



## EVALUATION OF URBAN TRANSPORT ENTERPRISES: SMALL AND MEDIUM-SIZED ENTERPRISES IN THE CITY OF KINSHASA PROVINCE

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**Abstract:** This item assesses the challenges faced by small and medium-sized enterprises in the urban transport sector in Kinshasa through a survey. The methodology is based on a questionnaire survey of 293 urban transport actors. The analysis is both qualitative and quantitative, with descriptive statistics and bivariate tests. The results show that the main challenges are non-compliance with safety standards cited by 44% of respondents, lack of funding for 26.3% and unfair competition for 23.2%. These challenges have a moderate impact on. The majority of companies implement services improvement strategies and consider their services to be satisfactory to customers. However, 54.3% estimated a lack of compliance with schedules and 28% cited insecurity issues. Small and medium-sized enterprises are mainly demanding strengthened regulation, the establishment of suitable infrastructures and easier access to funding. They consider the sector to be on average satisfactory and believe that increased collaboration would be beneficial. These results highlight the major challenges facing urban transport SMEs and the actions to be taken to strengthen their sustainability.

**Mots-clés:** Urban Transport (R41), Small and Medium Enterprises (L26), City of Kinshasa (R12)

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### 1. Introduction

#### 1.1. Context of the study

The urban transport sector in the city of Kinshasa in the Democratic Republic of the Congo (DRC) is a sector of a capital importance for the local economy. It plays an essential role in the mobility of persons and goods, as well as in the economic development of the city. However, this sector is facing many major challenges that threaten their viability and sustainability such as road congestion, the widespread infrastructure, the safety of passengers, the quality of services and the profitability of companies operating in this field (OCDE, 2019).

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It is therefore crucial to evaluate enterprises in the urban transport sector, small and medium-sized enterprises (SMEs), in order to understand the specific challenges they face. This evaluation will help to better understand the challenges facing these companies, but also to identify development opportunities and best practices to strengthen this vital sector for the city of Kinshasa (**Smith et al., 2018**).

The economic and social context of the province city of Kinshasa makes this assessment relevant. Indeed, rapid population growth, accelerated urbanization and lack of adequate infrastructure contribute to a growing demand for urban transport. SMEs operating in this sector are therefore facing major challenges in meeting this demand while ensuring the profitability of their operations. Furthermore, the evaluation of enterprises in the urban transport sector in Kinshasa will also provide a better understanding of the economic and social dynamics affecting this sector. It will include an analysis of the impact of public policies, existing regulations and private initiatives on the development and performance of urban transport companies (**PNUD, 2017**).

With regard to unfair competition, an investigation conducted by the Transport Regulatory Authority in the DRC reveals the existence of a large number of informal enterprises operating in the sector that do not comply with the regulations, thereby creating unequal competition for formal enterprises (**Transport Regulation Authority, DRC, 2020**).

Studies conducted by the Central Bank of the Congo have identified lack of access to financing as a major problem for SMEs in the DRC, including those in the urban transport sector (**Banque centrale du Congo, 2019**).

Finally, this study will help to address the lack of empirical data on SMEs in the urban transport sector in Kinshasa. Indeed, few studies have been carried out on this subject, which makes this evaluation all the more relevant in order to better understand the specific challenges facing these companies.

### **1.1. PROBLEMATIC**

The assessment of enterprises in the urban transport sector, small and medium-sized enterprises (SMEs), in the province city of Kinshasa, is an important issue that deserves special attention. Indeed, the urban transport sector in African cities is often faced with many challenges related to management, regulation, competition and the quality of services offered. In the specific case of Kinshasa, the situation is even more complex due to rapid population growth, rampant urbanization and insufficient transport infrastructure.

According to a **2018** study by **Mwamba et al.** on the transport sector in the Democratic Republic of the Congo, SMEs in the urban transport sector face major challenges such as unfair competition, lack of funding, old-fashioned infrastructure, corruption and non-compliance with safety

standards. These challenges have a direct impact on the viability and sustainability of urban transport companies, especially SMEs, which are often more vulnerable. In addition, a research conducted by **Tshibangu et al. (2019)** on the challenges of SMEs in the transport sector in the DRC highlighted the lack of adequate infrastructure, the high cost of spare parts, unfair competition from informal operators and lack of government support as the main obstacles to the growth and development of urban transport companies.

In addition, the quality of services offered by urban transport companies is also a matter of concern. A study by **Mukendi et al. (2020)** on the quality of transport services in the DRC found that SMEs in the urban transport sector often face problems such as non-compliance with schedules, overload of vehicles, insecurity and lack of maintenance of vehicles.

In short, the evaluation of urban transport enterprises, SMEs, in the city of Kinshasa, is a complex issue that requires a holistic approach taking into account the challenges of management, regulation, competition, quality of services and government support. It is important to undertake in-depth studies to better understand the challenges and propose appropriate solutions to improve the sustainability and sustainability of urban transport companies.

As a result, the following questions were raised in this work: “What are the major challenges facing small and medium-sized enterprises in the urban transport sector in the city of Kinshasa Province in the Democratic Republic of the Congo? Specifically, two specific questions were asked: (i) What are the main obstacles to the growth and development of SMEs in the urban transport sector in Kinshasa? and (ii) What are the specific problems related to the quality of services offered by urban transport companies in Kinshasa?”

The present study follows a main (HP) assumption: “Kinshasa urban transport SMEs face major challenges that jeopardize their sustainability and sustainability” and two specific (HS) hypotheses, namely: (i) Kinshasa Urban Transport SMEs are facing unfair competition, lack of funding and non-compliance with safety standards that impede their growth; (ii) City transport companies in Kinshasa face quality-related problems such as timetable failure and insecurity, road code failure, affecting their reputation and attractiveness to customers.

In addition to the introduction and conclusion, the present study is subdivided into two major sections, the first of which will discuss the methodology of the survey and the second on the presentation of the results.

## **2. METHODOLOGY OF THE STUDY**

The methodology of this work takes into account several aspects that may allow us to best analyse the subject under study. We will therefore present points such as: Methodological elements, Sampling and population, data analysis techniques and methods, Data collection and analysis tools. For this study, a mixed approach will be adopted, combining both qualitative and quantitative analysis methods.

## **2.1. Methodological elements**

The urban transport sector is an essential element of economic activity in the province city of Kinshasa. Small and medium-sized enterprises (SMEs) play a crucial role in this sector, providing a range of public transport, taxi, freight transport and vehicle rental services. This study aims to assess the performance, challenges and needs of SMEs operating in the urban transport sector in Kinshasa. The methodological elements presented below describe the approach to this objective. To complete this study, a mixed approach will be used, combining both qualitative and quantitative methods. Qualitative research will provide detailed information on the experiences, challenges and prospects of drivers in this sector, while quantitative research provides quantified data on the economic and operational performance of their operations.

Initially, semi-structured interviews will be conducted with individuals engaged in the urban transport sector in Kinshasa to identify the major challenges facing them.

### **2.1.1. Sampling and population**

#### **2.1.1.1. Sampling**

In this work, we will use the snowball sampling method. Snowball sampling is a technique used to recruit participants to a study or survey when the target population is difficult to reach or when members of that population are informally interconnected. This method is often used in qualitative studies, studies of marginal or difficult to reach populations, or when the population of interest is little known or poorly documented.

The snowball sampling method is based on the initial recruitment of participants who meet the criteria of the study, followed by the request of those participants to recommend other people who also meet the study criteria. This process is then repeated with new recommended participants, thus creating a "snowball" of participants recruited by recommendation.

Here is a detailed description of the snowball sampling method:

- **Initial participant selection:** The process begins with the selection of an initial participant that meets the criteria for the study. This participant may be identified by the researcher, through personal or professional contacts, or by other appropriate means.

- Initial recruitment: Once the initial participant is selected, he or she is invited to participate in the study. It can be contacted directly by the researcher or through personal or professional contacts. The researcher then explains to the participant the objectives of the study and the criteria for participation.
- Requesting recommendations: After agreeing to participate in the study, the initial participant is then asked to recommend other people who may also meet the criteria of the study. These recommendations can come from your personal, professional or community network.
- Recruitment of new participants: The persons recommended by the initial participant are contacted either by the researcher or through the original participant. They are then invited to participate in the study and, in turn, to recommend other potentially eligible persons.
- Repeat process: This process is repeated with each new participant recruited, thus creating a "snowball" of successive recommendations and recruitments.

The snowball sampling method is a useful approach to recruiting participants in contexts where traditional sample methods are difficult to apply. However, it is important for researchers to be aware of the potential limitations and biases associated with this method, and to take them into account when interpreting the results. The choice of this method is justified in the sense that the population under study is a less stable population, rather it is very mobile that it is difficult to interview them for a time to determine.

#### **2.1.1.2. Populations**

With regard to the population under study, we will be interested in drivers of motor vehicles (Motorcycle or Vehicle) and/or owners or managers of SMEs carrying out their activities in the field of transport.

#### **2.1.2. Data analysis techniques and methods**

In this study, we will present both quantitative and qualitative methods of analysis. We will address univariate and bivariate descriptive analyses as well as Principal Component Analysis to enable us to analyze our subject properly.

##### **2.1.2.1. Univariate analysis**

Univariate analysis is a statistical method that examines and describes the characteristics of a single variable at a time. It aims to extract information and gain an in-depth understanding of a specific variable in a data set.

Univariate analysis is often the first step in data analysis, as it helps to understand the fundamental characteristics of a variable and to detect possible anomalies or trends. However, it does not take into account relationships between variables, which may require the use of other methods of multivariate analysis.

#### 2.1.2.2. Bivariate analysis

The bivariate analysis is a statistical method that studies the relationship between two variables at the same time. Unlike univariate analysis, which focuses on one variable at a time, bivariate analysis examines how two variables interact and behave together.

This analysis can be performed in different ways depending on the nature of the variables studied. Below are some of the techniques commonly used in bivariate analysis:

- **Correlation:** A correlation is a statistical measure that indicates the strength and direction of the linear relationship between two quantitative variables. Pearson's correlation coefficient is often used to measure this relationship, where a value close to +1 indicates a perfect positive correlation, a value near -1 indicate a perfect negative correlations, and a value closer to 0 indicates an absence of correlations.
- **Linear Regression:** Linear regression is used to model the relationship between a continuous dependent variable and an independent variable. It allows to predict the value of the dependent variable based on the independent variable using a linear equation. Linear regression can be used to describe and predict the relationship between the two variables.
- **Cross Table:** A cross table is used to analyze the relationship between two categorical variables. It displays the frequencies or proportions of the cross-categories of the two variables, allowing to identify associations between them.
- **Statistical tests:** Different statistical tests can be used to assess the significance of the relationship between two variables. For example, the chi-square test is commonly used to evaluate the independence between two categorical variables, while the variance analysis (ANOVA) can be used to compare the averages of groups of continuous variables.

The bivariate analysis helps to understand how two variables are linked and how they evolve together. It is useful to explore relationships between variables, detect significant associations, and identify trends or patterns. However, it should be noted that bivariate analysis does not determine causality between variables, as other factors may be at stake.

#### 2.1.2.3. Data collection and analysis tools

As a data collection tool, we will use Google forms where we will implement our questionnaire. As for data analysis, we will use the software SPSS or Stata to produce our results on the one hand and Ms Excel to formatting our statistical distributions.

### 3. LITERATURE REVIEW

This part is filled with two essential points, including the theoretical literature review and the empirical literary review. The first explains the theories relating to the subject under study and the second highlights empirical studies conducted by certain authors.

#### 3.1. Review of theoretical literature

Here, we will present the currents of the thoughts that have already spoken about the subject under study in order to understand what they think about it.

In his book "Finance d'entreprise", **Michel Levasseur (1979)** supports the theory of the financial evaluation of urban transport enterprises highlighting the importance of financial assessment of enterprises in the urban transport sector. It highlights the impact of operating costs, asset management and investment on the financial performance of these companies. The financial assessment of urban transport companies is a valuable tool for understanding and improving the profitability of these companies.

Moreover, another theory is that supported by **Anne Aguilera (2003)**. In her article "Urban mobility and business performance", Anne Aguilera addresses the impact of urban mobility on the evaluation of enterprises in the urban transport sector. It highlights the importance of taking into account mobility trends and technological developments in the evaluation of these companies. Urban mobility refers to a person's ability to move within a city, and traffic congestion is one of the key challenges of urban mobility (**Gouvernement du Canada, 2021**).

Urban transport companies must therefore take these challenges into account in evaluating their economic performance and adapting to technological developments in order to remain competitive. Therefore, the performance analysis of companies in this sector must integrate these aspects of urban mobility and emerging trends for a more comprehensive and relevant assessment. Turcotte (2005), in his book "*Corporate Social and Environmental Responsibility*", supports in the third place the theory of "social and environmental assessment of urban transport enterprises" where he emphasizes the need to integrate social and ecological dimensions in the evaluation of enterprises in the urban transport sector. It highlights the need to assess the impact of the activities of these companies on the quality of urban life and the environment.

These different thinking currents offer a comprehensive perspective on issues related to the evaluation of enterprises in the urban transport sector, taking into account both financial aspects, urban mobility and social and environmental dimensions.

#### 3.2. Review of empirical literature

Empirically, a recent study by **Smith et al. (2021)** provided strong support for the theory of financial valuation of urban transport companies. By examining the financial data of several urban

transport companies in different cities, the researchers analyzed their financial performance using financial valuation models. The results of the study showed that urban transport companies that implemented effective pricing strategies and invested in innovative technologies achieved better financial results. Furthermore, the study found that urban transport companies that implemented effective management policies and optimized their operating costs also better financial performance.

These empirical findings support the theory that the financial valuation of urban transport companies is strongly influenced by their ability to implement effective strategies, invest in innovative technologies and optimize their operating costs. They stressed the importance for these companies to adopt sound financial practices and implement effective strategies to ensure their long-term financial success.

A recent study by Garcia et al. (2020) empirically examined the theory of urban mobility on the financial assessment of urban transport companies. By analyzing data from several companies in different cities, the researchers found that companies operating in cities with more advanced mobility infrastructures had better financial performance. Furthermore, the study showed that companies that succeeded in adapting to changes in urban travel habits also achieved positive financial results. **Wang et al. (2019)** in their research have provided additional support to this theory. The researchers studied the impact of sustainable mobility policies on the financial evaluation of urban transport companies. Their results showed that companies that have implemented sustainable mobility initiatives, such as carpooling, electric vehicles and shared transport solutions, have seen their profitability increase.

Finally, a study by **Chen et al. (2018)** examined the impact of urban congestion on the financial performance of urban transport companies. The researchers found that companies that have succeeded in mitigating the effects of congestion through effective management strategies and investments in cutting-edge technologies have recorded significant financial growth.

These empirical studies emphasize the importance of urban mobility in the financial assessment of urban transport companies and highlight the positive impact of adapting to changes in travel habits, sustainable mobility policies and congestion management on the profitability of these companies.

*The social and environmental assessment theory of urban transport companies* suggests that urban transport enterprises should be assessed not only on their financial performance, but also on their social and ambient impact. Several empirical studies have been conducted to support this theory.

A study by **Zhang et al. (2019)** examined the impact of corporate social responsibility (CSR) on the financial performance of urban transport companies in China. The results showed that



companies with strong CSR have better financial performance than those with low CSR. This suggests that urban transport companies that take into account their social and environmental impact can also improve their financial performance.

Another study by **Wang et al. (2020)** examined the impact of service quality on passenger satisfaction and financial performance of urban transport companies in China. The results showed that the quality of service has a positive impact on passenger satisfaction, which in turn positively affects the financial performance of companies. This suggests that urban transport companies that take passenger satisfaction into account can also improve their financial performance.

These empirical studies support the theory of social and environmental assessment of urban transport companies by showing that companies that take into account their social and ambient impact can also improve their financial performance.

#### 4. PRESENTATION AND ANALYSIS OF INVESTIGATION RESULTS

This study is quantitative, of a descriptive type correlational, it is to analyse the challenges and obstacles faced by SMEs in the urban transport sector in order to propose solutions to improve their viability and sustainability in the DRC, in the Province City of Kinshasa through the results of the survey conducted over the period from 11 to 22 February 2024.

Applicants eligible for the survey were interviewed using the questionnaire implemented in the KOBOTOOLBOX/Collect ODK software.

##### 4.1. Univariate analysis

###### *Module 1: Identity of the respondent*

This module includes the variables: gender, age group, marital status, municipality of residence of the respondent.

**Table n\*1: Social and demographic characteristics of the survey**

Variables	Modalities	ni	fi (%)
Sex	Male	293	100,0
	Female	0	0
Age range	18 to 24 years	59	20,1
	25 to 35 years	153	52,2
	Over 35 years	81	27,6
Marital status	Single	119	40,6
	Married	122	41,6
	Divorced	26	8,9
	Free Union	26	8,9
	Total	293	100,0

	GOMBE	1	,3
	BARUMBU	4	1,4
	KINSHASA	5	1,7
	KINTAMBO	2	,7
	LINGWALA	7	2,4
	NGALIEMA	3	1,0
	KALAMU	10	3,4
	KASA-VUBU	21	7,2
	NGIRI-NGIRI	11	3,8
	BANDALUNGWA	15	5,1
Municipality of residence	BUMBU	6	2,0
	MAKALA	13	4,4
	SELEMBAO	6	2,0
	MONT-NGAFULA	57	19,5
	LEMBA	31	10,6
	KINSENSO	4	1,4
	LIMETE	6	2,0
	MATETE	6	2,0
	NGABA	14	4,8
	NDJILI	30	10,2
	KIMBANSEKE	1	,3
		MASINA	40
	<b>Total</b>	<b>293</b>	<b>100,0</b>

**Source:** Author, by means of an inquiry

**Interpretations:**

From the table above we see that :

- All participants in the survey were male. Whether it's 100%
- With regard to age, 52.2% of participants were between 25 and 35 years old, while 20.1% were between 18 and 24 years old.
- With regard to marital status, the majority of participants, 41.6%, were married or in union, while a smaller proportion, 8.9%, were single.
- Of the respondents, 19.5% reside in the commune of Mont-Ngafula, while 0.3% live in the municipality of Gombe.

**Comment:**

Most of the participants in the survey were married men aged 25 to 35 and residing in the municipality of Mont-Ngafula.

**MODULE 2: SME PROFILE****Table n\*2: characteristics of SMEs in the transport sector**

<b>Variables</b>	<b>Modalities</b>	<b>ni</b>	<b>fi (%)</b>
Year of commencement of activities	2005-2010	7	2,4
	2011-2016	82	28,0
	2017-2022	204	69,6
Activity Duration	Less than a year	13	4,4
	1 to 3 years	54	18,4
	3 to 5 years	74	25,3
	Over 5 years	152	51,9
	Total	293	100,0
Ownership of the car	Yes	185	63,1
	No	108	36,9
	Total	293	100,0
Nature of the machine	Motorcycle	158	53,9
	Car	51	17,4
	Minibus	57	19,5
	Bus	27	9,2
	Total	293	100,0
Source of funding	Equity	104	35,5
	Bank loans	28	9,6
	Private investors	85	29,0
	Other	76	25,9
	Total	293	100,0

**Source:** Author, by means of an inquiry

**INTERPRETATION:**

The above data informs us that:

- Between 2017 and 2022, the majority of companies (69.6%) were created, compared to a much smaller proportion (2.4%) between 2005 and 2010.
- With regard to the duration of activity, 51.2% of companies have a duration more than 5 years, while only 4.4% have a period of activity less than one year.
- With regard to the ownership of a car, 63.1% of companies own a car while 36.9% do not.
- As for the type of car owned, 53.9% owned motorcycles, while 9.2% owned buses.
- With regard to the source of financing, 35.5% of companies operate on their own capital, while 9.6% depend on bank loans.

***Comment:***

The majority of companies were established between 2017 and 2022, operate on their own capital, have a lifetime of activity of more than 5 years and own automobiles, mainly motorcycles.

**MODULE 3: IDENTIFICATION OF MASSIVE DEFICITS****Table n\*3: Key challenges for SMEs in the transport sector**

<b>Variables</b>	<b>Modalities</b>	<b>ni</b>	<b>fi (%)</b>
What are the main challenges	Unfair competition	68	23,2
	Lack of funding	77	26,3
	Non-compliance with safety standards	129	44,0
	Other to be specified	19	6,5
Impact of Challenges	Very strong impact	49	16,7
	Strong Impact	80	27,3
	Moderate Impact	98	33,4
	Impact Quite moderate	55	18,8
	Low impact	11	3,8
Applying for help for the challenge	Yes	194	66,2
	No	99	33,8
	Total	293	100,0

**Source:** Author, by means of an inquiry

***INTERPRETATION:***

From the table above, we note that:

- Of the challenges faced by, 44 per cent originated from non-compliance with safety standards, while 6.5 per cent came from unknown sources.
- With regard to the impact of these challenges on, 27.3% have a moderate impact, while only 3.8% have a weak impact.
- With regard to applying for aid for these challenges, 66.2% of companies are applying for aid, while 33.8% are not.

**Comment :**

Most of the companies surveyed face challenges related to non-compliance with safety standards. These challenges have a moderate impact on, and the majority of them are seeking help to solve these problems.

**MODULE 4: EVALUATION OF THE QUALITY OF THE SERVICES OFFERED****Table n\*4. Evaluation of services**

<b>Variables</b>	<b>Modalities</b>	<b>Ni</b>	<b>fi (%)</b>
Non-compliance with schedules	Yes	159	54,3
	No	134	45,7
	Total	293	100,0
Insecurity	Yes	82	28,0
	No	211	72,0
	Total	293	100,0
Non-compliance with the traffic code	Yes	124	42,3
	No	169	57,7
	Total	293	100,0

**Source:** Author, by means of an inquiry

**INTERPRETATION:**

The table above tells us that:

- With regard to timetable compliance, the majority of respondents (54.3%) believe that companies do not comply with timetables, while a smaller proportion (45,7%) believe that they do.
- With regard to insecurity, a minority of respondents (28%) believe that companies are facing insecure issues, while the majority (72%) believe that are safe.
- With regard to compliance with the road code, a majority of respondents (57.7%) believe that companies comply with the traffic code, while a smaller proportion (42.3%) say otherwise.

**Comment:**

The majority of companies comply with working hours, are considered to be safe and follow the road code.

Table n\*4: Evaluation of services (Suite)

<b>Variables</b>	<b>Modalities</b>	<b>Ni</b>	<b>fi (%)</b>
Implementation of services improvement strategies	Yes	239	81,6
	No	54	18,4
Customer testimonials on the service	Very good	38	13,0
	Good	78	26,6
	Normal	143	48,8
	Not at all good	31	10,6
	Not good	3	1,0
Measurement of customer satisfaction by the company	Pas satisfait	13	4,4
	Pas du tout satisfait	52	17,7
	Satisfait	168	57,3
	Très satisfait	55	18,8
	Parfaitement satisfait	5	1,7
	Total	293	100,0

**Source:** Author, by means of an inquiry

### ***INTERPRETATION:***

Based on the data from the table above, we find that:

- The vast majority of companies (81.6%) implement services improvement strategies, while a smaller proportion (18.4%) do not.
- With regard to customer testimonials on the service, 48.8% of customers find the normal transportation service, while a small proportion (1%) do not find it satisfactory.
- With regard to the measurement of corporate satisfaction, 57.3% of companies feel that their customers are satisfied with their service, while a small proportion (1.7%) think that their clients are not fully satisfied.

### **Comment:**

Most companies implement strategies to improve their services, and consider their services to be satisfactory to their customers. In addition, the majority of customers find the normal transport service.

**MODULE 5: GLOBAL PERCEPTION****Table n\*5:** Assessment by transport operators

<b>Variables</b>	<b>Modalities</b>	<b>Ni</b>	<b>fi (%)</b>
Assessment of the transport sector	Very satisfying	15	5,1
	Satisfactory	69	23,5
	Medium Satisfactory	105	35,8
	Satisfactory enough	46	15,7
	Unsatisfactory	58	19,8
Advancement of activities through collaboration	Yes	219	74,7
	No	74	25,3
	Total	293	100,0
Role of the State in the transport sector	Strengthening regulation and controls	75	25,6
	Establish appropriate infrastructure (asphalted)	110	37,5
	Facilitate access to funding for companies in the sector	69	23,5
	Encourage the training and professionalization of urban transport actors	37	12,6
	Other	2	,7
	Total	293	100,0

**Source:** Author, by means of an inquiry

***INTERPRETATION:***

From the table above, we can see that:

- Among the companies surveyed, 35.8% considered the transport sector to be on average satisfactory, while 5.1% considered it to be very satisfactory.
- With regard to collaboration, 74.7% of companies believe that collaboration between different companies will promote business development, while 24.3% are of the opposite opinion.
- With regard to the role of the State, 37.5% of respondents believe that the State should establish suitable transport infrastructure, while 12.6% believe that it should encourage the training and professionalization of urban transport actors.

**Comment:**

Most of the companies surveyed found the transport sector satisfactory and thought it would be beneficial for the companies to collaborate with each other. Furthermore, they believe that the State should take responsibility for the establishment of appropriate transport infrastructure.

#### 4.2. Analysis of bivariates

Contingency analysis, also called cross analysis or contingency table analysis, is a bivariate method of analysis used to study the relationship between two categorical variables. It determines whether there is a significant association between these variables.

Contingency analysis uses a two-dimensional cross-chart, also known as a contingency table, which shows the frequencies or effectiveness of the different combinations of categories of the two variables studied. The Khi-deux test is the most commonly used statistical test to determine whether there is a significant association between variables. It compares the frequencies observed in the contingency table with the expected frequency if the two variables were independent. If the square chi test results in a significant value, this suggests that there is an association between the variables. In this test, there are two assumptions that are issued to be: the zero hypothesis (HO), according to which the two variables under consideration (the explanatory variable and the explained variable) are independent.

Contingency analysis is widely used in many fields, such as sociology, public health, marketing, etc., to study relationships between categorical variables and to perform tests of independence or significant difference between groups.

The purpose of this statistical test is to assess the likelihood that the hypothesis (null or alternative) will be accepted or rejected. For this study, we set our threshold of significance (degree of confidence) to 5%, i.e. 95% chance not to be wrong that the hypothesis (null or alternative) will be accepted or rejected. For example, if the probability associated with the quarter is less than the chosen threshold, i.e. at 0.05 or 5%, the alternative hypothesis would be accepted and the null hypotheses would not be rejected. Otherwise, the opposite will be done.

Ho: There is no relationship between variables, i.e. variables are independent.

H1: it matters a relationship between variables, i.e. the variables are dependent.

If  $P < 0.05$ , accept H1 and reject Ho

If  $P > 0.05$ , we accept Ho and reject H1.

Despite the above, we find it exciting to illustrate the mathematical formula of the khi-carré statistics ( $X^2$ ). The latter is defined as the sum of the squares of the differences between the observed and expected frequency for each category divided successively by the expected effectiveness in each category. The mathematical formula for khi-two is as follows:



$$X^2 = \sum_{i=1}^k \frac{(fi - Fi)^2}{Fi}$$

Where :

*fi* = is the observed frequency ;

*Fi* = is the theoretical frequency ;

I is the rank of the category ;

K is the number of categories ;

K-1 : is the number of degrees of freedom.

The number of tables to be analyzed as part of our study is five. Their delimitation depends on the issues that we found to be relevant in relation to our study.

#### 4.2.1. Data analysis on individual factors

**Table n\*6: Activity duration and main challenges**

Activity Duration	Key challenges				Total
			Non-compliance with safety standards	Other to be specified	
Less than a year	Unfair competition 23,1%	Lack of funding 53,8%	15,4%	7,7%	100,0%
1 to 3 years	24,1%	27,8%	42,6%	5,6%	100,0%
3 to 5 years	20,3%	27,0%	43,2%	9,5%	100,0%
Over 5 years	24,3%	23,0%	47,4%	5,3%	100,0%
Total	23,2%	26,3%	44,0%	6,5%	100,0%

**Source:** Author, by means of an inquiry

#### Chi-square test

Chi-Square Tests			
	Value	df	Asymp. Sig.(2-sided)
Pearson Chi-Square	9,114 <sup>a</sup>	9	,427
Likelihood Ratio	8,977	9	,439
<b>N of Valid Cases</b>	293		

**Source:** Author, based on survey data

The interpretation of the p-value leads (by definition) to the same result: it is greater than 0.05; hence the hypothesis H0 can be accepted at the threshold of 5 % (and indeed also at more cautious threads). Thus, we can conclude that there is no dependency, the duration of the activity does not determine the type of difficulties that an undertaking.

**Table n\*7: Challenge Impact Level and Major Challenges**

Impact Level	Key challenges				Total
	Unfair competition	Lack of funding	Non-compliance with safety standards	Other to be specified	
Very strong impact	19,1%	11,7%	12,4%	57,9%	16,7%
Strong impact	29,4%	27,3%	24,8%	36,8%	27,3%
Moderate Impact	29,4%	37,7%	38,0%		33,4%
Impact Quite moderate	19,1%	16,9%	21,7%	5,3%	18,8%
Low impact	2,9%	6,5%	3,1%		3,8%
Total	100,0%	100,0%	100,0%	100,0%	100,0%

**Source:** Author, based on survey data

#### **Chi-Square Tests**

Chi-Square Tests			
	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	36,134 <sup>a</sup>	12	,000
Likelihood Ratio	36,258	12	,000
<b>N of Valid Cases</b>	293		

**Source:** Author, based on survey data

The interpretation of the p-value leads (by definition) to the same result: it is less than 0,000 and therefore a fortiori to 0.05; hence the hypothesis H0 can well be rejected at the threshold of 5% (and in fact also at more cautious threads).s). Thus, we can conclude that there is a dependency between the level of impact of the challenge and the type of challenges encountered by enterprisesEs. The type of challenges determines its impact on the entreprise.

**Table n\*8: Application for assistance and key challenges**

Application for assistance	Key challenges				Total
	Unfair competition	Lack of funding	Non-compliance with safety standards	Other to be specified	
Yes	64,7%	68,8%	64,3%	73,7%	66,2%
No	35,3%	31,2%	35,7%	26,3%	33,8%
Total	100,0%	100,0%	100,0%	100,0%	100,0%

**Source:** Author, based on survey data

#### **Chi-Square Tests**

Chi-Square Tests			
	Value	Df	Asymp. Sig. (2-sided)
Pearson Chi-Square	,981 <sup>a</sup>	3	,806
Likelihood Ratio	1,002	3	,801
<b>N of Valid Cases</b>	293		

**Source:** Author, based on survey data

The interpretation of the p-value leads (by definition) to the same result: it is greater than 0.05; hence the hypothesis H0 can be accepted at the threshold of 5 % (and indeed also at more cautious threads).

Thus, we can conclude that there is no dependency, the request for help does not determine the type of difficulties that an undertaking.

**Table n\*9: Key Challenges & Source of Funding**

Source of funding	What are the main challenges				Total
	Unfair competition	Lack of funding	Non-compliance with safety standards	Other to be specified	
Equity	35,3%	31,2%	35,7%	52,6%	35,5%
Bank loans	10,3%	13,0%	7,0%	10,5%	9,6%
Private investors	25,0%	35,1%	29,5%	15,8%	29,0%
Other	29,4%	20,8%	27,9%	21,1%	25,9%
Total	100,0%	100,0%	100,0%	100,0%	100,0%

**Source: Author, based on survey data**

### Chi-Square Tests

Chi-Square Tests			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7,861 <sup>a</sup>	9	,000
Likelihood Ratio	7,908	9	,000
<b>N of Valid Cases</b>	293		

**Source: Author, based on survey data**

The interpretation of the p-value leads (by definition) to the same result: it is less than 0,000 and therefore a fortiori to 0.05; hence the hypothesis H0 can well be rejected at the threshold of 5% (and in fact also at more cautious threads).s).

Thus, we can conclude that there is a dependency between the level of impact of the challenge and the source of financing of the challenges encountered by enterprisesEs. The type of challenges determines its impact on the enterpriseise

**Table n\*10: Key Challenges & Starting Year**

Year of commencement of activities	Key challenges				Total
	Unfair competition	Lack of funding	Non-compliance with safety standards	Other to be specified	
2005-2010	2,9%	3,9%	1,6%		2,4%
2011-2016	32,4%	23,4%	29,5%	21,1%	28,0%
2017-2022	64,7%	72,7%	69,0%	78,9%	69,6%
Total	100,0%	100,0%	100,0%	100,0%	100,0%

**Source: Author, based on survey data**

**Chi-Square Tests**

<b>Chi-Square Tests</b>			
	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	3,714 <sup>a</sup>	6	,715
Likelihood Ratio	4,134	6	,659
<b>N of Valid Cases</b>	293		

**Source: Author, based on survey data**

The interpretation of the p-value leads (by definition) to the same result: it is greater than 0.05; hence the hypothesis H<sub>0</sub> can be accepted at the threshold of 5 % (and indeed also at more cautious threads). Thus, we can conclude that there is no dependency, The year of creation does not determine the type of difficulties that an undertaking.

**2. Conclusion**

In Kinshasa, improving mobility conditions is a major challenge due to the absence of a modern public transport system, which forces the population to use mainly walking, artisanal public transport and private motorized modes.

People and goods transport generates millions of dollars in daily turnover, providing significant growth and development potential in the sector. Moreover, investing in transport in Kinshasa is profitable as it creates jobs, stimulates economic activity and promotes economic integration between provinces.

In this study on SMEs in the urban transport sector in Kinshasa, several assumptions were formulated. The basic assumption that “small and medium-sized enterprises in the urban transport sector in Kinshasa are facing major challenges that jeopardize their sustainability and sustainability”. Statistical analyses have confirmed that urban transport companies in Kinshasa are indeed facing significant challenges such as unfair competition, lack of funding and non-compliance with safety standards.

With regard to the specific assumptions that “urban transport companies in Kinshasa are experiencing problems related to the quality of services offered, affecting their reputation and attractiveness to customers”, studies have revealed issues related to service quality, such as non-compliance with schedules, insecurity and non-conformity with the road code, which affect customer satisfaction and business competitiveness. Furthermore, 44% of respondents said that the main challenge was non-compliance with safety standards, compared with 6.5% of those who said there were other major challenges.

In conclusion, the analyses and data collected confirm the initial research assumptions, demonstrating that SMEs in the urban transport sector in Kinshasa are indeed facing significant challenges that require appropriate solutions to improve their viability and sustainability. This summary underscores the importance of understanding these challenges in proposing effective measures to strengthen this vital sector for the city of Kinshasa.

Here are more detailed recommendations to help SMEs in the urban transport sector overcome the challenges in Kinshasa:

- i. **Strengthening transport infrastructure**: Government should invest in the renovation and construction of high-quality roads to improve traffic fluidity and reduce delays. Effective public transport systems should also be established to facilitate citizens' mobility.
- ii. **Strict enforcement of regulations**: Strengthening enforcing regulations is imperative in order to combat unfair competition in the sector. Informal enterprises that fail to comply with the safety standards and regulations in force should be sanctioned, thereby guaranteeing fair competitive conditions for formal SMEs.
- iii. **Access to facilitated financing**: Governments and financial institutions should establish specific financing mechanisms tailored to the needs of SMEs in the urban transport sector. Affordable loans and investment programmes can help companies acquire new vehicles and finance their daily operations.
- iv. **Capacity-building**: Vocational training programmes should be offered to drivers, business managers and employees to improve their technical skills, road safety and business management knowledge. This will improve the operational efficiency and quality of the services provided.
- v. **Promotion of coordination and collaboration**: Governments,, civil society organizations and local communities should work closely together to solve the problems of the sector. Regular dialogue, partnerships and exchanges of experience can facilitate problem-solving and the development of sustainable solutions.

By following these recommendations, urban transport SMEs in Kinshasa will be able to face current challenges and strengthen their sustainability and long-term sustainability.

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