

**ICTs AND THE NEW PLAYERS IN THE DIGITAL ECONOMY
IN THE CITY OF YAOUNDÉ (CAMEROON): THE CASE OF THE
MAINTENANCE OF TECHNOLOGICAL AND ELECTRONIC
EQUIPMENT**

**TEHNOLOGIA INFORMAȚIEI ȘI NOII JUCĂTORI
ÎN ECONOMIA DIGITALĂ DIN ORAȘUL YAOUNDÉ (CAMERUN):
ÎNTREȚINEREA ECHIPAMENTELOR TEHNOLOGICE
ȘI ELECTRONICE**

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Abstract: Like most African countries, Cameroon benefits from the advantages of the use of Information and Communication Technologies. Faced with the emergence of the digital economy that influences all of contemporary society, there is the emergence and high consumption of computer, technological and electronic equipment by urban and rural populations in Cameroon. In Yaoundé, this situation is observed in the popularisation of the mobile phone, the creation of start-ups, multimedia centres and especially the use of computers of all kinds. This digital economy is at the origin of the emergence of new actors whose main role is the maintenance of this increasingly sophisticated technological equipment. In the city of Yaoundé, these actors work daily in centres or structures that ensure the maintenance of the said devices in case of breakdown or mishandling. This research analyses the socio-economic and spatial implications of handling these technological equipments in Yaoundé. It is based on a survey of 203 Yaoundé's technology and electronics repair workshops conducted between 2014 and 2017, as well as direct interviews with 192 customers who solicited and obtained the services of these micro-enterprises. Thus, the implantations of the micro-computer and technological maintenance companies in this city have considerable socio-economic and spatial consequences through the creation of jobs and incomes as well as the undeniable strategies of the actors both in the conquest of the market and the occupation of urban space and the territory of Yaoundé.

Key-words: *technological equipment, maintenance workshops, NICT, spatial mobility, financial constraints, socio-economic implications*

Cuvinte-cheie: *echipament tehnologic, workshop-uri de mentenanță, Institutul Național pentru Tehnologie Informației și Comunicațiilor, mobilitate spațială, dificultăți financiare, implicații socio-economice*

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I. INTRODUCTION

Today, the effects of globalization require that almost everyone be connected to a network that integrates them into all national and international technological and communication systems. Each one has a real or virtual address, an electronic box or an identifier code, can exchange with a relative or a friend geographically located hundreds or even thousands of kilometres away from their mobile phone or their computer. This reality places the contemporary man, in general, and the Cameroonian citizen, in particular, in a sort of cohabitation and symbiosis with the digital economy. Therefore, it is important and even necessary to highlight the mechanisms for the maintenance of those numerous and diverse devices that have become unavoidable in the daily life of individuals. It is in this context that the maintenance workshops of the technological and electronic equipment are mainly located in the big cities. These workshops highlight the place of new actors in this irreversible movement that is the digital economy. These are occasional or formal maintenance engineers and repairers. In Yaoundé, these actors have created centers for a range of devices ranging from mobile phones to computers of all kinds and electronic devices. They occupy a large part of the ICT-generated labour market within the urban landscape while contributing in their own way to the fight against poverty in this area. This study is an analysis of these computer and technology maintenance workshops in Yaoundé. It assesses their spatial distribution in this space in order to understand the socioeconomic implications of this phenomenon for the actors involved.

II. DATA AND METHODS

The digital economy refers to a diverse range of activities ranging from communication technology services to electronics through devices such as computers and audio and video music devices. This sector of the modern economy appeared in Cameroon in the aftermath of the economic crisis of the years 1980-1990 with the emergence of mobile telephony. To date, it is a thriving and expanding sector in all the cities and rural areas of Cameroon. In Yaoundé, it is at the origin of the opening of maintenance workshops for technological and electronic devices of all kinds. These workshops, scattered throughout the city of Yaoundé, bring out the unquestionable geographical and socio-economic realities. The present work is based on the spatial context of the city of Yaoundé as shown in Figure 1. Thus, the data relating to its implementation favours a systemic approach. The exploratory field survey made it possible to identify all the micro-computer maintenance companies located in Yaoundé, hence a typology of workshops depending on the number of people working there as well as the nature of the site location was drawn. At the end of this exploratory survey, a questionnaire was provided to 203 managers or directors of these workshops. This questionnaire focused on the day-to-day operations of this activity, the nature of the jobs created by these new players, and their strategy to conquer the market.

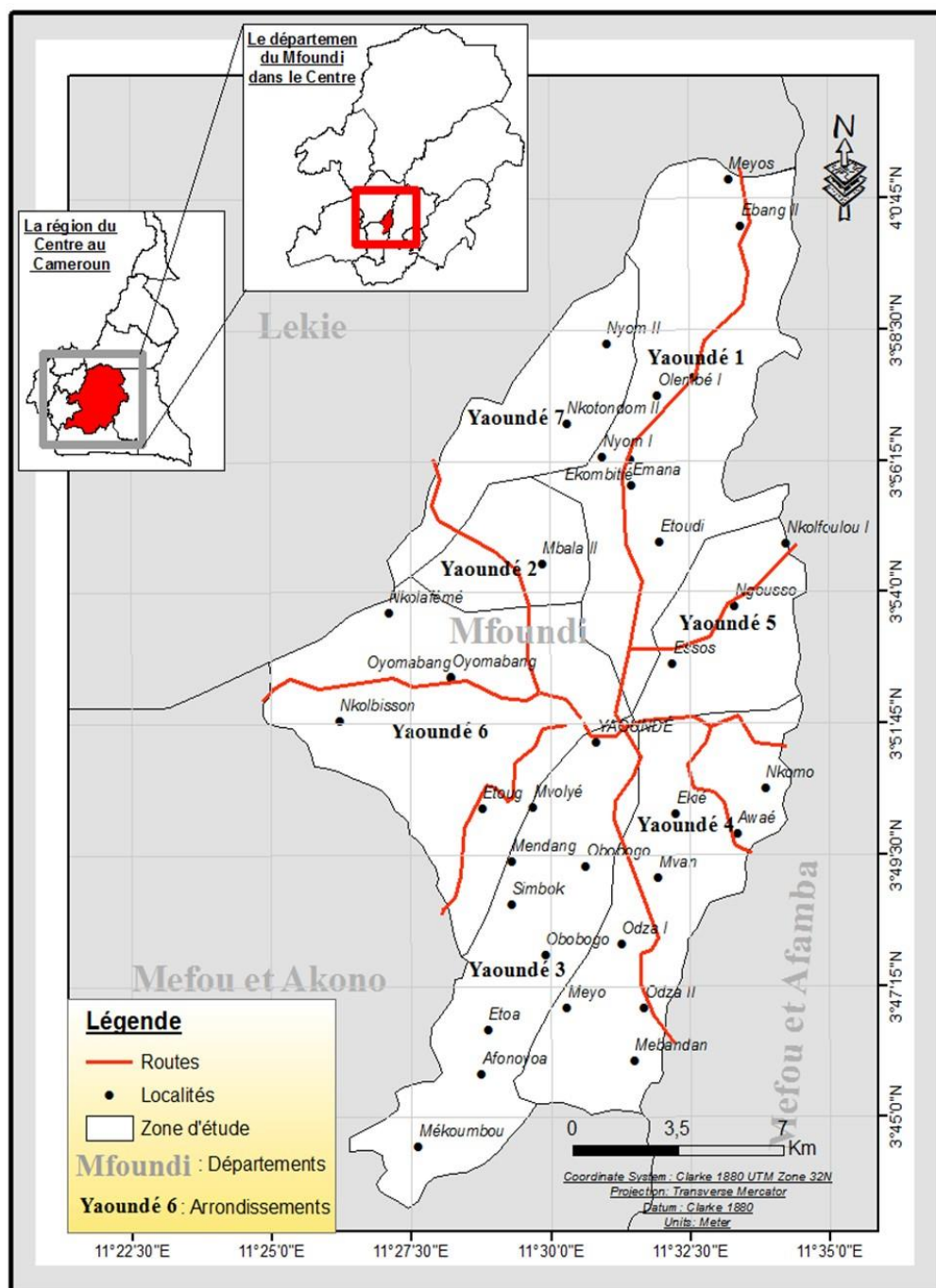


Fig. 1. The city of Yaounde and its surroundings
(Source: The National Institute of Cartography, 2014)

Depending on the objectives of this work, the questionnaire proved insufficient to handle the research question well. This is why a perception survey based on semi-direct interviews and field observations were conducted among 192 users or customers of these workshops. These are people randomly encountered in these workshops who have sought and obtained at least once in recent years the services of these micro-enterprises. Thus, the views of the owners of maintenance workshops and customers were collected.

III. RESULTS AND DISCUSSIONS

3.1. The maintenance of technological equipment in Yaoundé: an activity in full expansion

To date, it is clear that Cameroon is striving to take advantage of the digital economy and its fallouts on the fight against unemployment and poverty by boosting its economic growth indicators and visibility at the international level. It is in this sense that a conference on the digital economy was organized in the city of Yaoundé from 15 to 17 of May 2017 at the initiative of the President of the Republic. These efforts reflect the reality according to which the breakthrough in modern forms of communication and digital economy is perceptible in Cameroon, in general, and in Yaoundé, in particular.

Indeed, in the city of Yaoundé, this reality is visible both in the street and in many companies and public and parapublic organizations. As a result, the ICT ceases from only being a set of applications that can facilitate the daily life of individuals in their daily tasks. They now require the consideration of new actors in the economic landscape of modern nations. These are mainly technicians whose daily task contributes to upgrade this range of devices. As far as smartphones, Ipad, applications start-ups or Android phones are concerned, it is necessary to have the potential handlers for maintenance issues.

The same is true for computers of all kinds on which life and activities of many companies depend today in terms of Internet connectivity and transfer of information of any kind. This explains the emergence of maintenance actors in Cameroonian cities through the establishment of repair and refurbishment workshops of all the devices mentioned above. To date, the city of Yaoundé has got 203 workshops of this nature. These are characterized by the nature of the actors who perform as technicians. They are also characterized by the number of people involved in the daily tasks, the quality of the premises and the services rendered to the customers. Figure 2 distinguishes the technological maintenance workshops in the city of Yaoundé.

Repair shops are clearly distinguished based on their number on the field. In effect, of the 203 micro repair and maintenance enterprises of technological equipment, there are modern workshops that require a mastery of the technology through the quality of service provided to users. These workshops spread throughout the city of Yaoundé represent 38.42%, that is a total of 59 structures. The second category of structures is referred to as semi-modern workshops. These workshops are by far the most numerous in Yaoundé; they involve many young men who are looking for where to apply the knowledge acquired either on the field or in an appropriate training

structure in Cameroon or elsewhere. These workshops sometimes base their expertise around a group of 2 to 3 young people around whom many others cling to gain experience as well as earn a little income. These workshops represent 38.42%, making a total of 78 structures unequally distributed in the city of Yaoundé.

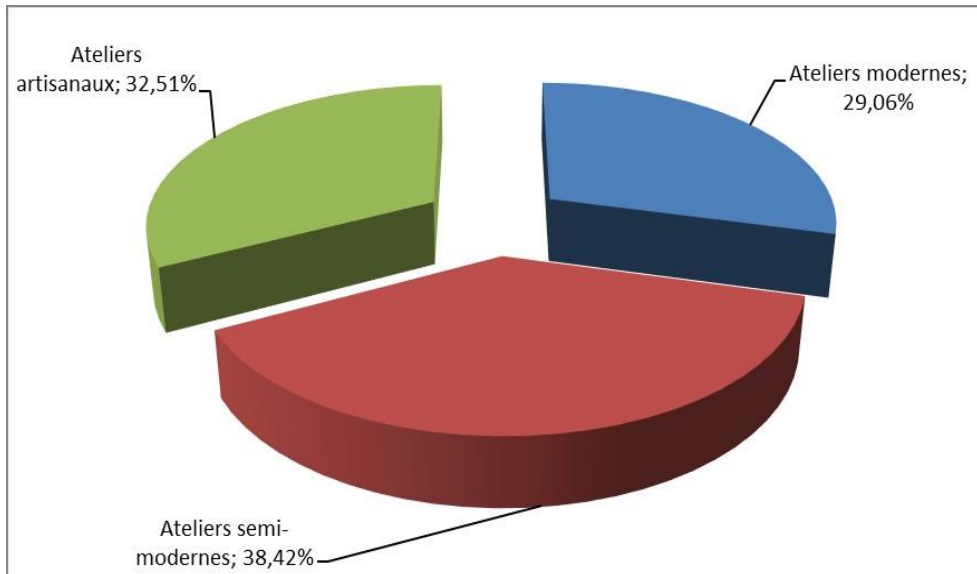


Fig. 2. Typology of hardware repair shops in Yaoundé
(Source: Field Investigations, 2016-2018)

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Finally, the third category of workshops consists of those qualified on the field in structures operating in an artisanal and informal way. These consist of both young and old people with relatively proven knowledge in the field of technological maintenance. Thus, owners or not of a workshop even right in the quarter, they operate daily in this area by offering to customers who at times distraught low cost proximity services of relatively satisfactory quality. These workshops are the most established around the major markets of the city of Yaoundé.

On the field, they represent about 32.51%, a total of 66 structures unequally distributed in the urban perimeter of Yaoundé. Apart from their nature on the ground and the quality of the services offered by these workshops, these workshops can also be distinguished by the number of people employed. This highlights the number of actors involved in terms of direct jobs. Bearing this in mind, maintenance workshops for technological equipment are now part of the creative activities of urban jobs. Figure 3 distinguishes technological maintenance structures into three categories based on this criterion.

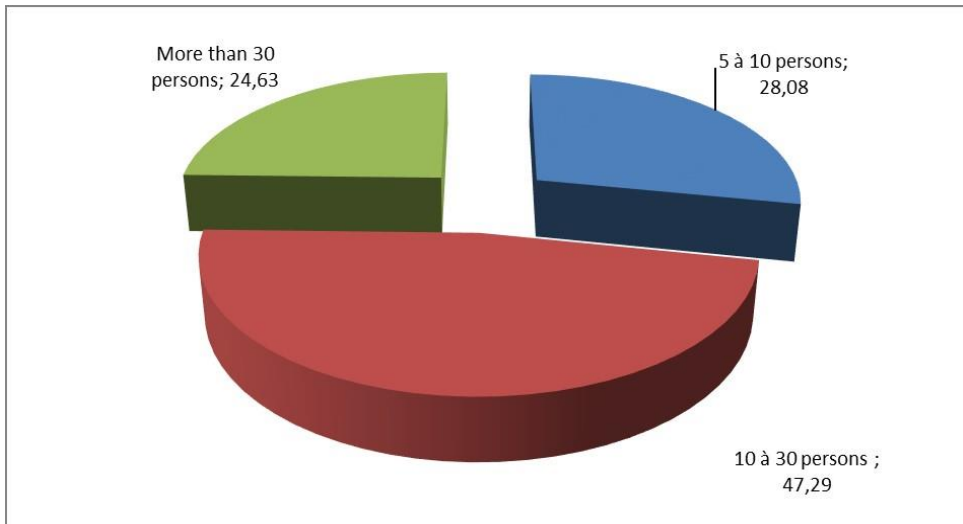


Fig. 3. Distribution of technological maintenance workshops by the number of jobs created

(Source: Field Investigations, 2016-2018)

The distribution of technology maintenance workshops in Yaoundé according to the number of people employed on a daily basis clearly shows that this activity announces a bright future within the Cameroonian cities including the city of Yaoundé. Indeed, given the administrative nature of this city with a strong presence of training schools, universities and research centers, it is clear that the digital economy, although still embryonic in this space, is now integrated into the rank of activities generating employment and income. To say it clearly, we observe that the repairs workshops of technological equipment in the city of Yaoundé can be appreciated in three categories which describe the strong implication of the labour force. This strong involvement of the workforce emphasizes the increasing demand for the services of these actors who are mainly devoted to upgrading the equipment.

In detail, there are companies that use between 5 to 10 people for their daily needs based on the level of demand. These companies are mainly workshops operating in an artisanal and informal way in quarters and in places open to the public such as markets of the city of Yaoundé. Here, these workshops take advantage of the proximity

of customers with relatively limited purchasing power to operate. Very often their services function in a cyclical manner with peak hours from 10 am to 3 pm and periods of low activity from 3 pm. This is the time when many traders and other customers are moving away from commercial areas. We find these companies around the markets of Mfoundi, Elig-Edzoa, Mokolo, MvogMbi etc. Most of them are managed by young people whose expertise in the field of technology and its accessories is still relatively limited. These companies account for 28.08% of the Yaoundé maintenance shop workforce. This corresponds to about 50 of the 203 workshops in this city.

Besides these small, informal enterprises that employ between 5 and 10 people, the second category is by far the most represented. It is made up of workshops that use 10 to 30 people permanently daily to take care of their services. These are the most numerous on the chessboard of the city of Yaoundé. They consist of structures for which the expertise and youthfulness of the promoters are sometimes recognized by all, even by the customers and the users who have often requested the services of these structures. Here work is done in a chain. The workshop is well organized since it includes a staff for the reception of users, professionals often specialized for certain brands or devices and the storekeeper. These workshops are most concentrated in areas with high use of technological equipment such as the surroundings of universities and training centres, as well as the city centre often known for the ease of access to these services. By the way, the premises used by these workshops are generally well equipped and adapted to the maintenance services of computer and technological. Clearly, in the city of Yaoundé, this category of business represents about 47.29% of the total number of 96 structures spread throughout the city.

Finally, the last category of workshops is made up of structures with permanent staff exceeding 30 permanent individuals per day. These are large companies whose clientele is sometimes made up of large public and private companies as well as public and parapublic organizations operating in Yaoundé. In these workshops, the organization chart of a formal enterprise is the rule. There is a director general, secretaries, a human resources and financial manager. These structures work in collaboration with other companies that they support in the maintenance of computer and technological equipment based on contracts signed either annually, or every two or three years.

In addition, workshops of this kind located in Yaoundé sometimes serve as interface in negotiations between the State and multinationals wishing to make donations relating to technological equipment to the Cameroonian government. On the whole, these structures are run by people who have sometimes received their training abroad, that is to say in Western Europe, North America or Asia. These officials have often proved themselves elsewhere before eventually ending up in Cameroon. Some workshops of this nature work in collaboration with other structures located in these countries in order to respond to any eventuality in case of need. In the city of Yaoundé, workshops of this nature that often work as consulting firms represent 24.53%, for a total of 52 workshops. The customer service in these structures is fast and of very

good quality. But the high cost often forces many customers needing their services to go elsewhere.

3.2. A workforce with diversified origins

Beyond the spatial distribution of computer and technology maintenance workshops in the city of Yaoundé, it should be emphasized that the managers and heads of these structures also have various geographical origins in Cameroon and abroad. Indeed, out of 203 workshops identified in the urban area, about 17 are of foreign origin and only 186 are of Cameroonian origin. This situation highlights a heterogeneous distribution of the mastery of technology in Cameroon, in general, and the urban space, in particular. Indeed, the distribution of those responsible for maintenance workshops originating from Cameroon is described in Table no. 1.

It appears that two regions have the lion's share of this distribution. This is the Western and the Centre Regions. In the second place are the Littoral, Northwest and South west regions. The other regions are ultra-minority in this distribution of the heads of computer and technological maintenance workshops according to the region of origin. This situation is linked to the culture of the people from each of these regions and to the dynamism of each and everyone in the search of adequate solutions to take care of and the mastery of the particular fields of science and modern technology. Indeed, ICTs and the mastery of technologies that is derived from them have long remained the privileged domains of the two big cities that are Douala and Yaoundé. This has had implications in terms of insertion of the populations from the hinterland to these two cities.

Table no. 1. Origin of Cameroonians heading computer repair shops in Yaoundé

Regions of origin	Numbers	Percentages
Adamawa	3	1.61
Centre	41	22.04
East	2	1.08
Far North	7	3.76
Littoral	27	14.52
North	5	2.69
West	53	28.49
North West	17	9.14
South West	21	11.29
South	10	5.38
Total	186	100%

(Source: Field Investigations, 2016-2018)

The same is true for the South West and North West regions in which the government has created universities where the interest of youths in this activity has remained intact. Hence the places occupied by each of these regions in the national distribution of people originating from these regions. Apart from Cameroonians, this activity is also of interest to many foreigners involved in Yaoundé. The latter are made up of Africans like Egyptians (2), Asians, Chinese (5), Lebanese (4) and Europeans, French (3) and Turks (3). This perfectly reflects a real trend towards technology transfer through heterogeneous teams working in symbiosis on a daily basis with this Western, Asian and African expertise.

3.3. Unequal distribution of technological maintenance structures in the city of Yaoundé

Whether informal, semi-modern or formal and organized workshops, there is a certain disparity in their occupation of the Yaoundé territory. This situation results very often from the tendency of some users reducing transport costs by soliciting a structure that is not always qualified for the service they need. In general, computer and technology maintenance workshops put in place many strategies in the conquest of the market.

For informal workshops, it is necessary to get closer to the customers in the framework of proximity service. For semi-modern workshops, places of high human concentration and a population using the services of the digital economy are the most desired. On the other hand, for the workshops functioning as formal structures and consultancy firms, the space for the storage of the material received as well as its security are the most often sought. The result is unequal distribution of these maintenance workshops in the city of Yaoundé as shown on the Table 2 and Figure 4.

In the conquest of space, maintenance structures can establish anywhere on the Yaoundé territory. It all depends on accessibility and security conditions. We also note that these workshops generally make use of security companies approved by the Cameroonian government in Yaoundé. That is why they can be found in Emana, Mendong and downtown. But in most cases, semi-modern businesses are most concentrated in areas such as NgoaEkelle, Mokolo and the city center. They are getting closer to these areas to ensure their survival among a clientele made up of students, young people and traders. From this perspective, it is clear that the opportunities to access and conquer the opportunities offered by this market are enormous.

This explains the competition between the actors on the territory of Yaoundé. This is reflected in the appreciation of the distances observed between the different workshops as shown in the Figure 4.

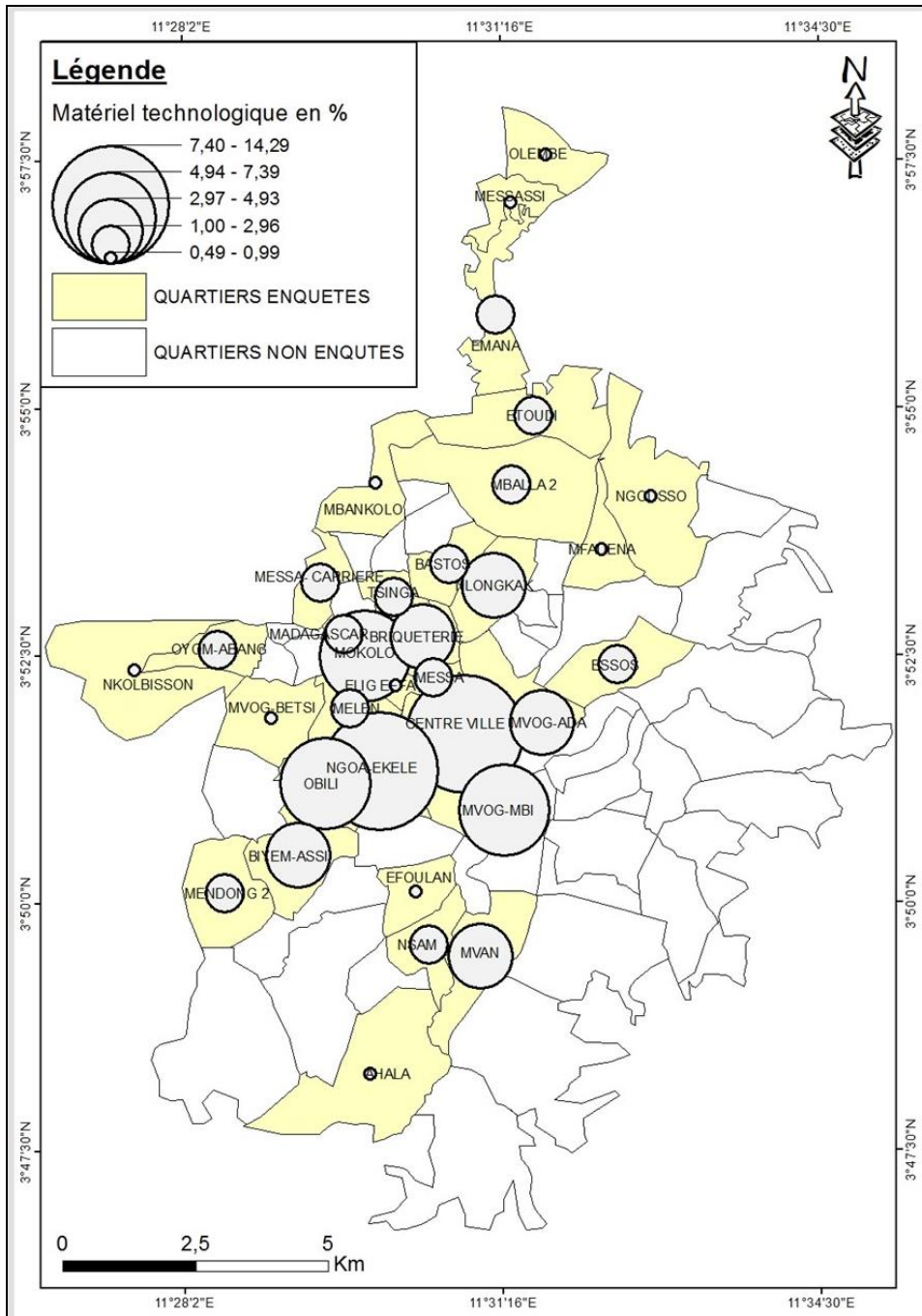


Fig. 4. Distribution of repair structures of technological equipment in Yaoundé
 (Source: Field Investigations, 2016-2018)

In addition, in the conquest of the market, each manager sets up his workshop where access conditions to the premises are favourable. So, it is difficult to consider the presence in the vicinity of another workshop or another actor. The consequence is the cohabitation on the same place of several actors. This cohabitation does not necessarily influence the revenue in terms of customers of the maintenance structure. This is why the distance between workshops in urban areas varies from 10 to 50 meters for the city centre and areas like NgoaEkellé and Mokolo. These distances can be relatively large for other urban areas, reaching 50 to 100 meters particularly in relatively structured neighbourhoods such as Emana, Mendong, Melen, etc. There are also cases where distances between workshops are more than 100 meters, especially in neighbourhoods such as Ahala, OyomAbang or Nkolbisson. All these neighbourhoods form the peripheral belt of Yaoundé where the life of relationship and the interest of the populations in the digital economy is relatively high.

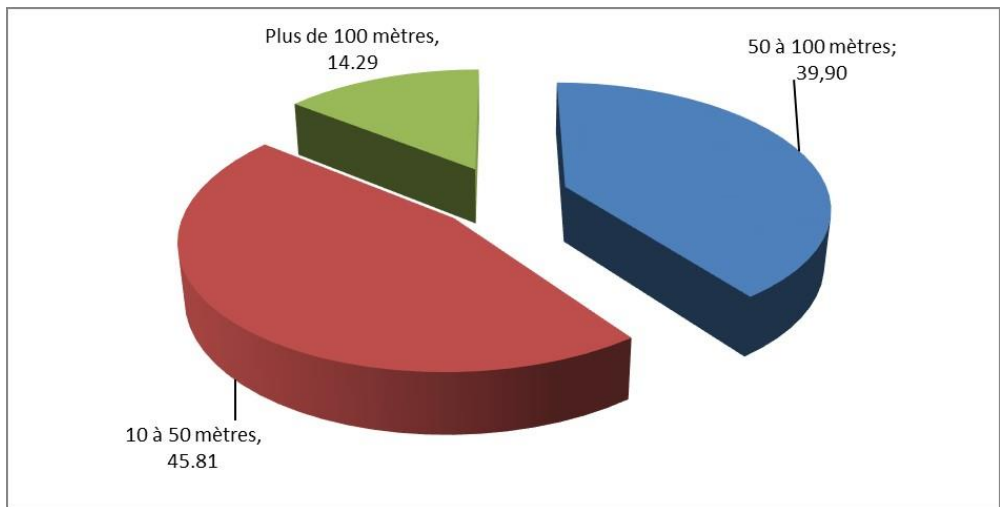


Fig. 5. Average distances between repair shops in Yaoundé
(Source: Field Investigations, 2016-2018)

3.4. An activity with undeniable socio-economic implications

The activity that subsequently results from the requirements of modern economy in the modern cities such as Yaoundé in Cameroon generates considerable economic and social implications. These are visible at the level of the actors and of the global economy of the city of Yaoundé through the revenues, the nature and the volume of jobs created as well as the various difficulties that the activity still faces in the context of Cameroon's socio-economic situation.

A profitable activity

Computer and technological maintenance is classified among the activities that require a minimum of know-how and a thorough knowledge of software and other electronic equipment. This reality makes this activity one of the most demanding and

profitable in the urban space in terms of revenue generated for the actors. These revenues is appreciated at two levels. That is what each workshop earns on average per day and what each stakeholder involved in this structure receives on average as a formal or informal monthly salary. In this context, if it is difficult for each workshop manager to estimate the fluctuations of his customers as well as the profits in terms of revenue of their workshop on a weekly or monthly basis, it is important to recognize that in this activity the income received by the actors depends on the level or the quality of services rendered and the nature of the workshop itself. In the whole, the monthly individual incomes of actors centres around an average of 150.000fcfa or about 220 Euros. In detail, the figure below emphasises on this reality.

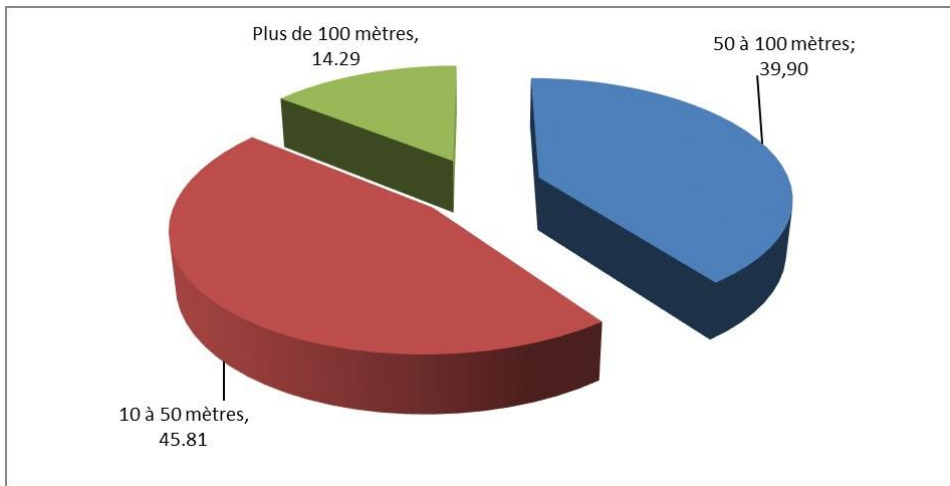


Fig. 6. Average monthly income brackets of the Yaoundé technology and computer maintenance stakeholders
(Source: Field Investigations, 2016-2018)

In details, computer and technology maintenance as currently practiced in the city of Yaoundé appears to be a profitable activity. Indeed, it is important to note that it evolves in the informal for some workshops and in the formal for another category. All in all, the incomes earned by the actors are likely, in the socioeconomic context of Cameroon, to enable them take charge of their basic needs. It can also be noted that these incomes hide a lot of malfunctioning and it is true that many actors also convert their homes into maintenance workshops where they receive many relatives and other neighbours without informing the workshop owner or the structure that employs them on a daily basis. This allows us to say that even within the well-organized structures where the contract with the customer is required for tax and transparency purposes, it is not uncommon to see these engineers being called on an ad hoc basis to help a third person for some coins. As a result, the average incomes of these actors can, therefore, be expanded day by day, taking into account both the relational fabric and the quality of services provided to the clientele. In sum, the average monthly income per actor of the activity is around 100,000 CFA francs and more. This reflects not only the

profitable but also the promising nature of this new activity for which socio-economic implications in terms of urban jobs are now undeniable. Here, the jobs created are generally those of the tertiary sector. They concern a category of individuals benefiting from a relatively proven expertise in these new professions related to the digital economy. The penetration capacity and the rate of consumption of today's digital economic products in Yaoundé, in particular, clearly demonstrates the continuing interest in the computer hardware maintenance sector. The jobs created here are essentially in the tertiary sector. However, on the ground, many difficulties still remain and present themselves to the actors as challenges to overcome daily.

Many difficulties to overcome

Just as the other sectors of activity find within the urban perimeter of the city of Yaoundé, computer and technological maintenance faces difficulties inherent in its operation in Yaoundé.

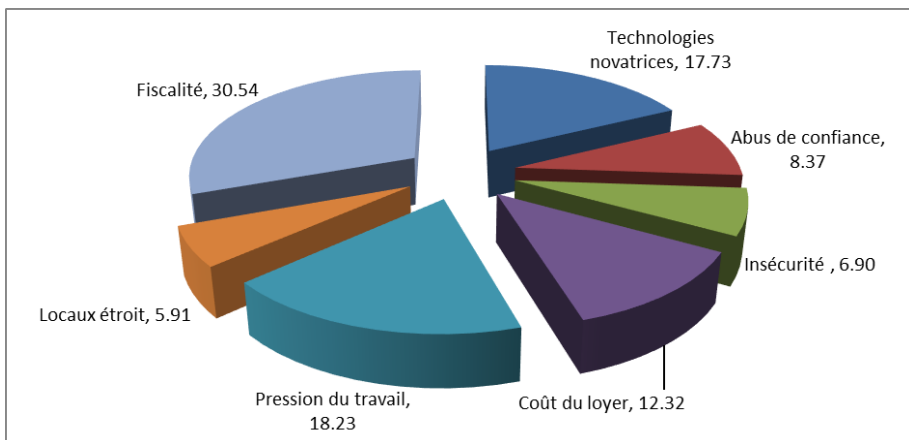


Fig. 7. Main difficulties faced by actors
(Source: Field Investigations, 2016-2018)

Among these difficulties, there are about seven which are common. This is an increasingly innovative technology itself due to the new range of products in the market such as start-ups (17.73%), taxation that weighs on the promoters of maintenance workshops (30.54%), the thorny problem of access to decent and spacious sites to adequately carry out the activity (5.91%), the disturbingly ever increasing rents in the city of Yaoundé especially on sites reserved for trade that is to say, easily accessible to any user wishing to take advantage of the services of the maintainers (12.32%), the pressure of work in the workshops in updating the computer and technological equipment (18.23%), the insecurity of the premises as well as that of the devices registered to be upgraded the next day (6.90%), here, most maintenance workshops are usually the target of permanent robberies from men of the underworld. Lastly, among difficulties encountered by maintenance workers in the field, there is the abuse of mutual trust between users and maintainers as well as between maintainers

and users (8.37%). Clearly, all these difficulties as urgent as they may be do not in any way tarnish the interest that each and every one attaches to these actors of the digital economy in Yaoundé. It is realised that these difficulties vary according to the scale of influence of the workshop. They also vary according to the relational fabric and the quality of the services rendered by the maintainer.

A significant spatial mobility

In Africa and Cameroon in general, the urban residences allow populations to develop undeniable spatial interactions. These interrelations can be deep or superficial. Everything depends on the interests sought by each other. In any case, it is sometimes difficult to reside in a neighbourhood or a locality without noticing the presence of service activities such as technology upgrading workshops. This situation often makes it possible to move away from the place of residence to request the services of a workshop located at a respectable distance from one's place of residence. This highlights an undeniable geographical phenomenon on the basis of the trips thus generated and the social relations maintained by the actors. The residences of the users identified in the computer and technology equipment maintenance workshops are revealing the social and territorial character of this activity in the urban and periurban space of Yaoundé. Indeed, there are two categories of users in these workshops. Some opt for services rendered directly around their residences or neighbourhoods. Others, however, prefer to change their area of residence to seek the services of an expert recognized elsewhere in another neighbourhood while the maintenance workshop close to his residence offers the same services sometimes better than the one he is looking for. At the origin of these changes in the quarters is found the issue of quality of services rendered and the relational fabric of the promoter of the workshop. Among those looking for better handling of their technological equipment (for which they find it difficult to be separated with) in the other workshops rather than their place of residence in the urban space of Yaoundé, are the 192 clients who were constantly interviewed in these workshops or used their services. These are made up of the young and the old from all social classes. Frequent and periodic movements of these many users, customers of these new players in the digital economy between the city of Yaoundé and its hinterland and within the urban centre highlight increased mobility. Thus, frequent breakdowns, approximate manipulation of a technological appliance, and the constant technical follow-up of the equipment of the public, parapublic and private companies are so many motives which contribute to the territorial recomposition of the users and the services sought, that is to say the opportunities of satisfaction by the results obtained. Their living territory is thus modified and the volume of movements in space is now increased. The table below highlights the commuting movements of the surveyed users between their places of residence and the zones where the electronic and technological equipment maintenance structures are located in Yaoundé.

On the whole, the data on this table were collected from users or clients of the electronics and technology upgrading workshops in Yaoundé. It turns out that the mobility of these clients even within the urban space is quite revealing

of the socioeconomic constraints they are exposed to. This also highlights pools of high concentration of workshops in which the services rendered are of good quality in Yaoundé. From this reality, it emerges that areas such as the city centre, NgoaEkellé, Biyem-Assi, Essos, Obili and to a lesser extent Mokolo are areas with high concentration of workshops offering better customer services in Yaoundé. This is because some of these areas are among the hottest spots in the capital where most customers concentrated during the day. These are also market areas and areas with a high concentration of young people like NgoaEkellé. This at times creates profound interrelationships between individuals with interests that are not always convergent.

Table no. 2. Trade flows of customers between places of residence and locations of workshops in Yaoundé

Place of residence of users or customers	Neighborhood of implantation of the workshop	Customer numbers
Mokolo	BiyemAssi	03
Nkolbisson	Centre ville	09
Citéverte	Centre ville	02
Mbankolo	Centre ville	08
BiyemAssi	Ngoaékellé	02
Biteng	Centre ville	13
Etoudi	Quartier Bastos	3
Olembé	Centre ville	9
Melen	Essos	4
Mendong	Centre ville	12
Nlongkak	Citéverte	8
Eleveur	Centre ville	7
Omnisport	Centre ville	4
Emana	Mballa II	6
Obili	Ngoaékellé	9
MvogMbi	BiyemAssi	8
Mendong	Ngoaékellé	11
OyomAbang	Mokolo	7
Essos	Centre ville	8
Mimboman	Nfandena	2
Ekounou	Citéverte	5
Awae	Ngousso	5
Mvan	Ekounou	6
Nsam	Centre ville	6
Efoulan	Ngoaékellé	9
Obobogo	Obili	7
Nsimeyong	Essos	12
Simbock	Centre ville	7
Total		192

(Source: Field Investigations, 2016-2018)

In detail, the movements of customers or users of computer and technological equipment repair shops in the opposite direction are also a reality in Yaoundé. There are users from neighbourhoods without workshops offering quality services. If these displacements are based on the simple reason of the search for appreciable services, it is necessary to say that they generate important space flows at the scale of the city. These spatial flows are even more attractive for users who reside in the secondary cities around Yaoundé and in the middle and distant suburbs. Here, the motivations are identical.

However, this reflects less the remoteness of quality services than the presence of maintenance workers, who constitutes a source of additional expenditure and soliciting areas remote from residential areas. Some of these users are seeking the city of Yaoundé because they hope to find better and cheaper offers as the problem of shortage of quality staff and moral integrity is relevant in the technical circles of this nature in Cameroon. The same is true for the quality of the reception of users in the workshops of refurbishment of these devices established in the rural world. Here, the customer constantly complains of the arrogance and the swindle of maintenance services located in rural areas. They are known for their insolence, arrogance and lack of professional conscience and mastery of advanced technology services.

Whether in town or in rural areas, the reception of users and the quality of the service provided are at the centre of the immediate news in this sector of activity. Some customers residing in rural areas have difficulty in requesting workshops located locally or closer to their residence. For these, we must avoid falling on swindlers and do-it-yourself-ers. This is the case of users originating and residing in areas such as Okola, Zamengoé, Ngoya or Leboudi, who prefer to have their equipment repaired at BiyemAssi for some and the city centre or NgoaEkellé for others. The same applies to nationals of Mbalmayo, Esazok, Ekali, Nsimalen, AfanOyoo, or Binguéla and Mbalngong who generally request workshops in the city center or Ngouso instead of Ekounou or Mvan. Such examples are many in these circles. In short, it must be said that the care of users whose devices have been damaged is an economic problem in Cameroon. It is becoming more and more a social problem at the heart of geography's concerns through the flow of customer travel and the resulting socio-economic and spatial implications. It is also a problem that has an undeniable cultural character in terms of motivations that drive people to behave in society by sacrificing their income instead of saving them when looking for solutions for a possible upgrade of their devices. In this context, travel expenses do not represent any danger in comparison to the device to be repaired, the life of a family may sometimes depend on it. Table 3 highlights the letter-writing movements of 43 users from the hinterland whose devices are regularly taken care of in Yaoundé.

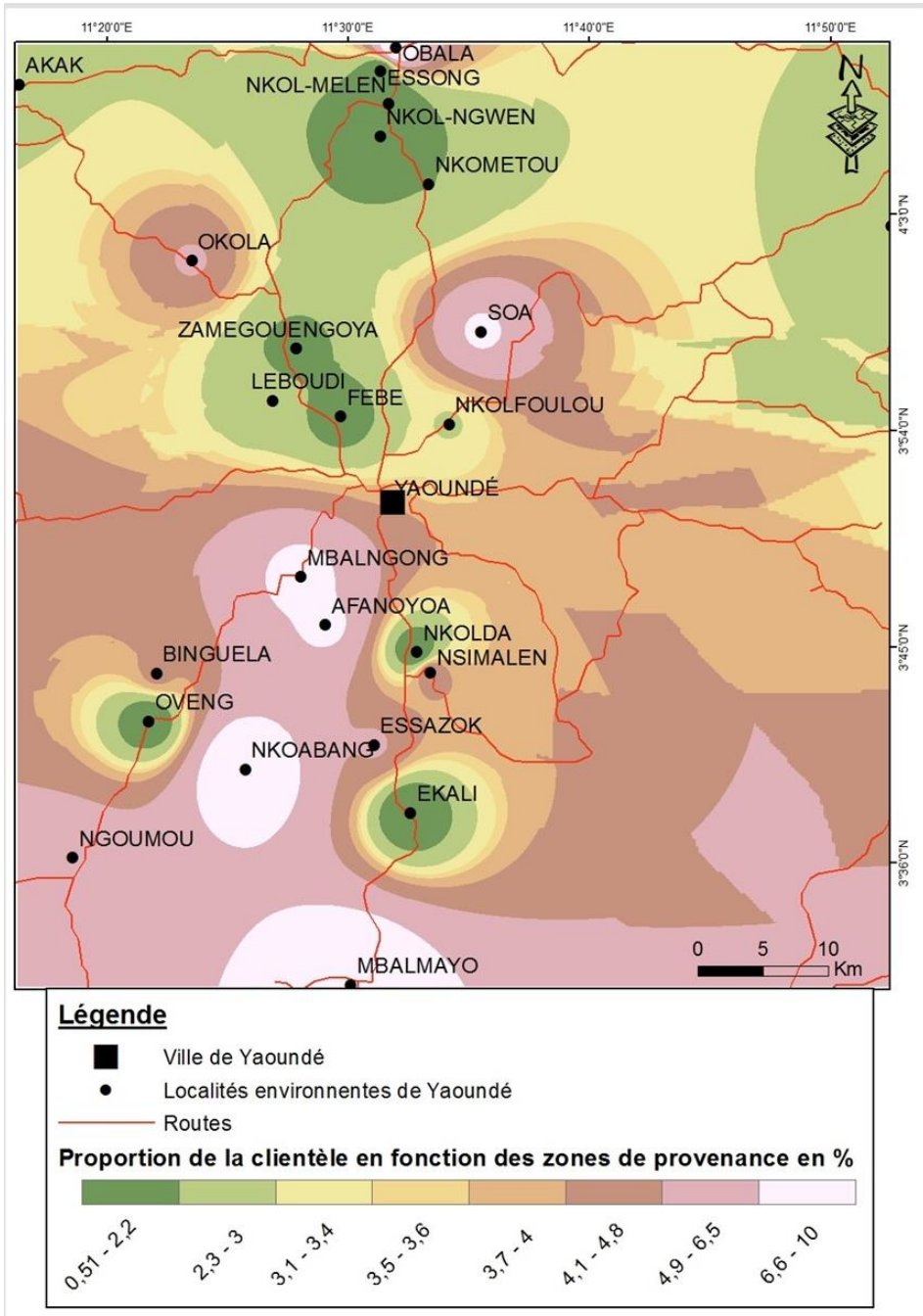


Fig. 8. Origin of Yaoundé's maintenance workshop customers according to the localities of its hinterland

(Source: Field Investigations, 2016-2018)

The places of residence of users or the customers designate the localities as well as their immediate and relatively distant surroundings. In this context, there are 25 localities located on both sides of the hinterland of the city of Yaoundé. Thus, out of 192 users surveyed in the repair shops located in Yaoundé, 43 come from these localities, that is 22.39% of the total. Some of these localities indicate the points from which the potential customer or user have access to the most common means of transport depending on the case to reach the urban centre of Yaoundé.

This situation shows that the repair activity of electronic and technological equipment is undeniably at the centre of spatial relations between the city of Yaoundé and its hinterland. This reality has socio-economic implications. It also integrates this activity into the networks of interrelation and communication between populations in this space. This is reflected in the continuous character of the spatial movements of actors within the urban and rural space. The city of Yaoundé is, therefore, appreciated in terms of spatial and socio-economic relations with its hinterland through a phenomenon at the centre of which is the technological innovation in Cameroon.

The development of a society or a space necessarily involves the adaptation of its members to innovations of all kinds and to the transfer of technologies. This requires a considerable effort in setting up the appropriate structures that can boost technological development. However, it should be noted that the city of Yaoundé is not yet sufficiently provided with a technological training centre and technical institutions likely to find answers to questions of computer and technological maintenance. When these centres exist, the conditions of access to them are not favourable to all. Moreover, the number of places per sector is limited. This makes it difficult to perceive the role, less still the scope of certain trades that are profitable and capable of reducing unemployment and the underemployment among the active population in Cameroon. Very often, we are contented with speeches and some ingenuity noted here and there by a small group of young people upstream, it still lacks a real policy to promote the trades and professions of the future. This is reflected by disorganisation in the computer and technological maintenance companies as well as the consideration of the spinoffs generated by this sector of activity. For example, the training of young people in this field should be imposed as from the secondary school. Because in the era of globalization, Cameroon as a whole should ensure that youths, rather future generations do not miss the boat in this requirement of modernity that is the digital economy.

IV. CONCLUSIONS

In the city of Yaoundé, the digital economy brings about a wide range of opportunities, from job creation to income growth and the fight against poverty and unemployment. Beyond its communicative strengths and all forms of exchanges, this sector generates related activities such as computer and technological maintenance. It is in this context that the new players in this activity find themselves. In Yaoundé, structures charged with upgrading

technological and electronic devices are unequally distributed and still suffer internally from lack of adequate premises and qualified manpower. Indeed, in the field, users or customers are sometimes forced to travel long distances in search of quality services. This has socio-economic consequences and especially on the number of trips made. In terms of space, NICTs generate many micro-enterprises now integrated into the socio-economic landscape of the city of Yaoundé. This undeniably brings financial income to its actors as they integrate the interrelation circuits of the city of Yaoundé through the distribution of micro-enterprises.

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