (Noble & Smith, 2015). Following the code-to-theory model (Saldana, 2016), categories were compared and consolidated into thematic concepts during the next stage. These themes were reviewed and refined where necessary. During the last and final stage, the themes identified were aligned and compared to what is represented in the literature with the necessary discussion and recommendations based on this Linneberg & Korsgaard, 2019).

3.8 Possible Limitations and Challenges of the Study

Qualitative research is subjective and can be affected by various biases (Maxwell, 2012). Apart from the validity concerns already identified, the following limitations were identified:

- The researcher selected the participants based on the researcher's accessibility to these individuals and the consideration of their suitability to contribute to the research study.
- The cross-sectional nature of this research presents a snapshot of a particular point in time (Ghauri et al., 2020). In a different timeframe, different responses might be obtained due to circumstances like a change in leadership or during periods of restructuring (Cresswell & Miller, 2000).
- The researcher had no formal training in administering interviews, which could have impacted the data collection (Morse, 2015).

3.9 Quality Assurance

Due to the subjective nature of qualitative research, this method may present validity and reliability concerns (Cresswell & Miller, 2000). Validity is concerned with the integrity of the conclusions generated from a piece of research (Bryman, 2012).

Interviewer biases might unintentionally exist and jeopardise the validity of the study. (Saunders et al., 2019). It was crucial to make use of validity procedures to ensure the authenticity and trustworthiness of results (Bryman, 2012).

Validity procedures that were used are audit trails, along with thick, rich descriptions (Cresswell & Miller, 2000; Tracy, 2010). An independent person external to this study who is unaware of this study was asked to provide unbiased feedback on the analysis of a few sample interview transcripts (Noble & Smith, 2015). The fourth validity procedure used was peer debriefing (Morse, 2015). The supervisor for this study reviewed the methods and findings and played "devil's advocate" to help elevate the researcher's thinking and reduce potential researcher bias (Cresswell & Miller, 2000). Lastly, the study used a standard set of semi-structured interview questions for all

participants throughout the process, and participants were given ample opportunity to engage freely to avoid interviewer bias (Wood et al., 2020).

3.10 Ethical Considerations

As a start, commitment to ethical research procedure was assured through informed consent (Braun & Clarke, 2006). Permission to perform the research, accompanied by the participant letter and consent form, was approved by the University Ethics committee, see Appendix D. Essential contents of the invitation to participate letter and informed consent form were:

- A letter confirming ethics approval of the research from Wits Business School (WBS).
- Detailing the aim and purpose of the study.
- Notification of voluntary participation.
- Anonymity and confidentially assurance (accompanied by Supervisor and ethics office contact details).
- Disclosing what will be done with the data post-data collection and analysis.
- Disclosing that the report will be published online and available on the university website.
- Informed Consent form.
- Anonymous participation.
- Use of anonymous quotes in research.
- Permission received from a participant for audio recording.

CHAPTER 4. RESULTS OF THE STUDY

4.1 Introduction

The aim of this study is to understand the South African perspective on digital payments on the B2B vehicle fleet expenses. The empirical data for the qualitative study was conducted using eight semi-structured interviews with senior managers, executives and chief executive officers working within organisations with existing fleet management operations in South Africa. The empirical data was analysed using thematic analysis (Clarke et al., 2015). The findings of the empirical data from the interview transcripts were analysed and presented in this chapter, starting with the profile of the participants, the relevance of empirical data, the discussion of the themes of the study, and finally, answering the research questions.

4.2 Overview of the Study Sample

The participants have experience in fleet management from different companies, such as Standard Bank Fleet Management, Novalexa Fleet Solutions, First National Bank Fleet Services, Visa Business Solutions, Payment24 Group, and the Renati Group of companies. The participants were highly experienced in fleet management, with their individual tenures ranging up to 25 years. The participants range from the head of business solutions, a fintech payments CEO developing new solutions into the SA and Global market, Bank executives for payment solutions and development of payment solutions for fleet, a senior director focused on fleet and new payment flows, a payments fuel management fleet management company in South Africa, primarily focused on fuel payments, specifically card payments up to cardless payments and chief executives. The participant profile confirms the sample's relevance, which was purposively sampled for the study (Leedy & Ormrod, 2016).

4.3 Themes of the Study

The study had four research questions to help understand the South African perspective on digital payments on the B2B vehicle fleet expenses. The first research question was: **What is the state of digital payments in B2B fleet management in**

South Africa?; the second was: **How do digital payments enhance B2B fleet management in South Africa?**; the third research question was: **How does the absence of digital payments impede the performance of B2B fleet management in South Africa?**; and the fourth was: **What challenges are encountered in adopting digital payments for B2B Fleet management in South Africa?.** From the empirical data, codes with meaning were made, which were later consolidated to form 18 code groups, also known as the sub-themes and these sub-themes generated eight themes, which were used to answer the research questions (Table 4.1).

Table 4.1: Research questions, sub-themes, and themes of the study

Research question	Sub-theme	Theme
What is the state of digital payments in B2B fleet management in South Africa?	- Current digital payment option landscape in South Africa	The state of digital payments in B2B fleet management in South Africa
	- Benefits of using digital payments - Challenges of digital payments	The pros and cons of using digital payment for fleet management in South Africa
	- Adoption Overview of digital payments in Businesses	The current level of adoption and concerns impacting digital payments fleet management in South Africa
	- Security concerns impacting the adoption of digital payments	Security concerns as a hindrance to adoption
How do digital payments enhance B2B fleet management in South Africa?	- The efficiency of digital payment and comparatively better than traditional payment - Cost-effectiveness of digital payments adoption - Innovative improvement of the payment system	The Benefits of digital payments fleet management for Organisations in South Africa
	- Current trends in digital payments - Current innovations in digital payments	The future prospects for digital payments for fleet management in South Africa

Research question	Sub-theme	Theme
	- Growth Potential in digital payments in South Africa - Potential future use -cases for digital fleet payments in South Africa	
How does the absence of digital payments impede the performance of B2B fleet management in South Africa?	- Managing vehicle fleets without digital payments - Businesses suffered due to the absence of digital payments - Scalability and growth potential suppressed	Impact of digital payment absence on the Performance of B2B fleet management in South Africa
What challenges are encountered in adopting digital payments for B2B Fleet management in South Africa?	- Factors hindering widespread adoption of digital payments - Level for South Africa vs the world in digital payment adoption - Payments Association of South Africa (PASA) and the Government's role in the adoption of digital payments	The adoption of digital payments in South Africa

4.4 What is the state of digital payments in B2B fleet management in South Africa?

The first research question was, what is the state of digital payments in B2B fleet management in South Africa? This research question was answered by four themes which were: the state of digital payments in B2B fleet management in South Africa, the pros and cons of using digital payment for fleet management in South Africa, the current level of adoption and concerns impacting digital payments fleet management in South Africa and security concerns as a hindrance to adoption (Figure 4.1).

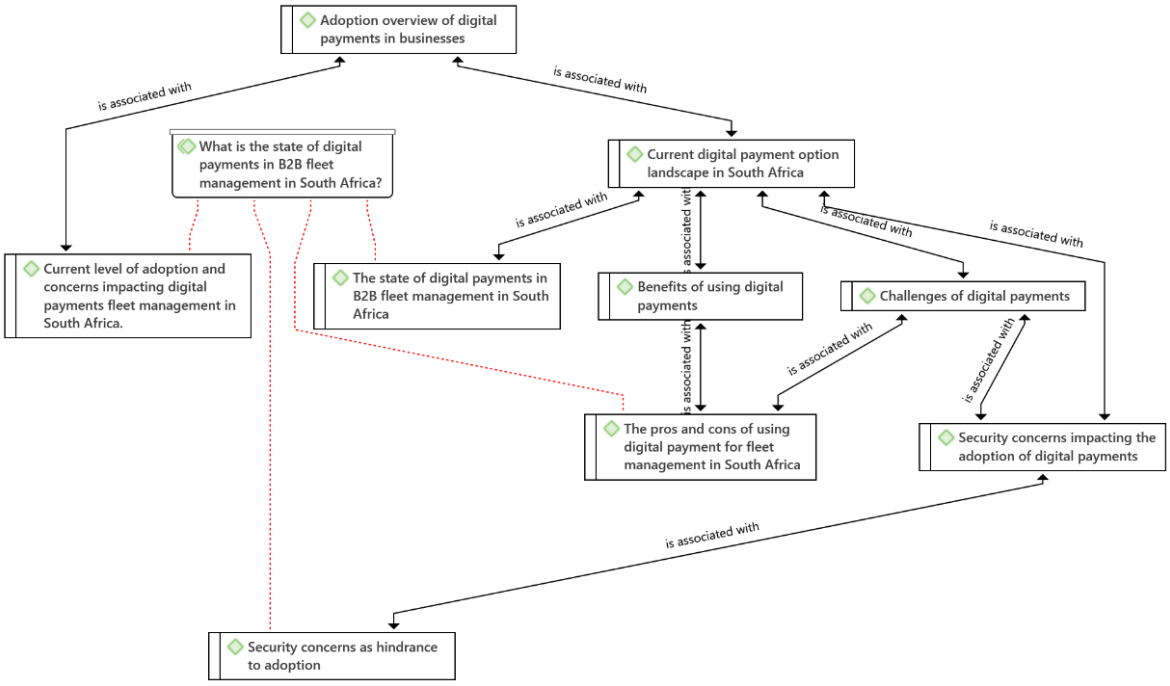


Figure 4.1: Thematic map for the state of digital payment in B2B fleet management

4.4.1 *The state of digital payments in B2B fleet management in South Africa*

The current state of digital payment in B2B fleet management in South Africa, as stated by the participants, was that the fleet market predominantly matched the three-party payment solution where there is an issuer of the plastic, which is traditionally a bank, the merchant who is rendering the service (fuel, toll, or maintenance) and the customer, the third party. The three-party model was said to have been the primary B2B fleet payment mechanism since 1979 and has not evolved significantly over the last 50 years.

Thus, it could be said that there hasn't been a significant digital movement in South Africa. For example, the bank fleet management system has direct agreements with each merchant that they interact with, and the customers use some of the bank's infrastructure from a credit card perspective. Hence, credit card rails are used to process authorisations in the settlement.

The settlement of those transactions utilises an industry-standard implemented in 2007, where transactions from the terminal get rooted basically to their host bank from their acquiring bank. They are transmitted to a Payment System Operator (PSO) called Bankserv, which splits the transactions per bank so that they group them per bank and

then send each bank its own transactions. The non-bank participants in the B2B digital space were oil companies that provided their cards to their customers and ran the cards and payments through their own systems directly or outsourced these to the banks to provide payment capabilities. Although the majority of the digital payments were centred around the standard magstripe card solutions, some participants mentioned an increase in contactless transactions, such as tapping and tap-to-phone transactions in the B2B payments space, especially within the vehicle space where drivers and organisations were looking for similar technologies, that they were familiar with in terms of their consumer behaviour and their personal experiences. Radio frequency identification (RFID) tags and Europay, Mastercard and Visa (EMV) fleet cards have recently been introduced into the South African market. They represent the future of B2B payments as they have more sophisticated security features. There are, however, still gaps to close with these new fleet payment solutions from a customer experience as adoption is still rather low.

> The current landscape in South Africa for fleet payments predominantly matches the right three-party payments solution. So typically, three-party models are the issuer of the plastic, which is traditionally a bank, and the merchant rendering the service. It could be fuel; it could be toll, it could be maintenance, and the customer is the third party. The three-party model has been around since 1979, and it has not evolved significantly over the last, what is it, 50 years. You could say there's been no significant digital movement. PAT3

> For example, Standard Bank fleet management would have to have direct agreements with each merchant they interact with, and we use some of Standard Bank's infrastructure from a credit card perspective. So, we use credit card rails to process our authorisations in our settlement. The settlement of those transactions utilises an industry standard. PAT4

> For example, Total has what they call a Total card that they provide to their customers, and Total runs that card through their own systems directly, I think with Total in France, and they provide that card to their customers to fill exclusively at Total sites. PAT4

4.4.2 *The pros and cons of using digital payment for fleet management in South Africa*

4.4.2.1 Benefits

The main benefits of using digital payment for fleet management in South Africa, mentioned by participants, were that it provided an alternative to cash, giving the business convenience of not handing out a lot of cash to their drivers. Because fleet

cards are limited to specific purchase categories and are only accepted at retail merchants providing vehicle-related services, businesses could now save on money that drivers would otherwise misuse on other things. The fleet payment mechanism ensures drivers who are issued a fleet card can only use it on the vehicle and not on purchases of groceries or clothing. The fact that organisations could have anything from 1 to 1000 vehicles of the fleet cards issued and they all rolled up into one single central billing system was an administrative advantage for organisations. Because fleet cards gave a much more detailed breakdown of the transactions, the other benefit was the analytics the system afforded for the organisations while facilitating payments. Organisations could gain understanding and insight into the organisation's fuel analytics, maintenance analytics and the behaviour of assets from a fuel and maintenance perspective, which would help customers (if used correctly) to mitigate certain risks and pick up on fraud or misuse of funds quicker and easier than if things were still done through cash or by use of a credit card. The fleet card is a fundamental control and cost management tool for businesses.

> A fleet card is limited; it's accepted only at merchants that provide vehicle-related services. So, for example, if you have a fuel oil and toll card, you can only use it at a toll plaza or a fuel service station. So, there's a degree of control. Also, the fact that you can have a hundred, 200, 300, or 500,000 of these cards issued, and they all roll up into one single central billing system. PAT1

> And one of the core fundamentals for any commercial road transporter or any small-medium enterprise in a logistics environment is the analytics associated with the asset. So while paying for fuel oil and toll and maintenance is critical to running the operations of my business as a fleet manager day to day as a financial manager running that business, it's more the understanding of the fuel analytics and the maintenance analytics and the behaviour of a vehicle asset from a fuel and a maintenance perspective. PAT3

> Gives you a much more detailed breakdown. So, for example, if you were to go and purchase fuel, top up your oil and have a car wash whilst you're doing that, then your statement would actually reflect each individual purchase, even though they may have been one transaction. However, each transaction will break down the different types of purchases within it. PAT4

> So it's in order to help you mitigate risk and pick up fraud misuse of the card. You can imagine, especially, I think, in the South African environment, if you've got a fleet of a hundred vehicles, and you need to try and manage that by cash and slips and whether that's actually going into the vehicle. I think those are some of the key benefits around the fleet, really the data and the information and the reporting that you get with it that allows you to manage a vehicle fleet expenses. PAT6

4.4.2.2 Challenges

The first challenge with adopting the digital fleet management system is the transition and adjusting to the new regulations and new ways of management, especially from the point of business leaders who never thought that the culture and level of assets management would escalate to such levels. Some of the challenges of the digital fleet payment system in South Africa lay in the fact that it operates on a three-party model; this is an outdated payments system, and most payments systems have evolved to the four-party model, which has encryption standards and cards are issued with a microchip and are pin authenticated. 3-Party models are older payment systems that use magstripe encryption technology and do not come with pin authentication. Digital fleet payments solutions on three-party models were impacted by fraud syndicates who identified failure points and were able to exploit this for fraudulent activity.

Another challenge with the digital fleet payment systems, specifically magstripe fleet cards, is that toll operators provide transactions on a 48-hour cycle thus, not giving real-time toll reports. Another challenge is that the solution is South African bound as regulations and currency differences in neighbouring countries prevent the magstripe card solution from working there. It is unable to perform currency conversion and hence can only be used within the confines of South Africa. This impacts businesses who travel across borders as they are unable to transact on the fleet card and have to find an alternative means of payment.

> I think the biggest challenge was the perception from business leaders that the culture and the level of the truck drivers or the asset, the ones that manage the asset, are not adequate to go to that level. And that is, in my opinion, the biggest obstacle that held it back in South Africa was always that perception, which by the way, I don't agree with, but that is what I filmed as number one. PAT8

> And because there's a regulation in other countries, neighbouring countries that prevent the magstripe solution from working there, it's no longer applicable in those countries. Then. So while you can provide customer analytics and most likely you are within a 48-hour period as real-time as possible, it's only also a limited portion of the analytics that you are providing within a trip. PAT3

> So the moment that you do that, you start to have a challenge in terms of trying to work out the correct consumption for that vehicle or adjusting that information so that we can actually pick up a trend your vehicle should be on. PAT4

4.4.3 *The current level of adoption and concerns impacting digital payments fleet management in South Africa*

Concerning adopting digital payment methods among businesses in South Africa, most participants felt that there was not a wide adoption rate for fleet management. The limited adoption spread of fleet management systems was attributed to the size of the organisation, and the number of vehicles an organisation has, organisations that are large in size and have bigger vehicle fleet numbers are more likely to adopt digital payment methods for fleet management. Small businesses with fewer vehicle fleet numbers were less likely to adopt. The overall number of vehicles with a digital fleet payment method number only 800 000 vehicles in South Africa. These are predominantly medium to large corporate businesses. However, there is a far great concentration of small organisations in South Africa, with roughly 4 million business vehicles being used. Based on this, it can be concurred that the vast majority of businesses do not have a digital fleet payment method, and thus there is limited adoption of digital fleet payments. This led to the functionality, capability and education about digital fleet management systems, which ultimately influenced the adoption of these solutions.

One of the major reasons for the low adoption rate was that most businesses relying on fleet solutions were determined by the credit provider, which in the South African context was the banks, bank-type fleet card solution. This was a concern as SMMEs represent the largest number of businesses in the South African market, and most of these SMMEs could not be approved for bank credit as the fleet management systems mainly operated on an unsecured credit lending facility. Another reason was the limited services digital fleet management systems offered, which only focused on solutions for vehicle-related expenses, such as fuel. Very few of them covered cross-border payments, parking and car washes. However, driver behaviour was not offered, and the wide access to credit cards for expenses in businesses did not necessitate fleet cards. These were only required when organisations required control in areas of vehicle expenditure. This specialisation in fleet cards and the lack of all rounding was the reason there was limited adoption of digital fleet management solutions.

> No, not very widely. Again, the majority of businesses are relying on fleet solutions determined by the credit provider, which today are typical all your bank, bank-type fleet card solutions. PAT8

> However, when you get to the smaller businesses with there's, there's call, let's say 50 or fewer employees, there's a greater concentration of the number of those businesses. The adoption of digital payment is less among those. So, I would say amongst big corporates, a very, very high percentage of corporates would have some sort of digital payment, be it a fleet card. PAT1

> I can't tell you the percentage, but very, very few small businesses are going to be operating on a non-digital platform IT, and they will be mostly small SMMEs who can't afford to get their credit because this is quite a big credit market. But even the noncredit market is still a digital base in the prepaid space. PAT7

> But I think where the challenge is, are these solutions for vehicle-related expenses is it was very focused on specific expenses. So, fuel only. Some of them did cover repairs and maintenance to some extent, but all other vehicle-related or driver behaviour was not considered. PAT5

4.4.4 *Security Concerns as a Hindrance to Adoption*

The major security concerns for digital fleet management systems that affected the adoption of these systems were fraud and fuel theft, especially in the long-haul freight market. This was because, compared to other countries, the fleet card industry in South Africa was behind in terms of security features. The current fleet card, which is magstripe technology, does not have pin authentication and is widely cloned and or counterfeited. However, there was concern that there was no true standard of what fraud is and how the banks perceive the fraud, as there was a tendency to perceive some fraud cases as non-fraud cases because they were able to claim the funds back from either the customer or the merchant. Thus it all came back to who was liable and who would be charged for the loss. This, coupled with the lack of security and a lot of companies affected by the high levels of cloning of fleet cards, has impacted the adoption in the market two-fold as customers felt that although it was a risky industry, the digital fleet management products, specifically the predominant magstripe enabled Fleet cards were risky themselves. They would prefer to manually manage it via an account at a specific service station where they had direct control over it or where they could order fuel and make sure it got dispensed or manage it in-house.

There was also a risk that fuel merchants would in the future not accept these payment solutions in a three-party fleet environment due to the fraud chargebacks they have experienced and the risk associated with it for the customer.

However, what we need to take into consideration, what I always say, is that that's reported fraud and how a bank perceives the reported fraud. So, if I have fraud and I manage to claw back from the merchant or the customer, I am not going to report it as fraud. PAT3.

So, I think it is actually driving the adoption, and the change customers are demanding, and it all comes back to who's liable and who you can chargeback. Those types of things are going to be equally important, and you can just manage that better when it's a complete open-loop scheme transaction. PAT5

It has an impact in terms of adoption in the market because that is the feeling from customers or a lot of customers is that it's risky. I think it's a risky industry, but it's a risky product in terms of a lot of customers would prefer to rather manage it via, even though manually managing it via an account at a specific service station where they've got direct control over it or where they can order fuel and make sure it gets dispensed, or they manage it inhouse within in-house browsers. PAT6

The difficulty, though, is the uncertainty it creates and the insecurity that it creates because certain merchants might not want to take the fleet card because of the chargebacks that they've experienced. So, it creates an inconsistent customer experience. He must follow up at a particular place, but he can't. There is a risk that merchants might not if the status quo persists; merchants might not accept these payment capabilities and payment solutions. PAT3

4.5 How do digital payments enhance B2B fleet management in South Africa?

The second research question was: How do digital payments enhance B2B fleet management in South Africa? This research question was answered by two themes: the Benefits of digital payments fleet management for organisations in South Africa and the future prospects of digital payments for fleet management in South Africa (Figure 4.2).

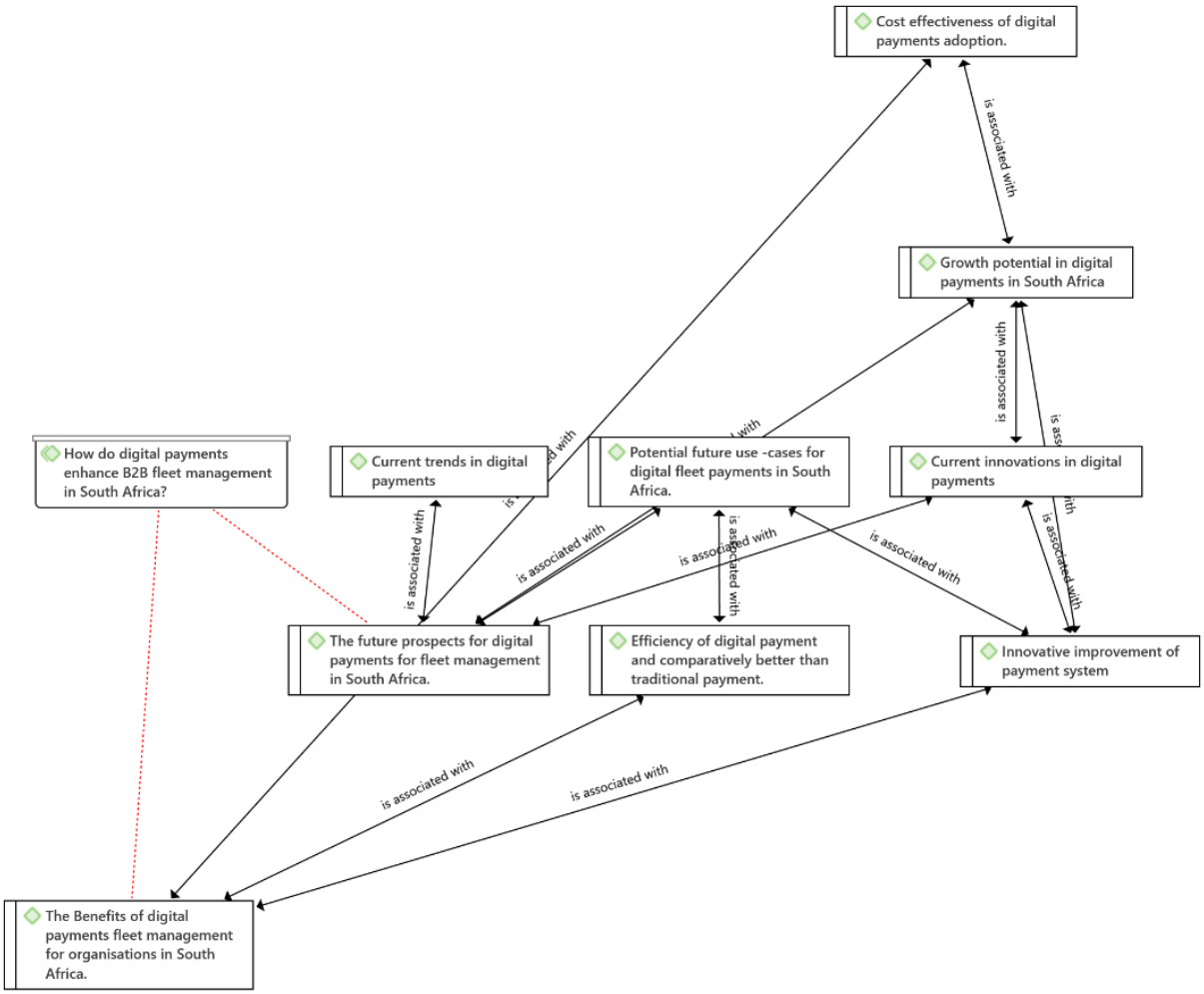


Figure 4.2: Thematic network on how digital payments enhance B2B fleet management in South Africa

4.5.1 *The benefits of digital payments fleet management for Organisations in South Africa*

Several benefits were highlighted of digital payments fleet management for organisations. These include the efficiency of digital payment and comparatively better than traditional payment, the cost-effectiveness of digital payments adoption and Innovative improvement of the payment system.

4.5.2 *The efficiency of digital payment and comparatively better than traditional payment*

The impact of digital payments on efficiency started with the elimination of cash, which participants saw as cumbersome and risky to use. Thus, organisations could save time

and money by switching to digital fleet payments. The move from physical paper to digital reporting made it easier for companies to access the available fleet data. The data is much easier to work with and utilise as it is easy to upload onto systems. It was evident that the major efficiency advantage was that the digital payments were online, making the data available in real time. However, very few participants believed that the three-party payment system (Magstripe fleet card) had administrative hassles that came with digital systems, such as with long haul freight (commercial road transport), which have multiple diesel partner arrangements that did not make the processes efficient for businesses but did, however, add more work for them in fleet management. This extra administrative work also included additional costs, which then made digital fleet management systems expensive and administrational heavy.

The four-party digital environment based on the EMV standard (Europay, Mastercard, Visa) could bring in big change as it would centralise all the relationships and consolidate the customer's real-time analytics. This standard is also interoperable and has the ability to cater for cross border transactions and other vehicle-related purchase categories, i.e. parking, carwash etc.

> I think so from a fleet management perspective; if you have a complete view of what it costs you to manage that vehicle on a day-to-day basis, it's easy for you to provide that data and report back; it's easier for you to negotiate discounts. So, you are creating a value cost per kilometre for the end customer. PAT5

> I suppose from efficiency and productivity, your digital payments are normally an online available online solution, which is important for the fleet management sector, whereas your card base, your typical fleet card is more a, or is a batch file processing, which means you always get data a day later or a week later type of thing. PAT8

4.5.3 *Cost-effectiveness of digital payments adoption*

Managing the cost of fuel for employees was also made easier and faster by digital fleet payment systems that allowed companies to centralise billing for each employee into one system. The overview given by the digital fleet payment system of the vehicle on a day-to-day basis made it easy to report back on vehicle costs. It made it easier for companies to negotiate discounts and get preferential pricing based on the volume that they may bring to a supplier. Another benefit that has increased efficiency for organisations is the increase in the maintenance of vehicles by organisations. They

have seen that vehicle maintenance through analytics was important in bringing down the cost per kilometre for each vehicle.

> Which then means that because the current three-party models are not integrated into the business banking structure of any of the banks, you have to go through a secondary credit application for the customer. And that becomes a tedious exercise as well. And a costless exercise as well. PAT3

> Previously they used to avoid maintenance because of the cost of maintenance, but now they see that as a requirement to actually maintain their bring the cost of kilometre down cause that consumption is a key indicator. They are tracking per kilometre cost, all of them are tracking quite heavily, and with this, big data is playing a big role, and the tools are available now there's other difference data and the tools are available to these guys, and they're using it now. PAT7

> The price of fuel is driving away the volume growth in a way because fleet managers are looking for efficiencies, how to decrease consumption, not just save, get better solutions and cheaper methods of payments but also how to decrease the consumptions, how to upgrade there, upgrading the fleets more quickly to get more efficient vehicles and trucks in their fleet. All of that is, I think, definitely hindering the growth of actual volumes in terms of leaders that should be consumed. PAT7

4.5.4 *Innovative improvement of the payment system*

The innovations in digital payments for fleet management were generally centred around increasing client convenience and security around fleet management. Such as combating fraud by giving more control to the card issuer to allow them to tighten up parameters around what was legitimate or not in terms of card usage. One of the innovations in digital fleet management is evolving a fleet card into a chip and pin, as the pin offers more security. Other innovations are geared towards cardless such as RFID and biometric payments. There seemed to be trending moving into mobile payment solutions. However, the capacity to deliver mobile payment solutions was still being built in the industry.

The participants predicted a decline in three-part fleet cards (magstripe fleet cards) as a payment form factor to the four-party payment environment, which is the EMV standard (Europay, Mastercard, Visa) which would facilitate more flexible payment forms factors like scan-to-pay, tap and go, QR codes, and virtual cards to completely cardless transactions and near field communications (NFC) payments which could be facilitated by cell phones.

> Digital is completely cordless or device less or not device less so cardless in the sense that, or if Id less in terms of not having something fixed or attached to the vehicle that you carry with, but that you go into a digital environment where I think even with mobile devices, and maybe this is futuristic in terms of but facial recognition and technology in that regard in terms of do you really manage risk and manage fraud to go down that route. PAT6

> Well, especially with all the different types of digital payments, using mobile phones, using QR codes, just different methods of payment cards, if you can call it like that, of payment IDs to actually make a payment. That is the biggest change that we have seen in the market was the type of payment, removing or moving away from the card to something like a pin or two-step verification or a QR code. PAT8

The built-in cameras and scanners will allow for scanning driver's licenses and barcodes, making it easier to link driver assets and the phone all through an app on the forecourt simultaneously. The Connexus specification, which is an international fleet management specification for payments to process payments digitally in South Africa, would reduce the amount of fraud and the amount of card cloning as the magstripe was easy to clone. There was still much space for innovations as there was still very little adoption of digital fleet management in South Africa. Thus a lot still could be done to increase adoption and innovation, such as changing the entire forecourt infrastructure and payment systems on the forecourt to allow for identification of the vehicle on the forecourt along with biometrics. The changes were predicted to be coming with the new point-of-sale devices on the forecourt, which were going to be more Android-driven, allowing banks to develop apps a little bit more differently for acceptance on the forecourt. However, this change would be difficult for other non-bank players to put down their own devices without the bank as this would require integration with the banks.

> Other innovations are probably trying to combat fraud in terms of approval. So how much control does the card issuer have over which transactions go through so they can tighten up the parameters regarding when they validate whether a transaction is legitimate or not? They can put additional control. PAT1

> The change is going to come about with the new point-of-sale devices on the forecourt, which are more android based and android driven, which will allow banks to develop the apps a little bit more differently for acceptance on the forecourt. I think any party trying to go onto the forecourt and put down their own devices without the bank or doing it on their own is not going to get anywhere because it's going to require a whole lot of integration. PAT2

4.5.5 *The Growth Prospects for digital payments for fleet management in South Africa*

The first growth prospect for the fleet was centred around fraud management and decreasing card misuse by drivers or members within the organisations. The introduction of more secure payments and payment methods would possibly increase the adoption of digital fleet management systems. The second growth prospect for fleet management was to offer digital fleet management for SMMEs at a lower price and with high levels of security, as SMMEs are the bulk of South African employers. Another growth prospect was commercial garage cards being absorbed into the fleet infrastructure because the garage cards provided corporates with security around chip and pin but had no analytics and reporting that could identify fraudulent activity. The combination of pins, chips and real-time analytics with toll gates going live online would prove to create a competitive advantage for fintech as they would be able to compete with banks in this regard. Another growth prospect was catering to technological advances, such as self-driving cars, new fuel solutions and electric cars.

> So, the growth really lies in the smaller businesses, and it's a question of basically providing them with a product which they do not deem too expensive. So, it has value for money, and it's got to give them that peace of mind that it's a secure offering, that this is not something that's going to take up this offering. PAT1

> We're probably in the next five to seven years, we will probably see a rapid decline in dependency on physical plastic cards with the driver in the car. From a digital perspective, the most significant move is the industry initiative to move to a four-party environment, which is the EMV fleet standard. PAT3

These advances in technology would then push fleet management systems to adapt to the new technologies and facilitate payments and analytics differently. Although most participants saw growth potential, very few of them did not see any growth prospects in digital fleet management as they felt that there was already a decline in the volume of players within the field, possibly due to the decline in the economy in South Africa and fleet managers were looking for efficiencies, how to decrease the consumption, not just save, get better solutions and cheaper method of payments but also how to decrease there fuel consumptions, how to upgrade their fleets more quickly to get more efficient vehicles and trucks in their fleet and if these technologies did not offer that would not be adopted.

When you bring the chip and pin into a fleet with real-time analytics and with toll gates going live online, there would be no need for any corporate to sell a garage card. It does enhance a lot of the bank's value props, but then it also, at the same time, it does create a competitive advantage for FinTech because they would be able to then compete with banks equally in a digital world. PAT3

With the card in the past with the introduction of a more secure payment method and payment methods going forward, I think that it, it'll become far more broadly adopted because the moment that you take away that threat for fraud to happen and the more detailed information we can provide them digitally, the easier it is for them to adopt and to manage that. PAT4

So just from a technological perspective, I think moving. So, making the step to completely open-loop solutions now will stand us in a good state when all of the new electric vehicle demands are coming on. How do we pay for things? How do we manage that? How do you manage the next stop, and where do I need to recharge? Again, all of those new evolutions of refuelling, as we would call it hydrogen, all of those new sources, I guess, need to be catered for. PAT5

4.6 Absence of digital payments impeding the performance of B2B fleet management

The third research question was how does the absence of digital payments impede the performance of B2B fleet management in South Africa? It was answered with one theme, which focuses on the impact of digital payment absence in the performance of B2B fleet management in South Africa. This theme has three sub-themes: managing vehicle fleets without digital payments, businesses suffering due to the absence of digital payments, and scalability and growth potential suppressed (Figure 4.3).

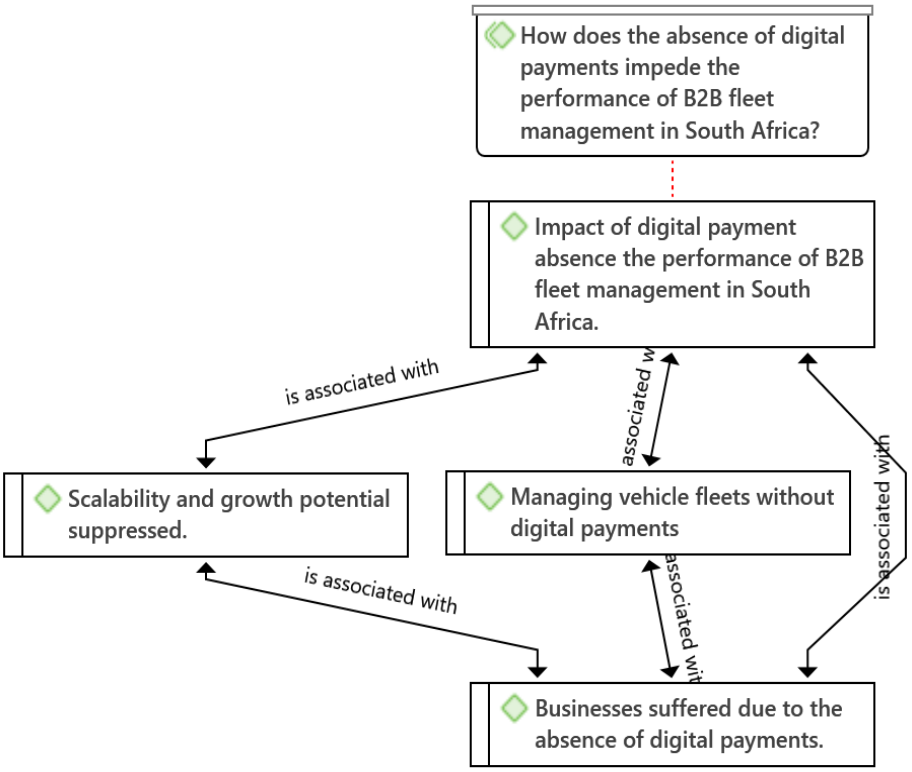


Figure 4.3: Thematic map on the absence of digital payments impeding the performance of B2B fleet management

4.6.1 *Managing vehicle fleets without digital payments*

Managing vehicles without digital payment makes things difficult for the company as it is missing a key component of management which is controls, including traceability and validation. One of those is control of fuel, whether fuel being put in the vehicle is of the same value as provided by the payment. Participant 3 explains the problem with the lack of management.

> They do not know how much is being dispensed because the driver could say, I threw in R300 fuel, but he actually only put in R200 and put a hundred in his back pocket. So, the difficulty is that the operational expenditure associated with the fleet is not a true reflection of the cost associated with it. If you had a digital solution that provided you with the analytics. PAT3

> One-word costs for every two trucks, three trucks that you add to your fleet, you need a body to manage that if you don't have an integrated solution of which digital payment is part of that to manage that. So, the biggest thing in the fleet space is the increase in cost. PAT8

> I think a really good case study would be, and I'll talk to the company called Payment 24 again. They had a customer called SMG Feet down in Cape Town, and I think their monthly fuel bill was something like 150,000 grand with the introduction of a digital payment platform, which

allowed them to identify the driver and the vehicle at the same time identify the amount of fuel going into the vehicle and then providing the necessary management data. At the end of the month, SMG, which is a BMW group, they were able to reduce their fuel cost by, I think hundred thousand rands, and they ended up with about a 50 to 60,000 ran per month fuel bill. PAT4

We have a customer where we obviously go out to market, or a customer approaches us in terms of where they used to manage their expenses and then the feedback you're getting in terms of after switching to a fleet card or digital payment solution, just the benefit that it has brought to their business in terms of a lower fleet cost achieved, but then also less labour intensive, easier to manage. PAT6

4.6.2 *Businesses suffered due to the absence of digital payments*

Businesses suffer in multiple areas due to the absence of digital payments. This can include finances with poor tracking of cost usage, as already highlighted in managing vehicle fleets without digital payment.

4.6.3 *Scalability and growth potential suppressed*

The absence of digital payments impedes the performance of B2B fleet management scalability and growth. This is because it is scaling using inefficient means. This is particularly a problem when scaling cross-border to expand the footprint. Having digital payment for B2B fleet management allows for interoperability and a solution that can scale across countries, and this is regarded as the true value. This as customers has a solution that helps them with the same customer experience in different countries, which is important to ensure that all transactions are being captured and the correct and full costs can be reflected on a vehicle.

Now if you are trying to scale and you are using inefficient means, and this is adding it, it's taking up, I don't know what the number is, 5, 10, 15, 20% of your day. You are going to be scaling a lot slower than your competitor. That could be using a fleet card, and just imagine if they had a hundred percent of the use of their time versus you spending only 70 or 80% of your time on that task. PAT1

What I could have added to that is I think the interoperability and having a solution that you can scale across countries and continents is really where the value comes in because now customers, the drivers, have a solution that helps them with the same customer experience in different countries. Having the same level of data, having the same payment experience and

having the same data that goes back to the actual user, the end customer, and the business to actually use that for their business. I think it's quite powerful. PAT5

So, it doesn't necessarily stop them from scaling their business. I think what it does is it brings a lot of complexity into their business and tries to effectively manage it if they want to do it on a manual basis. PAT6

4.7 Challenges encountered in adopting digital payments for B2B Fleet management

The fourth research question was what challenges are encountered in adopting digital payments for B2B Fleet management in South Africa? The theme has sub-themes which are factors hindering the widespread adoption of digital payments, the level of South Africa vs the world in digital payment adoption and PSA and the government's role in the adoption of digital payments (Figure 4.4).

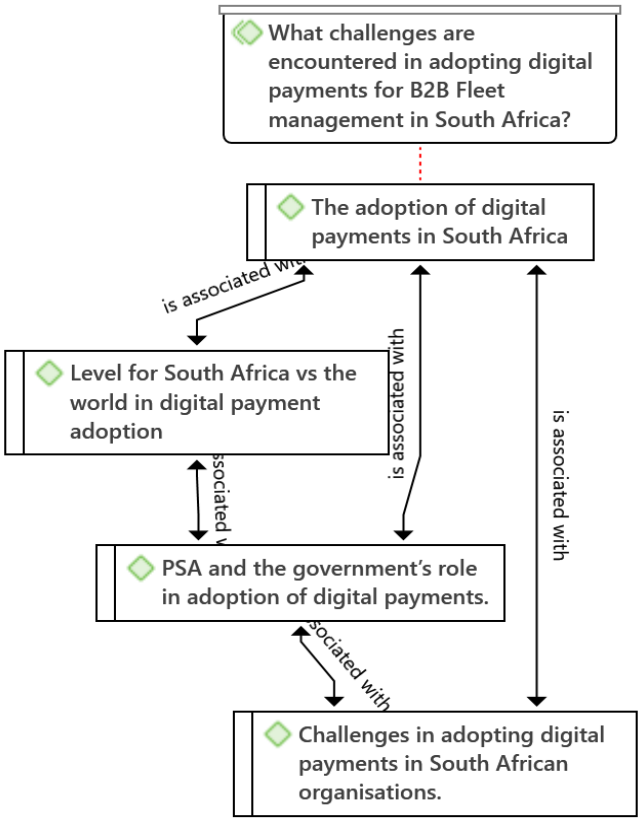


Figure 4.4: Thematic map challenges encountered in adopting digital payments for B2B Fleet management

4.7.1 *Factors hindering widespread adoption of digital fleet payments*

Participants highlighted challenges in adopting digital payments in South African organisations. These include the use of new RFID tag technology, limiting experiences and cost implications and culture, location, and convenience factors.

> I think one of the biggest challenges, and I know this especially from previous use of tag technology, even just moving, so adoption even from card to RFID tag or the introduction of an RFID tag to manage or to provide a method of payment. One of the things that the drivers would do is break the tag. So when you get to the site, the tag will not work, and then they would be able to do some form of manual payment because what the driver was realising was that prior to that type of technology being introduced, they had an open chequebook. PAT4

> So, in terms of businesses that limit experiences to a specific vehicle and adoption by drivers, I think, again, the real benefit is filling up at the right places or the right filling stations using the right tools available to you. So, a lot of companies is they have the convenience, and it's far more convenient to just have a creative company credit card that the vehicles use to fill up. PAT6

> I think they look at the price, so they will pay number one. Number two is fraud. Those are the two things they look out for. And third one comes in the location and convenience factor. All the other factors like sales service and additional features. But I think the two biggest factors are fraud management and the price of the fuel itself. PAT7

> I think the biggest challenge was the perception from business leaders that the culture and the level of the truck drivers or the asset, the ones that manage the asset, are not adequate to go to that level. PAT8

4.7.2 *Level for South Africa vs the World in digital fleet payment adoption*

The participants highlighted that there are varying differences between the level of South Africa compared to the world in digital payment adoption. Digital payment is critical for South Africa in managing fraud and is convenient in terms of managing expenses. South Africa has advanced to a mature market compared to the rest of Africa, where digital fleet payments are not used at all in many countries. Comparing South Africa against the likes of Europe or North America, it is still mature, but perhaps Europe is more advanced because they have more options available, especially in the cross-border area South Africa is very limited.

> Significantly different. Massive. If you look at the US and Europe, there is a massive difference. So the first fundamental we have to understand is that in a B2B environment in Europe and the

> US, we just take the two biggest continents there. All Latin America is that leasing an asset in a business environment is common practice, right? That's number one. And the reason for that is that there's lots of legislation that promotes leasing in a B2B environment, and it's also a cultural dynamic. PAT3

> So, I think from a South African point of view, quite critical for businesses to have a digital if they want to manage. It is more just a convenience in terms of managing expenses and not necessarily a fee card solution. So, if you look at Europe and the US, they are probably making a lot less use of manual solutions, but not necessarily fleet card solutions to the extent that we use them in South Africa because of the environment we're in. PAT6

> If you are comparing it against the rest of Africa, South Africa has quite advanced cause we call it quite a mature market. If you're comparing it against the likes of Europe or North America still mature, but perhaps Europe is more advanced because they have more options available. And especially in the cross-border area South Africa is very limited when it comes to that. And South Africa being the hub and the port to the gateway to the rest of Africa, it is one of quite a big requirement, I would think. PAT7

> I have done a lot of work in Australia with the goal of expanding there, and I think they are pretty much on the same level as what we are [South Africa]. The market is driven by banks that have bank types of solutions. The culture is different, where the primary goal of transport operators, of transport companies, is not to manage and prevent fraud. PAT8

4.7.3 *PASA and the Reserve Banks' Role in the Adoption of digital fleet payments*

The Payments Association of South Africa (PASA) and the Reserve Bank play a role in the adoption of digital payment. Participant One explains this view, highlighting that it is done well with the stakeholders involved. The synchronisation and systems approach allows for effective payment without glitches. For example, when the cardholder, the merchant, there is consistency when they accept the card and swipe it through the payment terminal. It behaves the same way, a key in, they hit the enter button, and 99 times out of hundred, the transaction is approved. This shows that the system is working well with an important role played by the critical stakeholders.

> I think very well. I think the fact that there, it is well organised, they view it in the space of their stakeholders within the payment systems or what they call participants. So you can participate as an issuer, a merchant, a customer, or even a bank card accepting bank. So, what we call an acquiring bank. What they do is when they look at the payment system, they want to make sure that there's harmonisation so that when payments from factors at the debit card, credit cards,

> fleet cards, etc., are introduced into the market, the adoption and the use of these cards goes about. PAT1

Despite this, their regulation can be cumbersome to comply with effectively. The banks are heavily governed and regulated. But though this is the case, it does not hinder opportunities. This is evident from the work of FinTech companies, especially from a bank point of view, where the system, in terms of getting to market quickly and changing payment solutions, is possible to implement and leverage the opportunities.

> I think the development and the rollout are the biggest hindrances, purely in terms of the red tape, the time that it takes to get certain approvals, the rules and regulations that the Pazo and even the Reserve Bank really put on solution providers out in the market. That is still the biggest hindrance, and I think the deterrent factor when companies look at, especially from a solution supplier point of view, when they look at this is purely the red tape that they need to go through. PAT8

> Not a fan of regulation. We try to always work around how we can avoid requirements of compliance in our products, at least right legally. But it doesn't help. I mean, E M B would've been a massive success in back years ago already if regulation was adjusted to deal with the oil, with the interchanged oil companies, fuel is a regulated product, margins are slim, and as the fuel prices go with the interchange, the cost of selling fuel goes up for the merchants. PAT7

> So, I think in South Africa, obviously, the banks are heavily governed in terms of and regulated. I don't think regulation per se in South Africa essentially hinders the opportunity. I think my view is that it's more in terms of the current system and the way the industry has been developed in terms of just trying to, and that's why you see these FinTech companies, especially from a bank point of view, where with our system in terms of to get to market quickly and change payment solutions is something that should be a couple of months, ends up taking a couple of years. PAT6

CHAPTER 5. DISCUSSION OF RESULTS

5.1 Introduction

This research study aimed to explore digital payments on B2B vehicle fleet expenses. The finding of this research will provide more insight into an area of fleet management that has had very little research done specifically in the context of South Africa. The research paper should provide a meaningful understanding of digital fleet payments in South Africa and their role in a business's operational cost management.

5.2 Discussion of results – Research question 1

"What is the state of digital payments in B2B fleet management in South Africa?

5.2.1 *The state of digital payments in B2B fleet management*

The purpose of this question was to get to understand the current landscape of digital payment for businesses in South Africa. As highlighted in the literature review, there is no existing literature on digital payments in B2B Fleet Management. Hence the research is intended to provide valuable insights and assist in a meaningful understanding of this important mechanism for business operational control.

When we look specifically at the primary digital payment method for businesses, these are Fleet cards. Fleet cards are a payment mechanism that has been in the market since 1979 and has not undergone any significant improvements since. The fleet cards are still on magstripe technology, an outdated transactional platform, as most payments have moved to the global standard EMV solution. These encrypted chip and pin solutions have better security features that reduce the ability to counterfeit or clone cards.

The current predominant magstripe fleet card is fraught with security concerns and is open to counterfeiting and cloning. Banks are the primary providers of Fleet cards in South Africa, with some fintech payments providers introducing solutions to compete with the banks. The results have also shown that there is a shift that is taking place in the South African fleet payments market with the introduction of more secure fleet

payment solutions like the EMV fleet solution, which addresses a lot of the deficiencies of the current magstripe fleet card in that it has an encrypted chip and provides for pin authentication.

Now, solutions like RFID payments and tap-to-go and contactless solutions are entering the market. With most payments now moving onto more secure and encrypted digital payment platforms, this was one catalyst for digital fleet payments to evolve. The other catalyst for change is fraud in the industry, which appears to be more of an issue and could also contribute to the recent innovation. This could be because the prolonged dormancy of innovation in this area that fintech provides may have been putting pressure on the banks to provide better fleet payment capabilities for businesses.

5.2.2 *The pros and cons of using digital payment for fleet management in South Africa*

5.2.2.1 Benefits

The result of this theme discusses the benefits and challenges associated with using digital payment for fleet management in South Africa. One of the main benefits highlighted by the participants is the convenience of not having to handle cash and the ability to limit the types of purchases that drivers can make with the fleet card.

This lowers the danger of financial misuse while saving the company money. Adhikary et al. (2021) demonstrated that businesses that adopted digital payment technologies had a beneficial impact on corporate performance, supports this conclusion. The Adhikary et al. (2021) study concentrated on the acceptability of digital payments, although the causes were different. However, this shows that businesses that accept digital payments and those who utilise them benefit both the transaction's acquirer and the transaction's end user.

The ability to consolidate billing for several cars into one system, which is a considerable administrative advantage, is another benefit of a digital fleet payment system. Additionally, the detailed transaction breakdown provided by the system enables businesses to gain insight into fuel and maintenance analytics, helping them

mitigate vehicle and driver-related risks and identify fraud or misuse of funds more quickly and easily than cash or credit cards.

However, the findings also reveal some challenges with the digital payment system, such as the outdated three-party model and the fact that the system is a closed-loop system only applicable within South Africa due to currency and regulatory differences. These challenges may limit the system's use for businesses that need to travel across borders.

5.2.2.2 Challenges

The outmoded three-party approach utilised in South Africa's digital fleet payment system is one issue raised in the research. According to the report, most payment systems have developed a more secure and dependable four-party model that includes encryption standards and pin authentication. The three-party model's usage of magstripe technology entails a risk from fraud syndicates because they can take advantage of failure points to commit fraud. Research by Setor et al. (2021) found that digital payments can be utilised as a useful tool to reduce fraud and corruption, which lends credence to this. It was noticed that while cash transactions are made for business-related vehicle expenses, no paper trail is left behind, making accurate and traceable reconciliations impossible.

According to Setor et al. (2021), any new digital payment system can provide a considerable obstacle to fraud and other illegal activities. The findings highlight that the South African Fleet Payments landscape needs an upgrade to the current digital fleet payment system as it is based on an older three-party payment, which is less secure and reliable than a four-party EMV model.

The study also notes that the digital fleet payment system is locale-specific and can only be used in South Africa, and cannot perform currency conversions. This finding limits its use to within the confines of South Africa, making it challenging for businesses that travel cross-border. The report suggests that an international and interoperable payment system that can convert currency would be more useful for cross-border businesses.

Overall, the findings highlight the challenges that businesses face when adopting a digital fleet management system in South Africa. These challenges include the need

for training and education to adapt to the new system's culture and level of asset management, an upgrade to a more secure and reliable payment system model, improved efficiency with real-time toll reports, and a need for an international payment system that can perform currency conversion. The study provides useful insights for policymakers, business leaders, and stakeholders in the transportation industry to improve the digital fleet management system in South Africa.

5.2.3 *The current level of adoption and concerns impacting digital payments fleet management in South Africa*

The results highlight the limited adoption of digital payment methods for fleet management in South Africa, with only 800,000 vehicles using such systems, which are predominantly medium to large corporate businesses. The findings indicate that the limited adoption of these systems is mainly due to the size of the organisation and the number of vehicles a company has, with larger organisations being more likely to adopt digital payment methods for fleet management. However, most businesses in South Africa are small and have not adopted digital fleet payment methods due to various reasons, such as limited services offered, lack of education, and credit constraints. According to Trinugroho et al. (2022), there is a disparity in the use of digital technologies across demographic characteristics of business owners. The study found that older business owners are less likely to exploit digital technologies for their business compared to younger business owners who are more tech-savvy. This did not come through from our participants due to the participant profile.

One of the significant barriers to the adoption of digital fleet payment methods is the limited services provided by these systems, which primarily focus on vehicle-related expenses such as fuel. This specialisation of fleet cards and the lack of all-around coverage have resulted in the limited adoption of digital fleet management solutions. Additionally, the study highlights that driver behaviour was not offered in the digital fleet management systems, and access to credit cards for expenses in businesses did not necessitate fleet cards, which were only required when organisations required control in areas of vehicle expenditure.

Another significant factor limiting the adoption of digital fleet payment methods is the credit constraints faced by SMMEs, representing the largest number of businesses in

the South African market. Most of these SMMEs could not be approved for bank credit as the fleet management systems mainly operated on an unsecured credit lending facility. The reliance on credit providers, which in the South African context are the banks, limits the adoption of digital fleet management systems by SMMEs.

5.2.4 *Security Concerns as a Hindrance to Adoption*

The major security concerns for digital fleet management systems, specifically fraud and fuel theft, have affected their adoption in South Africa. These security concerns are a significant barrier to adoption, particularly in the long-haul freight market. The current fleet card, which is magstripe technology, does not have pin authentication and is widely cloned and/or counterfeited, and there is a concern that the lack of security and a lot of companies affected by the high levels of cloning of fleet cards has impacted the adoption in the market two-fold.

Technological trust is a significant barrier to the adoption of fleet cards. Szumski (2020) has defined technological trust as "… the expectation of efficiency, reliability, and effectiveness of technological devices and systems." Whilst fleet cards meet most of the requirements of technological trust, it seems there are instances where their effectiveness in curbing and controlling fraud is called into question. It is clear from Szumski's (2020) definition of technological trust that all factors need to be met to acquire trust.

One of the key issues is the lack of a true standard for what constitutes fraud and how banks perceive fraud, which has led to cases where fraud is not recognised as such because the funds can be claimed back from the customer or the merchant. This lack of clarity around liability has created uncertainty in the market, and customers may be hesitant to adopt digital fleet management systems as a result.

Another issue is that fuel merchants may not accept these payment solutions in a three-party fleet environment due to the fraud chargebacks they have experienced and the risk associated with it for the customer. This is a significant concern as it limits the acceptance of digital fleet payment solutions, making it more difficult for businesses to manage their fleets.

However, despite these concerns, digital fleet management systems do offer several benefits, including providing an alternative to cash and giving businesses greater control over how their drivers use their vehicles. These benefits can help organisations save money and gain insights into their fleet operations, which can help mitigate risks and pick up on fraud or misuse of funds more quickly and easily than if things were still done through cash or by use of a credit card.

Overall, security concerns are a significant barrier to adopting digital fleet management systems in South Africa. Addressing these concerns will be critical to increasing adoption in the future. It is important for businesses to carefully consider the risks and benefits of these systems and work with providers to ensure that they have robust security measures in place to protect their fleets and their bottom line.

5.3 Discussion of Results for Research Question 2

"How do digital payments enhance B2B fleet management in South Africa?

5.3.1 *The efficiency of digital payment and comparatively better than traditional payment*

The second research question was: How do digital payments enhance B2B fleet management in South Africa? Two predominant themes arose the Benefits of digital payments fleet management for organisations in South Africa and the prospects of digital payments for fleet management in South Africa

The literature review highlighted the fact that very little was known about digital fleet payments in the context of vehicle fleets. Furthermore, it failed to provide an understanding in the context of South Africa; as Adhikary et al. (2021) pointed out, the majority of digital payment technology growth happens in emerging markets, with Russia and India at the forefront. However, the finding reflected a very different result for digital fleet payments. Participants were unanimous in their assessment that the South African market as an emerging economy had stagnated. It was predominantly used by medium to large corporates with very little year-on-year growth in new users.

Furthermore, the findings suggest that adopting digital payments for fleet management can significantly improve efficiency and reduce costs for businesses in South Africa.

The elimination of cash as a payment method was considered a major advantage of digital payments, as it was considered cumbersome and risky. Additionally, the move from physical paper to digital reporting made it easier for companies to access and utilise the available fleet data. The real-time availability of data was seen as a major efficiency advantage of digital payments.

The four-party digital environment based on the EMV standard was seen as a potential game-changer, as it would centralise all the relationships and consolidate real-time analytics for customers. This standard is also interoperable and can cater to cross-border transactions and vehicle-related purchase categories, such as parking and car washes. The potential benefits of this standard could make digital fleet management systems more efficient and cost-effective for businesses.

The findings highlight the importance of developing digital fleet management systems that are tailored to the needs of businesses and consider the specific challenges and requirements of the South African market. The findings suggest that there is potential for digital payments to improve efficiency and reduce costs for businesses but that there are also significant challenges that need to be addressed to achieve these benefits.

5.3.2 *Cost-effectiveness of digital fleet payments adoption*

The results of this section demonstrate the various cost-saving benefits that digital fleet payment systems have brought to organisations in South Africa. Allowing companies to centralise billing for each employee into one system has made the process of managing fuel costs for employees easier and faster. The system provides an overview of each vehicle on a day-to-day basis, making it easy to report back on vehicle costs. This provides companies with valuable data on how their fleet is being used, enabling them to identify inefficiencies and make necessary changes.

Furthermore, the digital fleet payment system has made it easier for companies to negotiate discounts and get preferential pricing based on the volume that they may bring to a supplier. This is because the system provides companies with accurate data on the fuel their fleet uses, enabling them to negotiate better pricing with fuel suppliers.

In addition, the results suggest that the use of analytics in vehicle maintenance can bring down the cost per kilometre for each vehicle. This is a significant benefit for organisations, as it reduces the cost of maintaining their fleet, which in turn reduces the overall cost of operating the fleet.

The digital fleet payment system has brought about significant cost-saving benefits for organisations in South Africa. By providing companies with accurate data on fuel usage, vehicle maintenance and overall costs, the system has enabled companies to identify inefficiencies and make necessary changes. It has also made it easier for companies to negotiate better pricing with fuel suppliers, reducing their overall fuel costs.

5.3.3 *Innovative improvement of the payment system*

The results suggest that the innovations in digital fleet payment systems are centred around increasing convenience and security. This is evident in the move towards chip and pin and cardless payment solutions such as RFID and biometric payments. Furthermore, mobile payment solutions are also becoming increasingly popular, although there is still much work to be done in this area. It is predicted that the four-party payment environment based on the EMV standard will facilitate more flexible payment forms factors such as scan-to-pay, tap-and-go, QR codes, and virtual cards, which could eventually lead to completely cardless transactions and NFC payments facilitated by cell phones.

The results also highlight the potential for technology to enhance security and reduce fraud in digital fleet payment systems. For example, the Connexus specification could reduce the amount of card cloning and fraud in South Africa. However, there is still much space for innovation, particularly in the increasing adoption of digital fleet management systems in South Africa. Changing the entire forecourt infrastructure and payment systems could lead to more efficient and secure systems. The new point-of-sale devices on the forecourt, which are Android-driven, could facilitate the development of new apps for acceptance on the forecourt. However, integration with banks will be necessary for non-bank players to put down their own devices.

The results suggest that digital fleet payment systems can potentially increase efficiency and reduce costs for organisations. However, there is still much work to be

done in terms of innovation and adoption in South Africa. The move towards EMV chip and pin, cardless payment solutions, and mobile payment solutions could be a game-changer for the industry. However, further research is needed to fully understand their potential impact on the industry.

5.3.4 *The prospects for digital payments for fleet management in South Africa*

The results highlight several growth prospects for digital fleet management in South Africa, but they also point out the challenges and limitations that the industry is facing. One of the most significant growth prospects is the need for more secure payment methods that can combat fraud and card misuse by drivers or members within organisations. These needs could drive the adoption of digital fleet management systems that offer higher levels of security and more secure payment methods.

Another growth prospect is the potential to offer digital fleet management systems for SMMEs at a lower price point, providing high levels of security. This is important as SMMEs make up the bulk of employers in South Africa. However, it is essential to consider that commercial garage cards may be absorbed into the fleet infrastructure to provide corporates with security around chip and pin. However, they have limited analytics and reporting that can identify fraudulent activity. Fintech companies could compete with banks by combining chips and pin cards and real-time analytics with toll gates going live online.

The technological advances in self-driving cars, new fuel solutions, and electric cars will also create new growth prospects for digital fleet management systems. However, the participants noted that the decline in the economy in South Africa has resulted in a decline in the volume of players within the field. Thus, fleet managers are looking for efficiencies, not just cost savings, but also better solutions and cheaper methods of payment that can decrease fuel consumption and upgrade their fleets more quickly to get more efficient vehicles and trucks in their fleets.

There are several challenges that the industry needs to overcome, such as the decline in the economy in South Africa, which has resulted in the decline of the volume of players within the field. However, by offering more secure payment methods, catering to SMMEs and technological advances, and providing better solutions and cheaper

methods of payment, the industry can overcome these challenges and continue to grow.

5.4 Discussion of Results for Research Question 3

"How does the absence of digital payments impede the performance of B2B fleet management in South Africa?

5.4.1 *Managing vehicle fleets without digital payments*

The results indicate that managing vehicles without digital payment can be challenging for companies, as they lack essential components of management such as controls, traceability, and validation. This is especially true when it comes to fuel management, as companies need to ensure that the fuel being put into the vehicle matches the value provided by the payment.

According to the (Urciuoli, 2020) study, fuel theft is a serious crime that hasn't received enough attention. It also notes that anecdotal evidence suggests the issue is real and has negative effects on businesses in terms of vehicle breakdowns, lost or delayed deliveries, and customer satisfaction. This is made worse by the rising cost of fuel, the decline in earnings, the loss of revenue, and the influence on market competition.

Digital payment systems have made it easier for companies to centralise billing for each employee into one system, allowing for more efficient tracking of fuel usage. The overview provided by digital fleet payment systems of the vehicle on a day-to-day basis also makes it easier to report back on vehicle costs and negotiate discounts based on the volume brought to a supplier.

However, not all companies have adopted digital payment systems for fleet management, which can leave them vulnerable to fraud or errors in fuel management. It is vitally important for companies to consider the benefits of adopting digital payment systems and the potential risks associated with not having proper controls in place for fuel management.

The findings reflect that digital payment systems for fleet management offer significant benefits for companies, including increased efficiency and security and the ability to

adapt to new technologies and fuel solutions. Companies that have not yet adopted digital payment systems should consider doing so to improve their fleet management processes and stay competitive in an ever-changing market

5.4.2 *Scalability and growth potential suppressed*

According to the findings, digital fleet payments are necessary for expanding and scaling B2B fleet management, particularly when doing so internationally. Without digital payments, the scaling process is hampered by ineffective methods, and it is challenging to manage cars successfully due to a lack of controls, traceability, and validation.

According to the Urciuoli (2020) report, businesses that are unable to implement effective methods to improve visibility would suffer financial losses because of theft. It's interesting to note that the study (Urciuoli, 2020) includes countries where syndicates target high-value electronic items. South Africa, Brazil, Mexico, the USA, and Russia are ranked highly.

On the other hand, having digital payments for B2B fleet management allows for interoperability and a solution that can scale across countries. This is essential for customers who want the same experience across different countries. With digital payments, all transactions can be captured, and the correct and full costs can be reflected on a vehicle. This helps with better cost management and ensures a consistent customer experience.

Furthermore, digital payments provide a more efficient and secure means of payment, reducing the risk of fraud and card misuse. The use of technologies like chip and pin, biometric, and mobile payments can further increase the security and convenience of digital payments.

Therefore, the adoption of digital payments is critical for the growth and success of B2B fleet management, particularly when expanding cross-border. It not only provides better cost management and customer experience but also ensures greater scalability and efficiency in the management of vehicles.

5.5 Discussion of Results on Research Question 4

"What challenges are encountered in adopting digital payments for B2B Fleet management in South Africa?"

5.5.1 *Factors hindering widespread adoption of digital payments*

It is clear from the results that various challenges South African organisations face when it comes to adopting digital payments.

One challenge mentioned is the cost implication associated with the implementation of new payment systems. Companies need to weigh the benefits of digital payments against the costs and make a decision that will be financially viable for them. Additionally, convenience and location factors also play a role in the adoption of digital payments. If a digital payment system is not easily accessible or available at convenient locations, it may deter companies from using it. This is especially true for newer digital payment solutions like RFID tags with a limited retail footprint.

However, one of the most significant concerns highlighted by the participants is the issue of fraud management. It is crucial for businesses to have secure payment methods in place to avoid fraudulent activities. This highlights the importance of adopting digital payment methods as they offer better security and fraud management tools than traditional payment methods.

The results of the study by Setor et al. (2021) find that digital payments are a feasible tool to reduce corruption and fraud in developing countries. This comes with a necessity for developing countries and businesses to make the appropriate investment in ensuring, firstly, the infrastructure to support digital payments is available and that the necessary adoption of digital payments takes place by businesses.

Credit access is another factor hindering widespread adoption, particularly for SMMEs. A more inclusive credit process would allow for greater digital fleet payment methods adoption. As it stands, SMMEs which make up the vast majority of formal and informal businesses in South Africa, can't gain access to fleet cards for management and control as they do not qualify. Finding a solution to the credit qualification problem would greatly assist in increasing the adoption of digital fleet payments.

Finally, some business leaders have a perception that the culture and level of truck drivers or asset managers may not be adequate to adopt digital payment methods. This perception indicates a need for education and training to ensure all stakeholders have the necessary skills and knowledge to adopt and use new payment systems effectively.

Various challenges are associated with adopting digital payment methods in South African organisations. However, with education, training, and the right incentives in place, businesses can overcome these challenges and reap the benefits of more efficient and secure payment systems.

5.5.2 *South Africa vs the World in digital fleet payment adoption*

The results suggest that there are significant differences in digital payment adoption between South Africa and other parts of the world, particularly in Europe and North America. Adhikary et al. (2021) claim that emerging nations, particularly Russia and India, are where most digital payment technologies increase. Additionally, they emphasise that these technologies will enter new emerging markets at 19.6% annually, three times the rate of established markets. The findings, however, could not identify that this rate of increase was being achieved in the context of digital fleet payments for businesses. In fact, participants noted that the market was relatively stagnant and had not grown much.

That being, South Africa can be considered a mature market for digital fleet payments. It may not have cross-border capabilities like European digital fleet payments, but it is more advanced than other African countries where digital fleet payments are not used at all.

The participants highlighted that digital payment is critical for South Africa to manage fraud and expenses conveniently. The convenience factor is especially important in the South African environment, where many manual and cash solutions are still used. In contrast, Europe and the USA make less use of cash and manual solutions and predominantly use fleet card solutions.

Interestingly, the Australian market is like South Africa, with banks driving the market with bank-type solutions. However, the primary goal of transport companies in

Australia is not to manage and prevent fraud, unlike in South Africa. The findings reflect that South Africa has made significant strides in digital payment adoption, but there is still room for improvement, particularly in the cross-border area.

5.5.3 *PASA and the Reserve Banks' Role in the Adoption of digital fleet payments*

The discussion on the role of PASA and the Reserve Bank in the adoption of digital fleet payments in South Africa is quite interesting. It appears that both entities play a critical role in ensuring the smooth and consistent adoption of digital payment systems. PASA's approach of synchronising and harmonising the payment system participants allows for effective payments without glitches. This is a key factor in ensuring the country's smooth adoption of digital payments. The research conducted by Ferrari (2022) highlights the dangers of policymakers choosing digital payment technologies portrayed as desirable and chosen based on industry interests and trends without due consideration for the evaluation of benefits and risks that emanate from the technologies. The recent PASA introduction of a four-party EMV model for the B2B Fleet payments industry demonstrates that they have focused not just on industry trends but also paid due consideration to evaluate the benefits and risks of digital payment technology.

The role played by critical stakeholders is very important, as their involvement helps to ensure that the system is working well. However, regulation can be cumbersome, making it challenging for banks to comply effectively. The banks are heavily governed and regulated, which can be a hindrance. The red tape and time-consuming approval processes can deter companies from pursuing digital payment solutions. Nevertheless, there are still opportunities to leverage the system, especially for FinTech companies from a bank point of view. These companies can implement solutions quickly and efficiently, thereby taking advantage of the opportunities presented by digital fleet payments.

It is interesting to note that some participants are not fans of regulation. They try to work around compliance requirements in their products, but this is not always possible. Some argue that if regulation were adjusted, certain solutions would have been a massive success already. It seems that while regulation can be a hindrance, it is not

necessarily the most significant factor affecting the adoption of digital fleet payments in South Africa.

The Payments Association of South Africa (PASA) and the South African Reserve Bank play important roles in the adoption of digital fleet payments in South Africa. While regulation can be a hindrance to progress, there are still opportunities to leverage the system and implement solutions quickly and efficiently, especially for FinTech companies from a bank point of view.

5.6 Conclusion

This research study has shed light on various aspects of digital payments in B2B vehicle fleet management in the South African context. It has explored the current state of digital payments, the benefits and challenges associated with their adoption, their impact on fleet management efficiency and cost-effectiveness, and the factors hindering their widespread use. Additionally, it has discussed the role of key stakeholders like PASA and the South African Reserve Bank in this ecosystem. The state of digital payments in B2B fleet management in South Africa appears to be undergoing a transformation. While traditional magstripe fleet cards have been the primary payment method, newer and more secure solutions like EMV fleet payments, RFID payments, and contactless options are emerging. This shift is driven by the need for increased security and efficiency, as well as a response to industry fraud concerns.

The benefits of adopting digital fleet payments include convenience, centralized billing, improved operational analytics for fuel and maintenance, and the potential for cost savings. However, challenges such as the outdated three-party payment model, limited cross-border usability, credit constraints for small businesses, and security concerns, particularly fraud, need to be addressed. Efficiency gains in digital payment systems have been noted, especially in real-time data availability and reporting. Moreover, cost savings have been achieved through centralized billing, better negotiation with suppliers, and improved maintenance practices. Innovations in payment technology, such as chip and pin, biometric, and mobile solutions, hold promise for the industry's future. The study also revealed that South Africa's adoption

of digital fleet payments differs from more mature markets like Europe and North America. While the South African market has advanced, particularly in terms of addressing fraud and improving convenience, it still faces unique challenges, such as cross-border usability. The role of PASA and the Reserve Bank in regulating and harmonizing the payment system participants was discussed. While regulation can present challenges, it is essential for ensuring smooth digital payment adoption.

The introduction of a four-party EMV model by PASA demonstrates a sensible approach to industry trends and risk evaluation. Digital fleet payments for the South African B2B fleet management have the potential to enhance efficiency, reduce costs, and improve security. However, addressing challenges related to security, regulation, and cross-border usability will be crucial for their widespread adoption and continued growth in the future. This research provides valuable insights for policymakers, business leaders, and stakeholders in the transportation industry to navigate and improve the digital fleet payment landscape in South Africa.

By introducing this four-party EMV model, PASA shows that it has considered market developments and risk assessment from all angles. The B2B fleet management in South Africa could benefit from digital fleet payments by increasing productivity, cutting expenses, and enhancing security. In order for them to be widely used and to continue growing in the future, it will be essential to overcome issues with security, legislation, and cross-border usability. Policymakers, business executives, and other stakeholders in the transportation sector can use this research's insightful recommendations to better understand and navigate the South African market for digital fleet payments.

CHAPTER 6. CONCLUSION

6.1 Introduction

The empirical data provided insights into the South African perspective on digital payments on the B2B vehicle fleet expenses. The current state of digital payment in B2B fleet management in South Africa, as stated by the participants, was that the fleet market predominantly matched the three-party payment solution where there is an issuer of the plastic, which is traditionally a bank, the merchant who is rendering the service (fuel, toll, or maintenance) and the customer, the third party. The main benefits are giving the business convenience of not handing out a lot of cash to their drivers and, because fleet cards are limited and were only accepted at merchants that provide vehicle-related services, also protection from misuse. Additionally, benefits of digital payments fleet management include the efficiency of digital payment and comparatively better than traditional payment, the cost-effectiveness of digital payments adoption and Innovative improvement of the payment system.

Concerning adopting digital payment methods among businesses in South Africa, most participants felt that there was not a wide adoption rate for fleet management. One of the main issues that are also affecting the adoption is the security concerns for digital fleet management systems affected adoption of these systems was fraud and fuel theft, especially in the long-haul freight market, and this was because compared to other countries, the fleet card industry in South Africa was behind in terms of security features. The absence of digital payment impedes the effective management of vehicle fleets; businesses suffer due to the absence of digital payments, and scalability and growth potential is suppressed.

6.2 Conclusion

In conclusion, this study aims to give light on the condition of digital fleet payments in South Africa. It reveals important insights that are crucial for local businesses. Serious security problems are raised by South Africa's predominate dependence on antiquated magstripe fleet cards. The survey highlights the pressing need to switch to safer payment methods like EMV fleet cards and contactless transactions, which is being

driven by competition from fintech firms and the growing problem of fraud. Digital payments have indisputable advantages, such as convenience, less financial mismanagement, and simplified billing. They do have certain difficulties, though. Older payment methods and reduced cross-border capabilities present challenges, especially for small enterprises with credit restrictions. Digital payments are known for their efficiency improvements, which do away with the requirement for cash handling and provides real time data

However, there is still untapped potential for even higher efficiency thanks to technology like EMV and mobile payments. Widespread use of digital payments is hindered significantly by security issues including fraud and fuel theft. For the future of digital payments to be secure, these issues must be addressed. Digital payments are essential for growing B2B fleet management operations because they provide for scalability, interoperability, and consistency in cross-border transactions.

The paper acknowledges the crucial responsibilities PASA and the Reserve Bank played in coordinating payment systems. However, regulatory complications can make it difficult for banks to successfully comply, so they should be carefully considered. South Africa is regarded as a developed market for digital fleet payments, although compared to Europe and the US, it lags behind and relies more on fleet card solutions.

With an emphasis on security, effectiveness, and regional context, the study highlights the value of digital payments in South African B2B fleet management. The urgency of addressing security issues, embracing new technology, and developing strategies that are tailored to the unique requirements of the South African market is stressed by this study's conclusion. To create a secure, effective, and contextually appropriate digital payment landscape, it asks companies and industry players to critically evaluate these findings.

6.3 Recommendations

The research study also identifies potential solutions to address these challenges, including improved security measures, better solutions for SMEs, and technological advancements. Furthermore, the study suggests that there is still room for innovation and improvement in digital fleet management systems, particularly in the cross-border area.

In addition, the adoption of digital payments is critical for the growth and success of B2B fleet management, particularly when expanding cross-border. The involvement of critical stakeholders, including PASA and the Reserve Bank, is essential in ensuring the smooth adoption of digital payment systems. Policymakers, business leaders, and stakeholders in the transportation industry should collaborate to improve the digital fleet payment solutions in South Africa.

Digital fleet payment solutions have the potential to revolutionize the transportation industry in South Africa. By addressing the challenges and leveraging the opportunities, businesses can improve their fleet management processes, reduce costs, and stay competitive in an ever-changing market.

Further studies could also adopt a mixed methods approach to obtain a more holistic view of the phenomenon.

6.4 Limitations of the study

The study has some limitations, specifically:

The survey did not provide a first-hand business viewpoint on adopting digital fleet payments because the participants were industry experts, CEOs of fintech companies, and executives of banking institutions that offer such solutions.

Another drawback is that the study's generalisability is limited because it is an exploratory qualitative study that concentrates on a small number of interviews (Queiros et al., 2017).

6.5 Areas for Future Study

The research study provides insight into an unresearched part of digital payments and fleet management:

1. Exploring the impact of new payment solutions: As highlighted in the study, the move towards chip and pin, cardless payment solutions, and mobile payment solutions could potentially revolutionise the fleet management industry. However, there is a need for further research to fully understand the impact of these solutions on the industry. Future research could investigate the potential benefits and challenges associated with these payment solutions, such as their impact on security, cost savings, and user adoption.
2. Addressing barriers to SMME adoption: The study highlighted that limited education, services, credit constraints, and reliance on credit providers were significant barriers to the adoption of digital fleet management solutions by businesses, particularly SMMEs. Future research should explore ways to address these barriers, such as developing education and training programs, providing affordable credit facilities, and improving access to services. Another limitation of the study was that the sample of participants was predominantly focused on industry experts in the field. Future research could delve into the perspective of the client's view and determine their experience.
3. Investigating the impact of digital fleet payments on the environment: The study highlighted the potential benefits of digital fleet payments solutions in terms of cost savings and efficiency. Future research could explore the potential benefits of using electric or hybrid vehicles and the impact of fleet payment solutions on the adoption of these vehicles.
4. The models TAM And UTAUT were not used in this research, future research could specifically explore and delve deeper into this area using these models.

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APPENDIX A – PARTICIPANT INFORMATION SHEET

University of the Witwatersrand

Faculty of Commerce, Law and Management

Wits Business School

Date: 30th of June 2022

Participant Information Sheet

Dear Participant,

My name is Justin Thomas, and I am enrolled as a Master's student at the Wits Business School. As part of the requirements for my degree, I need to submit a research report on a chosen topic.

This research topic is an exploratory study on digital payments on B2B vehicle fleet expenses: A South African perspective. The purpose of the study is to better understand digital payments in the context of fleet management initiatives and whether there is any contribution to business performance.

This is a formal request to invite you to participate in the research. To participate, you will be required to participate in a semi-structured face-to-face interview. The interview will be about 60min in length. The interviews will be recorded with an audio recording device. The transcription and audio recordings will be kept in password-protected files on a computer that only the researcher will have access to. Besides the researcher, the only other person who will have access to the records is my supervisor, Dr Erasmus Appiah, from the University of the Witwatersrand. Direct quotes may be used in the final report but will not be personally identifiable. All data will be kept for a maximum of 2 years. After this time, all data will be destroyed or deleted.

All information will be kept strictly confidential. In the final and preceding reports, your anonymity will be protected by using a pseudonym such as Participant A, B etc. Also, the identity of all peripheral persons mentioned by you will be kept unidentified through the use of pseudonyms.

Research participation is completely voluntary, and you are free to withdraw at any stage prior to submission/publication for any reason. You are also free to abstain from answering any question in the interview that makes you feel uncomfortable. There will be no reward or sanction as a result of participation in this research.

If you have any questions, please contact me via email at jnthomas007@gmail.com or on my cellphone at 074 182 6683, or you can contact my supervisor Dr Erasmus Appiah XXXXX

If you choose to participate in the research, please kindly complete the consent form attached to this document.

Regards

Justin Thomas

APPENDIX B – PARTICIPANT CONSENT LETTER

I am conducting research on a study assessing digital payments on B2B vehicle fleet expenses. To that end, you will be asked to participate in an interview to better understand the adoption and contribution of digital payments in the context of fleet management.

The interview should take no more than an hour of your time and would involve discussing your understanding and knowledge of the current fleet payment methods and whether that positively supports your business performance.

Please note that your participation in this interview is voluntary, and you can withdraw at any time without penalty. All data would be kept confidential. Neither your identity of yourself nor your company will be recorded.

Please contact my research supervisor, Dr Erasmus Appiah, or myself if you have any concerns. Our details are provided below.

Researcher Name: Justin Thomas
Email: 2410583@students.wits.ac.za or jnthomas007@gmail.com
Phone: 074 182 6683

Research Supervisor Name: Doctor Erasmus Appiah
Email:
Phone:

Signature of Participant: _____

Date: _____

Signature of Researcher: _____

APPENDIX C – RESEARCH INSTRUMENT

INTERVIEW GUIDE

Standard Participant Questions

1. Please state your role at the company.

2. What is your job level in the organisation?

3. How many years have you worked in the organisation?

4. What is the division and functional area that you work in?

What is the state of digital payments in B2B fleet management in South Africa?

1. Can you describe the current landscape of digital payment options for fleet management in South Africa?
2. How widely adopted are digital payment methods for fleet management among businesses in South Africa?
3. What are some of the benefits and challenges of using digital payments for fleet management in South Africa?
4. How do security concerns impact the adoption of digital payments for fleet management in South Africa?
5. What are some of the trends and innovations in digital payments for fleet management in South Africa?
6. What potential for growth in digital payments for fleet management do you see in South Africa in the future?

How do digital payments enhance B2B fleet management in South Africa?

1. How has the adoption of digital payments impacted the efficiency and cost-effectiveness of fleet management for companies in South Africa?
2. Can you provide examples of specific features or capabilities of digital payment systems that have been particularly beneficial for companies in South Africa?

3. How does the use of digital payments for fleet management in South Africa compare to traditional payment methods?
4. Are there any specific case studies or examples of companies in South Africa that have seen significant improvements in their fleet as a result of implementing digital payments?
5. What are some of the potential future use cases for digital fleet payments in South Africa?

How does the absence of digital payments impede the performance of B2B fleet management in South Africa?

1. Can you describe the challenges that businesses in South Africa face in managing their vehicle fleets without digital payments?
2. Are there any specific case studies or examples of businesses in South Africa that have suffered from the absence of digital payments in managing their vehicle fleet?
3. How does the absence of digital payments impact the scalability and growth potential of businesses in South Africa in managing their vehicle fleet?

What challenges are encountered in adopting digital payments for B2B Fleet management in South Africa?

1. Can you describe the challenges that businesses in South Africa face when adopting digital payments for their vehicle fleets?
2. What factors have hindered the widespread adoption of digital payments for fleet management among businesses in South Africa?
3. How do businesses in South Africa compare with those in other countries in terms of their adoption and use of digital payments for fleet management?
4. How do regulations and government policies affect the use of digital payments for fleet management in South Africa? Would you consider PASA a progressive regulator?

APPENDIX D – ETHICS APPROVAL

Graduate School of Business Administration
University of the Witwatersrand, Johannesburg

Wits Business School Ethics Committee
Constituted under the University Human Research Ethics Committee (Non-Medical)

Ethics Clearance Certificate

Ethics protocol number: WBS/DB2410583/133
This certificate is only valid with a legitimate ethics protocol number and signed by the Researcher (below).

Project title	An exploratory study on digital payments on B2B vehicle fleet expenses: A South African perspective
Investigator / Researcher	Mr Justin Thomas
Nature of Project	MM (Digital Business)
Decision of the Committee	Approved, provided stakeholders and participants are guaranteed confidentialty.
Issue Date of Certificate	2022-09-02
Expiry date	Date of submission of the project / research report
Chairperson	Prof Anthony Stacey ☎ +27 11 717 3587 +27 82 880 4531 anthony.stacey@wits.ac.za

Declaration by Researcher

One copy must be signed by the Researcher and returned to the Chairperson of the Wits Business School Ethics Committee.

I fully understand the conditions under which I am authorized to carry out the abovementioned research and I guarantee to ensure compliance with these conditions. Should any departure to be contemplated from the research procedure as approved I undertake to resubmit the protocol to the Committee.

Signature

6th of September 2022
Date:

APPENDIX E – LIST OF CODES

Code

○ Acess for SMEs to fleet management

○ Acess to credit

○ Acess to real-time analytics.

○ Additional costs to fleet management

○ Administrative efficiency

○ Adoption overview of digital payments in businesses

B2B fleet management in South Africa

○ Bank Apps

○ Banks and non- banks.

○ Banks role in fraud percerption

○ Benefits of using digital payments

○ Business Culture

○ Business culture and location

○ Businesses suffered due to the absence of digital payments.

○ Cases for digital fleet payments in South Africa.

○ Cash alternative

○ Centralisation of systems.

○ Challenges in adopting digital payments in South African organisations.

○ Challenges in B2B fleet management.

○ Challenges in tracking

○ Challenges of digital payments

- Combating Fraud
- Comparing traditional payment.
- Concerns impacting digital payments fleet management in South Africa.
- Cons of using digital payment for fleet management in South Africa
- Corruption
- Cost effectiveness of digital payments adoption.
- cost implications
- Cross border scaling
- CRT Market
- Current digital payment option landscape in South Africa
- Current innovations in digital payments
- Current level of adoption
- Current trends in digital payments
- Customer preferences on fleet management.
- Decreasing Card misuse
- development of Fintech companies
- Efficiency of digital payment
- eliminating cash
- EMV payments
- European business practice
- Factors hindering wide – spread adoption of digital payments.
- Fleet Card cloning
- Fleet card usage
- Fleet management in South Africa.

- Four - party digital model
- Fraud
- Fuel theft
- Garage cards introduction into market
- Growth potential in digital payments in South Africa
- Impact of digital payment absence
- Improtance of monitoring driver behaivior
- Improtatnce of company convinience
- Inablility to track finances
- Increase payment options
- Increased effieceincy in maintenece of vehicles
- Innovative improvement of payment system
- Interoperabilty of solutions.
- Lack or need of Fleet management education.
- Level for South African adoption.
- Limited services provided by fleet management
- limiting experiences to vehicles
- Loophole in fleet management
- Managing vehicle fleets without digital payments
- mobile payment solutions
- Nexus specification
- Old technology vs New technology
- Organisation size
- Payment models

Performance of B2B fleet management

- Potential future use .
- Pro's of using digital payment for fleet management in South Africa
- PSA role in adoption of didgital payments.
- Regulation of Banks
- regulation of Fintech companies
- regulation of products (Oil)
- RFID tags
- Role of digital payments in B2B fleet management.
- Role of S.A economy in adoption
- Security as an hinderance to adoption
- Security concerns
- Security concerns impacting the adoption of digital payments
- Stakeholder role in adoption
- Suppressed growth potential
- Suppressed scalability
- Synchronisation and systems approach.
- Tag technology
- Technological advancements
- The adoption of digital payments in South Africa
- The Benefits of digital payments fleet management for organisations in South Africa.
- The evolution of the fleet card
- The future prospects for digital payments for fleet management in South Africa.
- The government’s role in adoption of digital payments.

- The state of digital payments
- The world digital adoption level
- Three party payment model
- Traceability and validation