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**The informal ICT sector and innovation processes in Senegal
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The Informal ICT Sector and Innovation Processes in Senegal

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Abstract

This paper investigates the informal information and communication technology (ICT) sector in Senegal with a view to developing indicators that could be used to improve the understanding of the innovation process. Three approaches are used to gather the information needed for the analysis: a review of literature; a questionnaire to collect data; and, a life story to provide context to the research. The analysis provides examples of innovation in the informal ICT sector and examines the relationship of social factors to these examples. As the informal sector dominates the Senegalese economy, the paper contributes to the understanding of innovation driven economic growth in that sector, and to the factors linked to transition of economic activity from one sector to another.

JEL Code: O31, O33.

Key words: Informal economy, innovation indicators, information and communication technologies, ICT, social

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Acronyms

ANSD:	Agence Nationale de la Statistique et de la Démographie (National Statistics and Demographics Agency)
CC:	Taxpayer Code
CCBM:	Comptoir Commercial Bara Mboup
CRISES:	Centre de recherche sur les innovations sociales (Centre for Research on Social Innovations)
ICT:	Information and Communication Technology
ILO:	International Labour Organization
IMF:	International Monetary Fund
IPU:	Informal Production Unit
NINEA:	Numéro d'Identification National des Entreprises et Associations (Business and Association National Identification Number)
SMB:	Small and Medium-sized Businesses
SYSCOA:	Système Comptable Ouest Africain (West African Accounting System)
UNACOIS:	Union Nationale des Commerçants et Industriels du Sénégal (Senegal National Union of Traders and Manufacturers)
VAT:	Value Added Tax

1. Introduction

The 1970s saw the beginning of the economic crisis in Africa. A series of programmes and projects was launched across the continent to find a way out of the crisis, under the leadership of the International Monetary Fund (IMF) and the World Bank. However years of drought, and the oil crisis of the 1970s, caused additional problems.

With its colonial heritage, the Senegalese economy experienced destabilisation resulting from its trading economy (based mainly on groundnut farming), set up during French colonisation, making it vulnerable to the instability of international market prices and climate-related hazards. The unstable international context and the failure of the policies implemented up to that time took Senegal to its limit, and it was therefore necessary to change direction and modify strategies. The new strategies were aimed at setting the economy back on its feet, but paradoxically they had serious social consequences and aggravated the problems.

Structural adjustment programmes resulted in the devaluation of the CFA Franc (financial adjustment) and at the same time, changes in some labour-related legal provisions did not produce the expected results in Africa, as a whole, and in Senegal in particular. The problems of unemployment, poverty and dependence grew.

The extensive deregulation of the economy that resulted from this reduced the vulnerabilities of the Senegalese economy, but it also had negative repercussions on poverty and employment. Privatisations and drains on public expenditure resulted in cuts to social budget, putting a large number of Senegalese people out of work.

The disengagement imposed on the State and its very limited intervention in the daily lives of the population completed the process of a succession of crises creating very difficult economic and social conditions for the country and its population. This situation put the population in circumstances that demanded self-reliance, giving rise to so-called *informal activities*. Implicit during the 1970s, this informal sector, defined as *unstructured* by the International Labour Organization (ILO), has grown in Senegal to the point of competing with today's modern sector. At present, it is a very important component of the Senegalese economy. For more than two decades, the informal sector's contribution to GDP has always exceeded that of the modern sector (see Annex 1) and a significant proportion of the population currently lives on what have been referred to as odd jobs and casual work. Initially perceived as a temporary anomaly, the informal sector has been able to establish itself firmly within society and the economy. Its social legitimacy is no longer contested. It may be fraudulent for some people, in breach of all or part of the legislation for others, but the informal sector has become a sector in its own right, acknowledged on its merits for reducing unemployment, promoting a spirit of enterprise and solidarity, producing goods, providing services at affordable prices, and creating wealth. Today, the informal sector is recognized as playing an important role in the national economy but, above all, it is instrumental in improving living conditions. It is characterised by ingenuity and a highly developed spirit of enterprise.

Given the importance of the informal economy in Senegal, this study sets out to answer the following questions.

- What are the adaptation mechanisms of the informal sector in Senegal?
- What are the innovations in this sector and what are the processes?
- How are these innovations integrated into the Senegalese market?

An objective of answering these questions is to understand the innovation process in the informal sector in Senegal and to understand the mechanisms and procedures used for validating the sector and integrating it into the Senegalese market. The questions are important as the sector has not been studied from the perspective of the role of innovation and its contribution to informal economic activity. This approach also emphasizes both innovative and entrepreneurial activities and the need to understand their contribution.

The informal sector in Senegal includes many industrial activities and this study is restricted to those related to information and communication technology (ICT) goods and services, largely because of the significant growth in this area in recent years. Having chosen the activity to study, the approach has been to examine the processes of innovation that enable people engaged in these activities to survive on the market and even become leaders in some areas.

2. Informal sector concepts and definitions

The concept of an *informal sector* was introduced by Keith Hart (1973) in a study on Ghana in 1971 and came to public attention in 1972 in the report on Kenya drafted under the World Employment Programme sponsored by ILO since 1969. The first definition was laid down in 1976 by ILO: “this is a sector consisting of businesses employing fewer than ten people, free of any administrative and legal regulation, employing family labour, working flexible hours, having recourse to informal credit facilities and manufacturing end products, as opposed to intermediate products” (BIT 1976).

The informal sector was widely discussed in the economic and sociological literature, and since it represented an important and growing part of employment in developing countries, an operational statistical definition was proposed during the 15th International Conference of Labour Statisticians in 1993. This finally resulted in an international recommendation for a statistical definition of the informal sector.

The informal sector may be broadly defined “as consisting of units engaged in the production of goods or services with the primary objective of generating employment and incomes for the persons concerned. These units typically operate at a low level of organisation, with little or no division between labour and capital as factors of production and on a small scale. Labour relations - where they exist - are based mostly on casual employment, kinship or personal and social relations rather than contractual arrangements with formal guarantee” (BIT 1993a). This was followed by a statistical definition, according to which “the informal sector is regarded as a group of production units which, within the System of National Accounts, form part of the household sector as individual enterprise.”

The initial elements of the definition (and in particular the reference to the characteristics of the economic unit and not those of the individual) indicate why the definition related to the *informal sector* and not *informal labour*. The aim of the international definition was to fit the informal

sector into the System of National Accounts in the *household* institutional sector, and not within any *dualist* framework. Walter (2006) put forward the idea that specialists are divided between two approaches:

- The informal sector: set of informal economic activities
- Informal activity: transverse approach to the economy, according to the definition laid down by ILO.

The plethora of studies and theories available indicates a variety of characteristics attributed to this sector of activity. The definitions proposed evolve over time, but they also vary from theory to theory and from one author to another. In 1972, the Kenya Report had already proposed a multi-criteria definition consisting of the seven criteria below:

- Ease of access to the activity;
- Use of local resources;
- Family ownership of the enterprise;
- Small scale of operation;
- Labour-intensive techniques;
- Skills acquisition outside the formal schooling system;
- Unregulated and competitive markets.

Sethuraman (1976) increased these criteria to fifteen, with the approval of ILO. However, it is worth noting that rarely does an informal activity satisfy all these criteria at a given time.

The sociologist, Abdoulaye Niang, has put together a more exhaustive definition of the informal sector: “The informal sector consists of all trading activities, production of goods, commercial value services and savings, credit transfer and resource distribution associations, all on a scale, whether large or small, that partially or wholly sidesteps the legislation and/or predominant norms that govern activities and practices of the same category” (Niang 1996).

This definition identifies the informal sector in contradistinction to the formal sector, using the terms *legislation* and *norms*. It means that the informal sector encompasses any activity that is developed aside from the established rules for structuring the sector of the economy, and hence its *illicit* nature. If it is illegitimacy that most often initially defines informality, it is important to know what laws or aspects of the law are not complied with.

For Bruno Lautier (1994), “it may be laws relating to the payment of taxes or social security contributions, laws governing working conditions, health and safety, laws delimiting spaces in which the activity can be exercised, ground occupancy plans, etc.”

Others would add unfair competition, tax fraud, the black market, corruption or theft of public property (taken less and less seriously nowadays). However, non-compliance with the rules as a criterion for deciding whether an activity is informal must be systematic, and not occasional or circumstantial. Faced by a multiplicity of registration procedures, it is difficult for some participants to register on all the regulatory lists.

In view of this difficulty in pinning down its nature, some authors refuse to grant the term *informal sector* the status of a theoretical concept (De Miras 1990, Lautier 1994). More recently,

Godfrey (2011) has reviewed the definitions of the informal economy as a step towards the development of a theory.

Furthermore, the activities of the informal sector are varied and differ in size, nature, openness, etc. Gabriel Boissy (1997) typifies them in three categories.

- The subsistence informal sector and refuge of the poor: laundry workers, domestic servants, hairdressers, small repairers, tailors, blacksmiths, part-time drivers and apprentices, street sellers, window dressers, etc.
- The transition informal sector: using conventional equipment and technology for producing goods and services with a high trading value and including arts and crafts, such as photography and jewellery, building crafts, localised commerce at street markets and shops, etc.
- The modern informal sector, or that of the well-off in the informal sector: activities in this category have the stamp of Small and Medium-sized Business (SME) but their partial or total reluctance to comply with the administrative and legal requirements keeps them within the informal sector (production of crafts, art and buildings, large traders, transporters, etc.).

Two ways of conceiving the informal sector have been proposed. The first considers a large sector, relatively well-integrated into the rest of the economy and based on a competitive framework. In contrast, the second is more restricted, with little integration and mainly based on subsistence.

After reviewing these widely diverse definitions of the informal sector, a decision was taken to adopt an operation definition to guide the case study. This is the definition proposed by the National Statistics and Demographics Agency of Senegal (ANSD). It defines the informal sector as “all the production units with no statistical number and/or no formal, written accounting”. The criterion of written accounting was introduced in order to avoid excluding from the investigation those production units that for wholly contingent reasons have a statistical number (NINEA: Business and Association National Identification Number), but still cannot be considered formal units (in terms of their organisation and production methods) for which the keeping of accounts is a good indicator. So, units with a NINEA, but no written accounts are considered as informal.

This choice seems more relevant for assessing the power and macroeconomic role of the informal sector in its interrelations with the Senegalese production system. In particular, it allows to reintegrate the informal sector in a disciplined manner into the System of National Accounts, within the privileged domain of macroeconomic analysis.

Among the various administrative registers in force in Senegal, the NINEA and the taxpayer code (CC) have been chosen insofar as any productive activity must by law have been assigned these numbers. They are required for satisfying a number of institutional obligations and are prerequisites for access to certain administrative functions (taxation, social security, etc.).

3. History of the informal sector in Senegal: social and economic role

The informal sector is a worldwide phenomenon, and not restricted exclusively to developing countries. The workforce of the informal sector is continuously increasing and introducing new

characteristics: rural workers moving to the city, people deprived of an education, the former unemployed, those affected by staff cuts in the modern sector and even modern sector personnel who opt to take on more than one job.

Senegal has one of the biggest informal economies in sub-Saharan Africa. As the leading employer in the country, the informal sector drives the economy. Indeed, between 1995 and 2004, it generated 97% of the jobs in Senegal, where unemployment and underemployment affect more than a quarter of the population (World Bank 2007).

The workforce in Senegal's informal sector, estimated at 161,000 in 1960, grew to 475,000 in 1980, 638,000 in 1991 and one million in 1996. In the second quarter of 2003, there were 281,600 informal production units (IPU) in the Dakar region, employing 434,200 people in non-agricultural trading, i.e. approximately a quarter of the population of Dakar. Today, Senegal's economically active population amounts to some four million people, but only around 300,000 are registered with the Social Security department, ample evidence of the fact that the majority of businesses are informal.

Thus, millions of Senegalese people excluded from the formal economy have to rely on a less conventional economy, which has proved to be more dynamic and better suited to their distributive logic. Today, the informal sector employs 60% of the economically active population.

This sector has developed a great deal over the last two decades and some of the business that began informally have now become players on the international market. This is the case for Comptoir Commercial Bara Mboup (CCBM), which has been in existence for 25 years and works in partnership with the South Korean company, Samsung CCBM.

In 1993, the government tried to force informal workers to pay value added tax (VAT). They refused, explaining that they had no legitimate accounts comparable with those of legitimate businesses. It was therefore impossible to determine the sum to be paid to the State. Three types of tax, especially suited to their method of working, were therefore created: clearing tax, business tax and flat-rate tax.

The government tried to lever informal work into a more conspicuous position, in administrative terms, by putting in place programmes and structures to organise and register it, thereby broadening the fiscal base. Furthermore, informal sector workers and employers organised themselves around trade union structures to increase their productivity. There are now some twelve trade unions in Senegal, the largest of which is the National Union of Senegalese Traders and Manufacturers (UNACOIS) with a membership of 100,000.

There is a duality between the informal sector and the so-called modern sector. The two are both partners and competitors in a complex Senegalese market, where demand is diverse. They are in partnership because some legitimate local industries need intermediaries to redistribute their merchandise. The informal sector has a national distribution network. In addition, some companies subcontract some of their work to informal employers. The aspect of competition relates mainly to imports. The effectiveness of informal networks abroad results in the import of new products, a considerable advantage for expanding the customer base.

The statistical data available on the Senegalese informal sector, although incomplete, show how important it is in terms of the labour market and the significant contribution it makes to national wealth. The few qualitative assessments that have been made of its structure seem to indicate that it has a fully developed organisational capacity and an ability to adapt, making it a dynamic and often competitive player in the domestic market.

The most valuable advantage in the eyes of the Senegalese population is the proximity of the informal sector. It follows social demand and adapts to it. For instance, it offers mobile telephone services in the most remote parts of the country. Other advantages include its offer of lower prices for products of practically identical quality to those of legitimate businesses. Furthermore, the informal sector anticipates the requirements of the population. Indeed, there is a strong Senegalese diaspora in the United States and Europe. These people send home high-tech devices that need to be repaired when they develop faults. It could be said that the informal sector develops support facilities even before a product is widely market in Senegal. It has a capability for innovation that even the modern sector lacks.

4. The informal ICT sector in Senegal

The informal ICT sector has seen spectacular development throughout Africa and particularly in Senegal. The pace at which these technologies are being distributed is very fast, rising from an average of 44% in 2002 to 64% in 2007, representing net growth of 20% over this period.

Table 1 Changes in ICT indicators in Senegal between 2002 and 2007

Indicator	2002	2007
Fixed lines per 100 inhabitants	2.1	2.2
Mobile telephones per 100 inhabitants	5.1	29.3
International bandwidth per user (bit/s)	752	2079
Proportion of households with home computers	1.7	7.8
Proportion of households with Internet access	0.5	1.0

Source: International Telecommunications Union (2008)

This table illustrates the diversity of ICT developments in Senegal. Although all indicators rose between 2002 and 2007, the growth in mobile telephones significantly outstripped all other areas, and explains why ICT-related activities in Senegal are centred on mobile telephones.

The informal ICT sector in Senegal is mainly involved in activities related to the mobile telephone, whether provided locally or at a distance.

It should also be borne in mind that mobile telephones form the ICT subsector which has boomed in Africa, with the possibility of expansion into rural areas, even though coverage is still low, opening up new markets and new business opportunities to the Senegalese informal sector, acknowledged for its extensive capacity to adapt to social demands.

In Senegal, the three mobile telephone operators (SONATEL, TIGO and SUDATEL) are working increasingly with the informal sector, especially for marketing their products. These three operators have succeeded in providing coverage for the entire national territory. At present, in all areas in Senegal (urban and rural), the population is equipped with mobile telephones and has a network enabling it to communicate with the rest of the world.

Senegal is engaged in a struggle to reduce the digital divide. This has facilitated ICT development in our country, but has also given rise to and boosted the development of the informal ICT sector, and activities in this sector are numerous and diverse.

Table 1 shows that there is a growing number of mobile telephone, computer use and internet access. Table 2 provides a categorization of the activities in the informal sector and this study finds that people interviewed in the informal ICT sector were involved in providing hardware and related services. To a lesser extent, they were engaged in the manufacturing of goods.

Table 2 Suggested categorisation of informal ICT sector activities

Sector	Telecommunications	Computers/internet	Digital audiovisual
Primary	N/A	N/A	N/A
Secondary	Production of goods and equipment	Antenna manufacture	Assembly of computers and peripheral devices
Tertiary			
Commerce	Sale of computer accessories	Sale of accessories	Sale of accessories
	Sale of recharge cards	Sale of computer hardware	Sale of audiovisual equipment
	Sale of telephones and accessories	Sale of software and firmware	TV programme distributors
Services	Sale of telephones	Advisory services	Sale of CDs, VCDs, DVDs
	Access (call centres, cyber centres, call boxes)	Office electronics (photocopies, data input, scanners, downloads, burning CDs, etc.)	
	Call centres		
	Hardware repairs	Hardware repairs	Hardware repairs
	Antenna installation		
	Mobile phone decoding	Networking and wiring	
	Maintenance and servicing	Maintenance and servicing	Maintenance and servicing
	GMS telephone chargers	Application developers and website designers	
	Fleet collectors-payers	Webmaster	
	Training courses	Training courses	Training courses
	Advisory services	Advisory services	Advisory services
			Audiovisual productions
			Video libraries

Source: Yam Pukri (2009)

5. Research methodology

The aim of this research was to verify the following hypotheses:

- The informal ICT sector in Senegal is based on proximity and adaptation to community living conditions;
- In common with the Senegalese informal sector in general, the ICT sector has first and foremost a social role.

The study was conducted in a number of stages and should support the creation of indicators that could be used to improve the understanding of the innovation process in the Senegalese informal sector. It should also permit the understanding of the informal sector's capacity to adapt within the Senegalese economy and to examine the innovation process in the informal sector, in order to obtain greater detail on the characteristics that innovative businesses have in common and what differentiates the innovators.

Innovation in the informal sector in general and in the ICT subsector in particular should be understood by means of a methodical approach that best reconciles a number of analysis paths, since such complex facts cannot be explained by a single phenomenon. In order to improve the analysis the combinations of three different approaches have been used: review of the literature, survey and life story.

Review of the literature

To achieve the objective of gaining a better understanding, a review of the relevant innovation literature has been conducted (African Union 2010, Gault 2010, Kraemer-Mbula and Wamae 2010, OECD/Eurostat 1997, 2005), adopting a generalised approach at the outset, followed by a more in-depth and detailed study compared to the research topic, with questions likely to lead to research and produce new knowledge. The innovation review complemented the review of literature on the informal economy already discussed in Sections 2 and 3.

Researching the documentation was of primary importance to this study. It permitted to refine the research topic and more precisely direct the study. Since there is practically no university research documentation in Senegal, the search was extended. Libraries, documentation centres and scientific information services likely to shed some light on the study topic were visited in person or electronically.

Indeed, the reading has provided a clear overview of the informal sector in Senegal, and a more detailed picture of the ICT subsector. The new information and communication technologies were a great help in obtaining additional information.

Survey

The first phase of the survey was exploratory. Information was collected at ANSD, at the departments in charge of the informal sector and within the Informal Production Units (IPU) themselves.

It was necessary to establish relations of trust with members of the informal sector in order to create appropriate conditions for obtaining as much information as possible from the people targeted. In order to understand innovation in the informal ICT sector and assess its adaptive

potential, it isn't enough to know how things are organised and who the players are. What is of primary importance is how the players in this sector perceive innovation. In this way, the information gathered and the initial contacts established enabled to adopt a snowball sampling method, since the ANSD does not have a database on informal production units.

After preparing data gathering tools, it is necessary to test them before putting them to effective and systematic use, in order to ensure that they were suitable and sufficiently precise, and would enable to gather useful information. Thus, the preliminary survey led to the revision of the questionnaires and a restatement of the research questions and hypotheses to arrive at those given in Section 1 and in Section 5.

The questionnaire (see Annex II) was applied in a specific manner to the actors in the informal ICT sector and commerce. It consists of six parts, relating to the:

- Respondent
- Creator of the IPU
- Nature and structure of IPUs and their activities
- Work organisation
- Trading and marketing
- Partnership

Sampling

First, the sites at which the ICT-related IPUs were located in Dakar have been identified, where almost all the IPUs in Senegal are located. This initial work enabled us to identify the following sites:

- Alizé market
- Sandaga market
- Colobane market
- Pikine market
- Grand Yoff market
- Parcelles Assainies market

All these sites exhibit tight-knit groups of IPUs specialising in ICT (sale, repair, decoding, networks, telecommunications, etc.).

Then the snowball sampling method was applied to the survey: the people interviewed were used as sources for identifying other IPUs. A person of interest was asked to complete the questionnaire and then asked to recommend other people likely to be suitable for the study. This method was justified by the fact that, within this culture, all the players know one another and in particular, each one acknowledged the specialists in each field. To make sure that our sample included individuals who really carried some weight in the sector and were of direct interest to this study a number of 100 IPUs has been selected.

Life story

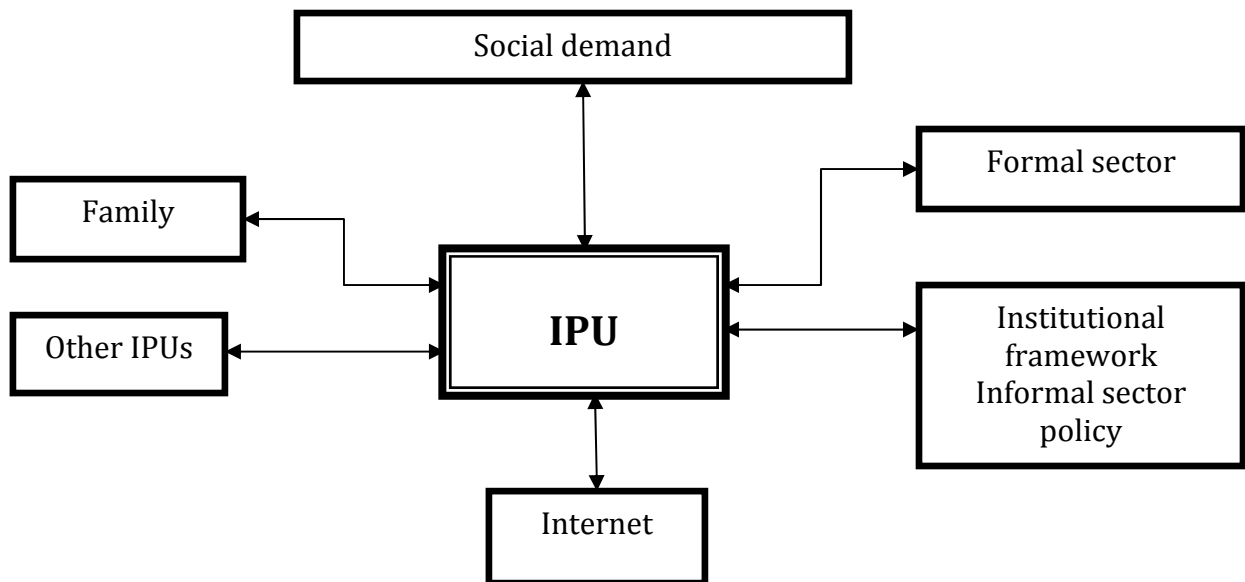
As the ideas became clearer and the hypotheses took shape, it seemed logical to synergise both qualitative and quantitative information, and for this reason the life story method has been added.

It allowed understanding the perceptions and opinions of key participants in respect of innovation within the sector and how the actor saw his role and requirements within the system.

Analysis model

The exploratory phase of this study led to a logical framework and a specific analysis model. From this point onwards, the innovation in the informal ICT and trading sector has been treated as satisfying specific social requirements. From the choice of activity through to customer relations and methods of organising the work, it can be seen that different strategies are used, according to the objectives. In other words, the innovation in the informal ICT and trading sector could simply be considered within the framework of a process involving a multitude of factors and realities, the outcome of which was to underline the effect of social demand in boosting growth. Identifying the variables highlighted the relationships between them. The phenomenon, that it's to understand here, is the process of innovation in the informal sector of ICT and trade. However, it could not be discerned in isolation from reality and the role that the sector seemed to be playing, but above all from the meaning that the actors in this sector attribute to it. Innovation is a multi-dimensional phenomenon that can be explained only by a wide range of factors. It was therefore conceivable that the accumulation of factors would ensure that we would better understand this phenomenon. This is why, in addition to the technological, financial and human factors involved in innovation, it necessary in this case to add the social dimension to better understand the phenomenon under investigation.

Figure 1 Analysis model



6. Analysis and interpretation of survey results

Description of participants

The survey results permitted the identification of the various players in the informal sector, involved in ICT. They are mainly the IPUs, the formal sector, the State and the social group. In

this study, the formal sector combines all the businesses that satisfy the regulations and laws governing the sector of the economy, as well as the State, consisting of the government and its agencies, on the one hand, and the local communities and the services they offer on the other. As for the social group, it combines the family and relatives, religious associations and the district. The social group is a set of people with common characteristics or common goals.

Characteristics of Informal Production Units (IPU)

The informal ICT sector in Senegal is predominantly male. This is shown extensively in this study. In fact, 94% of the IPU respondents to this survey were male. Since the population of Senegal is predominantly female (52%), these results cannot be interpreted as representative of the Senegalese population. It does not mean that women play almost no part in the informal sector, but rather that they specialise in other sectors, such as trading food products, selling garments, etc. The informal ICT sector remains for the present a very masculine domain.

The informal sector is above all a survival sector. People enter it primarily to find a job. Self-employment is the key expression for participants in this sector. The table below shows how the people surveyed are distributed in terms of their positions in the IPU.

Table 3 Distribution of respondents according to position in the IPU

Position	%
Junior employee	20.0
Technical manager	10.0
Administration	11.0
General manager/manager	57.0

The majority of respondents (57%) were general managers/managers of IPUs. Other positions in the IPU are junior employee (20%), technical manager (12%) and administrative staff (11%).

IPUs were generally personal achievements. Thus, 43% of IPUs were set up by the respondent. This backs up the thesis that self-employment is predominant in this sector. The individual sets up the activity and manages it. The IPUs are the products of the efforts of one person.

Table 4 IPU creators

Creator	Yourself	A friend	A cousin	Your father/mother	A third party	Your brother/sister	The family	Your uncle/aunt	Associates
%	43.0	4.0	4.0	7.0	7.0	8.0	3.0	5.0	19.0

IPUs are very characteristic of the family, representing 27% of creators as shown in the table above. Another dimension to be taken into account is associates who set up IPUs employing the members of the association. This represents 19% of creators.

The informal ICT sector largely consists of young people which are consistent with a median age in Senegal of 18. The specific nature of the activities generally demands a certain level of

knowledge of ICT and young people are often better suited to working in this sector, especially since older people are generally poorly educated.

Furthermore, IPU creators are mostly male (90%), backing up the idea that the informal ICT sector is a predominantly male domain. 46% of them have monogamous marriages.

Table 5 Distribution of IPU creators according to marital status

Marital status	%
Married, monogamous	45.5
Married, polygamous	18.2
Single	34.3
Divorced	1.0
Widowed	1.0

The fact that most players in the informal ICT sector are very young means that there is a high proportion of single people (34%). In this very young population, most people were in the 15-30 year age group.

The dominant ethnic group in this sector is the Wolof, at 57%. They are followed by the Poular at 18% and the Serer at 10%. The other ethnic groups that we found were the Diola and the Mandingo. These actors were natives of Dakar (28%), Diourbel (25%) and Louga (12%).

The working language is Wolof (98%). This is justified by the fact that the majority of actors are Wolof, and also originate from the locality in which Wolof is the most widely spoken language, i.e. Dakar and central Senegal. However, one should also point out that these IPU participants speak other national languages (Poular, Serer, Diola, Mandingo) as well as foreign languages (French, Arabic, Spanish and Italian).

Table 6 Distribution of IPU creators according to religious affiliation

Religion of UPI creator	%
Tidiane	23.2
Mouride	52.5
Layenne	2.0
Catholic	4.0
Muslim, no affiliation to a sect	18.2

In Senegal, the informal sector is known for its assimilation into the Mouride community. They form a majority in this sector. The results of the study do not contradict this. Creators of IPUs are generally Muslim (95.9%), including 52.5% from the Mouride Brotherhood. Founded at the beginning of the 20th century by Cheikh Ahmadou Bamba, Mouridism developed in Senegal and spread throughout Africa and the other continents. The Mourides, forming approximately 25 % of the population, are now the most influential religious community in Senegal, if not in the whole of West Africa, and play a very important economic and political role (Brisson 2008, Dowden 2008).

The levels of education of IPU creators are as follows: Koranic school (51%), general secondary school (34%) and primary school (15%). Creators of IPUs generally go from Koranic school to the French school and are finally employed in the sector.

None of the IPUs visited had NINEA registration or an accounting compliant with the West African Accounting System (SYSCOA).

How IPUs operate

IPUs are well-known for their particular mode of operation. Human, financial and technical resources are managed based on a form of logic that is different from bureaucratic logic.

Table 7 Distribution of work in the IPU

Criteria	%
Skill	33.3
kinship	30.0
Friendship	24.4
Age	12.2

In most cases, work is distributed on the basis of strictly social criteria (kinship and friendship 55%). Skill remains the criterion of choice (33%). Distribution based on age related criteria is also used, although in only 12% of cases of the study population. This shows that the way the UPI operates is very much determined by social factors. Senegalese society is still very tied to social cohesion and respect for elders in all fields.

The different phases in setting up an IPU are financing, equipment acquisition, cooperation and target market identification. Once the activity has been launched, it operates all the year round. Some periods of the year can be considered propitious for IPU activities. These include religious festivals, religious events, new year, return to school, weekly markets and school holidays.

These periods are capitalized on in various ways:

- Purchase of new equipment;
- Purchase of increased quantities, especially of second-hand products;
- Work reorganisation, increasing working hours, diversifying activities and changes in working hours;
- Lowering of prices;
- Forming many relationships outside the framework of commercial activities;
- Importing spare parts and assembling them;
- Purchasing the maximum number of products and then slashing prices;
- Purchasing computer products and turning them over rapidly at low profit;
- Ordering telephones and reselling them in exchange for mobiles that need repair;
- Bringing in a new product to attract customers;
- Delivering devices on time and cutting the prices of services;
- Bringing in extra staff, using members of the family;
- Setting up a computer system for handling sales;
- Selling fast-moving products, such as CDs.

Methods of remuneration in IPUs vary widely and most often depend on the creator of the activity, but are also affected by how the activity develops.

Table 8 Remuneration in the IPU

Mode	%
Monthly	27.8
Weekly	1.1
Daily	5.6
Irregular	65.6

Remuneration in UPIs is generally irregular (65%). Since the activity is usually precarious, remuneration is dependent on an income which fluctuates and is unstable. This is particularly true of IPUs that handle repair work, decoding, maintenance and servicing. IPUs handling sales pay on a monthly basis (28%).

Methods of remuneration also vary. There are three methods of remuneration: commission-based, quota-based or monthly wage.

Table 9 Methods of remuneration in IPUs

Payment method	%
Commission	46.7
Quota	30.0
Wages	23.3

Identifying IPU activities

The survey results show that IPU activities in the field of ICT are varied and manifold. These activities relate mainly to:

- Sale of recharge cards and telephones;
- Maintenance and servicing of computer systems;
- Decoding mobile telephones;
- Sale of computer hardware and office electronics;
- Sale of audio-visual equipment;
- Sale of CDs, VCDs, DVDs;
- Repairs;
- Services.

The predominant activity of those listed above is the sale of recharge cards, telephones and accessories (41.2%). Mobile telephone decoding and repair are also handled (24% of IPU activities). Note that an IPU can exercise more than one activity at a time.

In addition, 83% of the IPU surveyed had been in existence for 10 years or more. This fits in with the fairly recent development of the ICT sector in Senegal, which dates from the beginning of the century.

Source of information for IPU activities

The main source of information for the IPU on setting up its activities remains the market, or in other words, the needs of society. These needs therefore determine the proposed activity. For instance, many people set up ICT-related activities (mobile telephone, internet, decoding, telephone accessory sales, etc.) because it is an area that has seen strong growth over a few years and provided jobs for many unemployed people.

Table 10 Sources of information for setting up an IPU

Source	%
Family	22.2
Market	56.6
Religious associations	5.1
Business culture	2.0
Community living conditions	4.0
Internet	10.1

In Senegalese society, setting up a business is synonymous with taking control. The idea can originate from anywhere, but the objective remains the same. Inspiration comes from society and experience.

Setting up an IPU is often motivated by a number of factors, such as market demand (31.3%), something to do (20.2%), advice from a third party (17.2%) or simple imitation (15.2%).

Table 11 Idea for setting up the IPU

Motivation	%
Market demand	31.3
Social demand	9.1
Something to do	20.2
Advice from a third party	17.2
Imitation	15.2
More freedom	7.1

Material and financial resources for the IPU

In order to exercise its activities, the IPU needs material resources. Depending on the size of the IPU and the activities it exercises, the material resources it uses are mainly the telephone (77% of respondents), computer (57% of respondents), toolkit (38% of respondents), printer (22% of respondents), photocopier (22% of respondents) and scanner (17% of respondents).

Investments in terms of equipment for the IPU are mainly related to acquiring machinery, hardware and software.

These activities are generally carried out in a workshop (30%), shop (24%), kiosk (16%), market stall (13%) or in the street (11%).

IPU activities are generally financed from own funds, family resources and “tontines”. Some IPUs resort to savings and credit schemes run by banks and religious associations to finance their activities, but the numbers are not significant.

Table 12 Sources of IPU financing

Source	%
Own resources	88.9
Family resources	5.1
Tontines	1.0
Mutual savings and loan associations	3.0
Banks	1.0
Religious associations	1.0

Thus, one can see that IPUs are mainly dependent on the creator’s own resources and to some extent on family resources. The way in which IPUs operate is not always compatible with working with banks, which are formal structures with strict rules. The size of an IPU and its level of resources do not allow it to conduct transactions with the banks. Therefore, over and above their own resources, creators of IPUs can only count on family funds to sustain their activities, linking them even further to family and social factors.

Links and obstacles

This section gives an overview of the relationships among those involved in the sector, and the main obstacles they confront.

Links

IPUs maintain relations with the modern sector, the State and naturally with the social group. However, it is important to stress the fact that the majority of IPUs (93%) do not belong to a network. In terms of partnerships and cooperation, their main partners are in the informal sector (53%).

Table 13 Distribution according to IPU partners

Partner	%
Informal sector	6.0
Modern sector	8.0
NGO	1.0
Religious association	9.0
No partners	23.0
Family	6.0

Relations with customers and suppliers are based on trust, as well as work.

Table 14 Relations with customers and suppliers

Type of relation	Customers (%)	Suppliers (%)
Trust	76.0	45.0
Work	13.0	42.0
Family	7.0	9.0
Place of origin	4.0	4.0

Table 14 shows that relations in the informal ICT sector are based fundamentally on trust (76% for customer relations and 45% for supplier relations).

IPUs are often customers of the modern sector (60%), and to a lesser degree, suppliers (15.3%). They can also be in competition with the modern sector (19.4%).

Competition in the sector is very strong. The main competitors are players within the same sector, and to a lesser extent the formal sector. The factors that most influence competition are price, followed by product quality. IPUs therefore use the social network as a means of achieving market occupancy. Furthermore, they have the advantage of very easy accessibility. Product prices usually vary according to the market, the customer and the period of the year. The final price is often determined by bargaining.

Links with the formal sector: partners and competitors at the same time

The informal sector maintains links with the formal sector and these are much stronger in the field of ICT. The informal ICT sector is for the most part a customer of the modern sector, which very often subcontracts to informal businesses to distribute their products among the population. However, it is sometimes a competitor, since they both share the same market.

Table 15 IPU links with the modern sector

Nature of link	%
Customers	60.2
Suppliers	15.3
Competitors	19.4
No links	5.1

Table 15 shows that the informal sector works in close cooperation with the modern sector as with customers (60%) and suppliers (15%), and as a competitor (20%). Most of the time the informal ICT sector acts as an interface, or intermediary between formal business and society, since it is closer to the population and has a more in-depth knowledge of its aspirations in relation to its standard of living.

Links with the State

For the State, one of the main characteristics of this sector is its unregulated nature and its non-compliance with fiscal requirements. This is reflected in a considerable loss of income for the administration, which is why the State and the informal sector have been in conflict for some considerable time.

Table 16 IPU relations with the State

Nature of relations	%
Business tax	41.8
Tax	37.8
No problems	3.1
Conflicting relations	17.3

Table 16 shows that relations between the State and the informal sector revolve around three main points: payment of business tax, payment of tax and conflict. IPU's hoping to receive some assistance from the State or state departments amount to only 3% of the population studied. In general, in view of the growth in informal economic activities and the regulatory problems that this poses, the attitude of the Senegalese State has been marked by indecisiveness. The administrative authorities have for some time been vacillating between coercive measures for taxing the informal sector (often seen as a potential solution for resolving budgetary tensions) and an indulgent approach largely justified by the severity of the social consequences that would follow the adoption of repressive measures against informal businesses.

This lack of clarity in the State's attitude towards the informal sector means that informal businesses do not feel under any particular pressure from the public authorities. Indeed, rarely do informal businesses report the conflicts which they have experienced with State officials. Furthermore, it seems that situations involving legal action on the part of the authorities rarely lead to the payment of fines by unscrupulous businesses.

Relations with the social group

The family plays a decisive role in setting up and developing IPU's. Religious associations also play a part, even though it is a very much smaller part.

IPU's originate in society (family, religious affiliation, social network). They are the primary locations that express the distributive logic of the informal sector, based on social values, such as solidarity (ndimbaleunté), hospitality (térange), dialogue (disso), etc.

Table 17 Influence of social values on turnover

Social value	%
Solidarity (ndimbaleunté)	36.4
Sharing (seddo)	5.1
Honesty (djoub ak ngor)	31.3
Dialogue (disso)	12.1
Hospitality (teranga)	4.0
Courage (diom)	9.1
Reserve (mandou)	1.0
Perseverance (gorgolou)	1.0

The social values that most contribute to increasing the sales of IPU's are (with the name of the value in Wolof language in parentheses) solidarity (ndimbaleunté), honesty (djoub ak ngor) and dialogue (disso). Numerous arguments to justify this choice of social values were put forward by

survey respondents. For these people, solidarity is a Senegalese national value, since people like to help each other. It strengthens ties insofar as these IPUs are family businesses, and everything involves the family. This solidarity is evidenced by subscriptions, loans between those involved and participation in the events that occur, whether happy or sad. Furthermore, it is this solidarity that enables IPUs to compensate for their limitations through complementary relations. Solidarity is also a means of finding and keeping customers (credit arrangements). This social value is sometimes impressed on them within religious associations called Dahira in Wolof language.

For these IPU respondents, honesty is the value that leads to success. It allows trust to be established, reassuring customers and keeping them loyal. A reassured customer always comes back and can even lead you to other customers.

Courage is an essential value for anyone who wishes to achieve a place in society. It is perceived as proof of self-sacrifice in order to survive in the world of business. Getting up early and spending a long day at work is not an easy option, and therefore courage is needed as well as perseverance to hold on and keep pressing ahead.

Hospitality is a deeply-ingrained Senegalese value and some people have benefitted from it on their way through life. Giving the customer a hearty welcome is a way of winning his trust and reassuring him.

Obstacles

The problems faced by IPUs are many and varied. The type of obstacle encountered can be technical, financial, material, human or others. Each problem has a particular response. The table below summarises the difficulties encountered by the IPUs surveyed and the solutions brought to bear.

Table 18 Problems and solutions

Problem	Solutions
<p>Technical problems arise when the product is damaged by the customer, the merchandise is faulty, (Chinese) product quality, and also because of the high cost of software and logistics.</p>	<ul style="list-style-type: none"> • the product in question is sent to a friend, a superior, an expert in the family or a technician; • the formal sector is called upon to install machines and software; • the product is ordered from another supplier; • the problem is solved amicably with the customer; • the software used is “cracked”.
<p>The causes of financial problems include:</p> <ul style="list-style-type: none"> • non-payment for the product by some customers; • the scarcity of some parts and the high cost of importing from Europe; • shortage of capital for purchasing merchandise and replacing stock. 	<ul style="list-style-type: none"> • reaching an agreement with the supplier (taking merchandise on credit and then paying it off); • help from the family; • lending from an association or friends; • lending from banks or savings institutions; • using money from subscriptions; • drawing on savings; • contacting the owner of the IPU; • falling back on cheaper mobiles to accumulate more capital; • holding promotional sales; • hiring out machines; • asking for payment before performing the service; • contacting the foreign partner; • increasing subscriptions to consolidate stocks; • asking your spouse; • doing additional work to pay certain overheads; • suspending activities and starting up again later using your earnings; • staying within your means.
<p>Human problems faced by IPU include:</p> <ul style="list-style-type: none"> • difficulty in preparing a sales project; • the hypocrisy of some co-workers; • insufficient training for young repairers; • shortage of technical staff; • sometimes difficult relations with competing street sellers. 	<ul style="list-style-type: none"> • delegating surplus work or work to be done to a friend; • temporary staff recruitment; • help from family members (cousins, children, nephews); • not allowing work to accumulate; • consulting more experienced people or asking someone who has better knowledge of the market; • taking advantage of peak times to sell more; • getting up early and returning home late.
<p>The institutional problems faced by IPU are often linked threats from the authorities to move you on.</p>	<p>Some people prepare a place to move on to and others handle the problem by improving relations.</p>

Types of innovation

This study revealed the types of innovation that are possible in the informal ICT sector, and they will be evaluated in future studies. These include social innovation for which a definition is provided and organisational and marketing innovations which are discussed in the third edition of the Oslo Manual (OECD/Eurostat 2005). Technological innovation through decoding and other activities could also be investigated. This section gives information for identifying these three types of innovation.

Social innovation

The first type of innovation found in the informal ICT sector is social innovation, defined by its purpose, which is inclusion in a given social, human and economic environment. In this case, the innovation is thought up by the community and has a social purpose. Action is taken within a framework that allows communities to preserve their identities and structures. These innovations are integrated in order to adapt to a precise social and economic environment. Participants in the informal ICT sector try to profit from this situation, whilst complying with society's requirements and demands.

For the Social Innovation Research Centre (CRISES 2009), social innovation is understood to mean "intervention initiated by social players to satisfy an aspiration, provide for a need, introduce a solution or take advantage of an opportunity to act in order to change social relations, transform an action framework or propose new cultural directions"

Organisational innovation

This type of innovation consists of a new way of organising work. In the informal ICT sector in Senegal, ways of building and coordinating activities differ from all the theories put forward on organising work in the economic system. Work organisation, from human resource management to methods of remuneration, follow norms of distributive logic based on the social factors and values such as hospitality, honesty and sharing.

The way that work is distributed and the deadlines and methods of remuneration in these IPUs clearly show how the work is organised.

Marketing innovation

Marketing consists of sales methods and winning customer loyalty. Innovation in this field appears in different ways. The strategy of market occupancy in the informal sector generally involves using social networks. This enables the IPU to maximise sales and services offered, and provides the IPU with a ready-made customer base.

Table 19 Market occupancy strategy

Strategy	%
Social network	54.0
Advertising	2.0
Price	7.0
Accessibility	33.0
Quality of work	4.0

The accessibility of IPUs is often a decisive element in customer loyalty (33%). IPU marketing also involves pricing mechanisms, which entail negotiating with the customer to reach an understanding. The survey confirms that negotiation occurs in 88% of transactions, with only 12% being fixed price. Negotiation gives the customer the feeling of participation in arriving at the price of the products and services to be purchased. This way of doing things is important in a society in which everything is negotiated and all things are based on dialogue.

Marketing approaches are based on monitoring the market environment to improve adaptation to market conditions. The socioeconomic environment determines this type of behaviour.

7. Life story: Serigne Mboup, CEO of the CCBM group

If there is a paradigm for success in the business world of Senegal, it is represented by the story of Serigne Mboup, CEO of the Comptoir Commercial Bara Mboup (CCBM), an illustration of successful transition from the informal to the formal sector. At 45, the polygamous Mr. Mboup, who early on mastered the workings of business, remains an inescapable figure on the Senegalese business scene. 'Serigne', as he is known to his friends, is an exemplary product of the informal sector.

Having inherited with his brothers a flourishing business from his father who died in 1992, and with fluency in Arabic, he very quickly learned how to adapt to the new requirements of the business world. Through enormous sacrifice, he built on the recurrent themes of the philosophy of work, as though led by his spiritual guide, Sheikh Ahmadou Bamba.

At the age of 23, Serigne Mboup joined his father and worked side-by-side with him. Three years later, in 1992, Bara Mboup died, leaving his children a legacy of hard work which had to be conserved and brought to fruition. Serigne therefore took on the heavy burden of moving the business forward.

The departure of the Mauritanian traders after the political unrest of 1989 and the gap they left to be filled was a launching pad for him.

His father had decided to invest in food products and Serigne was left to manage this business. It was the beginning of a great adventure in the business world. Serigne began his pursuit of economic power.

Serigne Mboup took over as head of the CCBM group, a Senegalese benchmark in trade and industry. Founder of businesses and unknown to the world before 2000, Serigne came to the forefront in Sénégal with his imposing Touba Sandaga commercial centre, built in the middle of the Sandaga market in Dakar. In November 2001, he was privileged to have the President of the Republic in person at its inauguration.

His initiative was soon imitated by other promoters. Commercial centres of the same kind sprang up like mushrooms everywhere in the city centre. He moved into other sectors, diversifying his activities. Master Office for office electronics, SBMA for food and cleaning products, Pridoux specialising in setting up and running mini-markets, Espace Auto importing and selling vehicles, CCBM estate agents which was to take on the construction of an ultra-modern building in Soweto Square, a project that took some time to materialise, Africa Transit, CCBM Voyages, Digital Planet which experienced some problems and many of the showrooms that opened their doors have now closed. Not to mention his involvement in the renewal of the taxi fleet with his project for 50 taxis entrusted to women drivers and inaugurated by the First Lady of Senegal. All these enterprises, created since the ascendancy of the CCBM group, enabled Serigne Mboup to employ over 1000 people. Today, although he would rather not talk about the profits of his holding company, he has stated that his turnover is around 30 billion CFA Francs (60 million U.S. Dollars).

With the success of his activities on record, Serigne Mboup has been acknowledged by the Senegalese government, and for some years has been awarded a number of public contracts, including:

- A contract for providing vehicles for deputies currently in office, involving the supply of 150 Hover 4×4 vehicles, worth a total of 2.5 billion CFA Francs;
- A contract for building the future Senate Building, worth 10 billion CFA Francs;
- Other smaller contracts.

Serigne's distinguishing feature is his boldness in taking on innovative activities, the latest of which, 'Sister Taxi', was launched in 2007, a fleet driven only by women and intended to rid Dakar of its polluting taxis. This revolutionary project has been very successful in the Senegalese capital. For the first time ever, women can be seen driving taxis in Dakar, an outcome of inclusive innovation.

His working method, based on trust and Senegalese social values, has been fully acknowledged by the Senegalese people. The enterprise culture embodied in his services is based on five values: ambition, creativity, performance, responsibility and solidarity. His strategy centres on diversification and job creation. This can be seen in the group's activities. For instance, Taxi loans on a no-deposit basis, means that people can benefit from a taxi and pay for it on a daily basis. This proves once again that the group's activities are first and foremost based on trust, solidarity and the responsible attitudes of those who benefit. He has a pioneering vision that includes inclusive innovation and is a leader in the fields of services distribution and industry, making his products accessible to all consumers, whatever their economic situation and gender.

8. Policy implications and outlook

From the outset, the Senegalese authorities understood the importance of the informal sector in contributing to economic growth, job creation and, consequently, poverty alleviation.

Therefore, to make the informal sector more visible, a number of measures were taken at administrative and fiscal levels. One of the first measures was the acceptance of groups, associations or collectives representing the sector in discussions with the public authorities and local communities. Then, after talks among stakeholders, taxes were introduced for this sector of activities, and monitoring undertaken with a view to formalising informal production units. In 2000, a ministry was set up to take charge of relations with the informal sector. Despite all these measures, analysis of the policies implemented provides clear evidence of the conflicts that exist between government institutions and the informal sector in Senegal.

Any alternative policy for the informal sector must take account of the following:

- The dynamic equilibrium of relations with this sector and the customer base must be respected. The locations of the informal production units are based on the results of market research conducted by the units themselves;
- Although individualised, the informal economy is based on nested social networks which must be measured and acknowledged;
- Structuring activities in the sector and relations with government institutions;
- Creating a framework for integrating these informal units in development policies;
- Supporting the sector's activities to set up the tools for appropriate and continuous monitoring.

This case study on the informal sector and innovation in Senegal has produced some important results on the sector and inclusive development. It provides a basis for setting up facilities for measuring innovation in the sector. Because of its informal nature, this sector has been marginalised by innovation studies. This study shows that the informal sector can be investigated by researchers so that it can better be taken into account by development policymakers. The study also shows that indicators can be developed that provide information on economic and social activities in the informal sector and their impacts.

The results obtained from this study raise new questions that merit in-depth examination. Since any kind of innovation is measured over periods of time, measuring innovation in the informal sector is bound to require much more time. These results merely provide a basis for creating innovation indicators for the informal sector.

This study also confirmed the need for countries like Senegal to investigate the field of innovation and the informal sector. This continues to be a field about which very little is known by researchers, and even more importantly, by policy-makers.

The informal sector plays a decisive role in the Senegalese domestic economy and a clearer understanding of this sector is required so that it can be better integrated into the national innovation system through appropriate policy intervention. But first, its potential must be understood (operating modes, relations, standards, values, etc.).

The informal sector adapts to the Senegalese market and the explanation for this goes beyond the simple fact that the formal sector is not able to fully satisfy the demand for employment. There are other reasons behind this adaptation, exhibited by the informal sector's approach to everyday life in Senegal.

This study could be followed up by working on the policies and institutions confronted by this sector and the innovative practices it implements.

Furthermore, this study was intended to extend into other informal sectors, such as commerce, transport, restoration, arts and crafts, etc. It would also be interesting to measure innovation within small and medium-sized and intermediate businesses (SMB/IB) that interface the formal and informal sectors.

9. Conclusion

The informal sector in Senegal benefits from and has achieved a prominent place in the national economy because of its capacity to create jobs and its contribution to GDP. This explains the interest in this sector and consequently the study conducted on the informal ICT sector and its innovation processes.

Conducting the study was a question of examining the informal sector's adaptation mechanisms within the Senegalese context, discovering innovations, understanding the related process and how IPU's manage to integrate into the market economy. This work provided answers to the questions posed in Section 1 and it was managed by means of a three pronged approach: a review of the literature; a survey, based on a questionnaire developed for the case study; and, a life story to provide context to what was learned from the literature and the data gathered.

This work shows that the informal ICT sector has developed only recently (since 2000). It has evolved to satisfy the specific ICT-related needs of society. The adaptation mechanisms in this sector involve taking account of the social and economic realities of the population. Observation of these social realities is the basis of the innovations noted in this sector. These innovations (social innovation, organisational innovation and marketing innovation) reflect Senegalese society and how it is organised. They are based on Senegalese values and on distributive logic, in contrast to the profit motive that prevails in the capitalist system.

Moreover, the sector is very heterogeneous. Of the workforce, 94% are men, mainly young men, and 34% are educated to general secondary level. Some 51% have attended Koranic school. However, problems such as a lack of technical training and conflicts between players are worth noting. The informal sector has led to more flexible State taxation policies, but one need to recognise that there is a real problem of institutional maturity. All public actions undertaken in respect of the informal sector are directed towards reprimanding, whereas some thought could be given to finding policies that are more suited to the Senegalese economy.

The study of the informal sector and innovation has helped to understand how the sector is structured, what the various activities are and how it operates. Even though the objectives set at the beginning of the study were ambitious, the results obtained confirm the hypotheses proposed

in Section 5. The informal ICT sector is indeed based on proximity, both geographical and closeness of relationships based on trust, and on the adaptation to the living conditions of the community. It is clear from the findings of this study that the informal ICT sector plays a social role in providing employment, reducing poverty, and raising the capacity of the participants through learning by doing and other forms of knowledge transfer.

The informal ICT sector is based on the logic of proximity and adaptation to community living conditions.

Observation has shown that the informal ICT sector, in its activities and above all its operating modes, follows a basic social logic benchmarked on Senegalese society. Its originality stems from its marketing strategies which are in stark contrast to those used in the so-called formal sector and which are innovations as defined in the Oslo Manual.

The informal ICT sector has an important social role

Like any informal sector in Senegal, the informal ICT sector is important above all for the social role it plays. It is first and foremost a survival activity, for individuals and families alike.

Capitalizing on this experience in the study of the informal sector and innovation processes has helped expand the fields of investigation of this sector and led to the following lessons learned:

- The importance of treating the informal sector as an entity in its own right with specific operating modes and work organization methods and innovations. Simply defining the informal sector in contrast to the formal sector has meant that policy makers have been slow to come to terms with this sector, which plays a decisive role in the Senegalese economy, but which could contribute more with appropriate government policies;
- The need to set up a framework involving all the actors in the sector, to boost its dynamism and enhance the profitability of its innovative approaches;
- The importance to the participants in the informal ICT sector of specific ICT training courses. Furthermore, they would earn more if they had an average education, enabling them to familiarize themselves with ICT. This is a case both for the provision of basic education as well as technical education and for encouraging the young, who populate the informal ICT sector to participate more in such education.

This study has enabled to better understand informal ICT businesses, helping to expand the field of investigation of the informal sector. From this, the following lessons have been drawn:

- Deeper knowledge of the informal sector, in terms of its ICT activities;
- The need to put a place a framework involving all stakeholders to make the sector more dynamic and encourage innovation;
- Developing the skills and building the capacities of the actors to raise the level of education;
- Recognition of the sector as an entity with its own operating modes and organisational methods, as well as latent know-how that could be exploited;
- Economic participants to be taken into account in innovation and development policies.

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Annex 1: Gross Domestic Product (GDP) by sector of activities

In billions of currents CFA	1990 actual	1991 actual	1992 actual	1993 actual	1994 actual	1995 actual	1996 actual	1997 actual	1998 actual	1999 actual	2000 actual	2001 actual	2002 actual	2003 actual	2004 actual	2005 actual	2006 actual	2007 Prelim. actual	2008 Prov.
TOTAL VALUE ADDED	1 399	1 416	1 421	1 457	1 960	2 195	2 318	2 434	2 651	2 787	2 935	3 157	3 261	3 501	3 715	3 992	4 232	4 662	5 213
Primary sector	294	302	280	315	395	485	490	509	544	571	599	625	551	650	627	715	685	696	874
Secondary sector	295	299	329	328	447	499	536	543	598	613	644	734	786	807	876	900	959	1 085	1 180
Tertiary sector	810	814	812	815	1 118	1 212	1 292	1 381	1 509	1 604	1 691	1 798	1 924	2 044	2 212	2 378	2 587	2 881	3 159
.modern sector	620	624	692	667	909	946	1 016	1 083	1 169	1 210	1 242	1 351	1 485	1 578	1 729	1 842	1 947	2 178	2 433
.informal sector	779	791	729	791	1 051	1 249	1 301	1 351	1 481	1 578	1 692	1 806	1 776	1 923	1 986	2 150	2 285	2 484	2 780
+TAX NET ON THE PRODUCTS	158	169	169	151	193	240	274	293	317	380	397	419	457	486	528	601	662	743	731
GDP	1 556	1 585	1 589	1 608	2 153	2 435	2 591	2 727	2 968	3 167	3 332	3 575	3 718	3 987	4 243	4 593	4 894	5 405	5 944

Source : Agence Nationale de la Statistique et de la Démographie

(http://www.ansd.sn/publications/annuelles/autres_donnees/Agregat_macro_2009.htm), Accessed January 24, 2012

Annex 2: Informal ICT and Trade Sector QUESTIONNAIRE

Name of Informal Production Unit (IPU) (Optional):

.....

.....

Address (Optional):.....

.....

.....

Telephone N°
(Optional):.....

1. Information on the respondent	
Name - First name	
Gender	<input type="checkbox"/> Male <input type="checkbox"/> Female
Position in the IPU	<input type="checkbox"/> Junior employee
	<input type="checkbox"/> Technical manager
	<input type="checkbox"/> Administration
	<input type="checkbox"/> General manager/Manager
	<input type="checkbox"/> Other (please specify):

2. Socio-demographic information on the owner/creator/manager of the IPU					
2.1 Who created the IPU?					
<input type="checkbox"/> You alone	<input type="checkbox"/> Your Father/Mother	<input type="checkbox"/> Your brother/sister	<input type="checkbox"/> Your uncle/aunt		
<input type="checkbox"/> A friend	<input type="checkbox"/> A third party	<input type="checkbox"/> The family	<input type="checkbox"/> Associates		
<input type="checkbox"/> A cousin	<input type="checkbox"/> Other (please specify):				
2.2 Gender	<input type="checkbox"/> Male		<input type="checkbox"/> Female		
2.3 Matrimonial status					
<input type="checkbox"/> Married, monogamous	<input type="checkbox"/> Married, polygamous	<input type="checkbox"/> Single	<input type="checkbox"/> Divorced	<input type="checkbox"/> Widowed	<input type="checkbox"/> Other
2.4 What is your ethnic group ?					
<input type="checkbox"/> Wolof	<input type="checkbox"/> Serer	<input type="checkbox"/> Toucouleur	<input type="checkbox"/> Diola	<input type="checkbox"/> Mandingo	
<input type="checkbox"/> Other Senegalese ethnic group (please specify):					
<input type="checkbox"/> Foreigner (please specify):					
2.5 Languages spoken (you can check more than one box)					
<input type="checkbox"/> Wolof	<input type="checkbox"/> Serer	<input type="checkbox"/> Toucouleur	<input type="checkbox"/> Diola	<input type="checkbox"/> Mandingo	
<input type="checkbox"/> French	<input type="checkbox"/> English	<input type="checkbox"/> Spanish	<input type="checkbox"/> Chinese	<input type="checkbox"/> Arabic	
<input type="checkbox"/> Other languages (please specify)					
2.6 Place of origin:					
2.7 Religion practiced or brotherhood					
<input type="checkbox"/> Tidiane	<input type="checkbox"/> Mouride	<input type="checkbox"/> Layenne	<input type="checkbox"/> Catholic	<input type="checkbox"/> Protestant	
<input type="checkbox"/> Animist	<input type="checkbox"/> Other (please specify):				
2.8 Level of Education					
<input type="checkbox"/> None	<input type="checkbox"/> Primary	<input type="checkbox"/> General secondary	<input type="checkbox"/> Technical secondary	<input type="checkbox"/> Higher	
<input type="checkbox"/> Professional training	<input type="checkbox"/> Koranic school	<input type="checkbox"/> Other (please specify):			

2.9 Socio-professional trajectory (please number in sequence)					
Unemployed	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
French school	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Koranic school	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Craftsperson	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Employed in the modern sector	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Other	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

3. Nature and Structure of the IPU and its activities				
3.0a. Do you have a NINEA registration number? <input type="checkbox"/> Yes <input type="checkbox"/> No		3.0b. Does your business have <input type="checkbox"/> Written SYSCOA-compliant accounting? <input type="checkbox"/> No SYSCOA-compliant accounting? <input type="checkbox"/> Other (please specify) ?		If the business has a NINEA registration number and formal accounting to SYSCOA standards, end of interview for this IPU.
3.1 How long has your IPU been in existence?				
3.2 How would you categorise your activity ?				
<input type="checkbox"/> Sale of recharge cards, telephones	<input type="checkbox"/> Maintenance and servicing	<input type="checkbox"/> Mobile telephone decoding	<input type="checkbox"/> Computer and peripheral device assembly	<input type="checkbox"/> Sale of computer hardware, office electronics
<input type="checkbox"/> Sale of audiovisual equipment	<input type="checkbox"/> Sale of CDs, VCDs, DVDs	<input type="checkbox"/> Asset creation	<input type="checkbox"/> Repairs	<input type="checkbox"/> Services
<input type="checkbox"/> Other (please specify):				
3.4 What material resources does your IPU use to conduct its activities?				
<input type="checkbox"/> Computer	<input type="checkbox"/> Printer	<input type="checkbox"/> Scanner	<input type="checkbox"/> Telephone	<input type="checkbox"/> Photocopier
<input type="checkbox"/> Repair kit	<input type="checkbox"/> Fax	<input type="checkbox"/> Other (please specify):		
3.5 What kind of premises do you have for conducting your activities ? (you can check more than one box)				
<input type="checkbox"/> Street	<input type="checkbox"/> Stall in the street	<input type="checkbox"/> Vehicle	<input type="checkbox"/> Market stall	<input type="checkbox"/> Workshop
<input type="checkbox"/> Shop	<input type="checkbox"/> Kiosk			
3.6 How did the idea for this activity originate?				
<input type="checkbox"/> Market demand	<input type="checkbox"/> Social demand	<input type="checkbox"/> Something to do	<input type="checkbox"/> Advice from a third party	<input type="checkbox"/> Imitation
<input type="checkbox"/> More freedom	<input type="checkbox"/> Fewer constraints	<input type="checkbox"/> Other (please specify):		
3.7 What are the general stages in carrying out the activity? (please number in sequence)				
Identifying targets	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Financing	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Equipment	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Cooperation	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Human resources	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3.8 Are there especially favourable periods in the year for conducting your activities?				
<input type="checkbox"/> Religious festivals	<input type="checkbox"/> Religious events	<input type="checkbox"/> End of year	<input type="checkbox"/> Return to school	<input type="checkbox"/> Weekly markets
<input type="checkbox"/> Fairs				
3.9 How do you take advantage of these favourable periods?				

<input type="checkbox"/> Investments	<input type="checkbox"/> Pricing strategy	<input type="checkbox"/> New product	<input type="checkbox"/> Work organisation	<input type="checkbox"/> Special offers
3.10 How did this happen?				
3.11 What problems have you had to face in conducting a new activity? (you can check more than one box)				
<input type="checkbox"/> Technical	<input type="checkbox"/> Financial	<input type="checkbox"/> Human	<input type="checkbox"/> Organisational	<input type="checkbox"/> Institutional
<input type="checkbox"/> Other (please specify)				
3.12 How have you overcome these problems ?				
Technical:				
Financial:				
Human:				
Organisational:				
Institutional:				
Other (please specify):				
3.13 Over the last few years, has your business invested in the following activities?				
<input type="checkbox"/> Acquiring a machine	<input type="checkbox"/> Acquiring outside knowledge	<input type="checkbox"/> Training	<input type="checkbox"/> Buying software	
<input type="checkbox"/> Other (Please specify):				
3.14 What sources of information have you used for setting up your activities?				
<input type="checkbox"/> The family	<input type="checkbox"/> Market	<input type="checkbox"/> State and State departments	<input type="checkbox"/> Religious associations	<input type="checkbox"/> Business culture
<input type="checkbox"/> Community living conditions	<input type="checkbox"/> Internet			
3.15 Which types of financing do you use for keeping your activities going?				
<input type="checkbox"/> Own resources	<input type="checkbox"/> Family resources	<input type="checkbox"/> Tontines	<input type="checkbox"/> Mutual savings and loan associations	<input type="checkbox"/> Bank
<input type="checkbox"/> Religious associations	<input type="checkbox"/> Other (please specify)			
3.16 Which of the following social values have helped you to increase turnover?				
<input type="checkbox"/> Solidarity (Ndimbaleunté)	<input type="checkbox"/> Sharing (seddo)	<input type="checkbox"/> Honesty (djoub ak ngor)	<input type="checkbox"/> Dialogue (disso)	
<input type="checkbox"/> Hospitality (teranga)	<input type="checkbox"/> Courage (diom)	<input type="checkbox"/> Reserve (mandou)	<input type="checkbox"/> Perseverance (goorgolou)	
3.17 Give an explanation for each value checked?				
Solidarity:				
Sharing:				
Honesty:				
Dialogue:				

Hospitality:
Courage:
Reserve:
Perseverance:

4. WORK ORGANISATION				
4.1 How many people work in the IPU?				
4.2 How is the work distributed?				
<input type="checkbox"/> Based on skill	<input type="checkbox"/> Based on kinship	<input type="checkbox"/> Based on friendship	<input type="checkbox"/> Based on age	
4.3 How are employees are paid?				
<input type="checkbox"/> Monthly	<input type="checkbox"/> Weekly	<input type="checkbox"/> Daily	<input type="checkbox"/> Hourly	<input type="checkbox"/> Irregularly
4.5 What are the methods of remuneration				
<input type="checkbox"/> Commission (sales)	<input type="checkbox"/> Quotas	<input type="checkbox"/> Wages		

5. COMMERCE AND MARKETING				
5.1 What is your main strategy for market occupancy?				
<input type="checkbox"/> Social network	<input type="checkbox"/> Advertising	<input type="checkbox"/> Price	<input type="checkbox"/> Accessibility	
<input type="checkbox"/> Other (please specify):				
5.2 Do your product prices vary according to:				
<input type="checkbox"/> Market	<input type="checkbox"/> Customer	<input type="checkbox"/> Place	<input type="checkbox"/> Time	
<input type="checkbox"/> Other (please specify):				
5.3 What is your main pricing mechanism?				
<input type="checkbox"/> Bargaining		<input type="checkbox"/> Fixed price		
5.4 What are your customer relations based on?				
<input type="checkbox"/> Trust	<input type="checkbox"/> Work	<input type="checkbox"/> Family	<input type="checkbox"/> Religion	<input type="checkbox"/> Place of origin
5.5 Who are your main suppliers?				
<input type="checkbox"/> Wholesalers	<input type="checkbox"/> Outside partners	<input type="checkbox"/> Retailers (traders)	<input type="checkbox"/> Formal businesses	
5.6 What are your supplier relations based on?				
<input type="checkbox"/> Trust	<input type="checkbox"/> Work	<input type="checkbox"/> Family	<input type="checkbox"/> Religion	<input type="checkbox"/> Place of origin
5.7 How would you assess the competition in your field of activity?				
<input type="checkbox"/> Very strong	<input type="checkbox"/> Strong	<input type="checkbox"/> Average	<input type="checkbox"/> Weak	<input type="checkbox"/> Very weak
5.8 Who are your main competitors?				
<input type="checkbox"/> Formal sector	<input type="checkbox"/> Participants in the same sector	<input type="checkbox"/> Foreign participants		
5.9 What do you think is the most important factor in being competitive?				
<input type="checkbox"/> Proximity	<input type="checkbox"/> Product quality	<input type="checkbox"/> Affordable price	<input type="checkbox"/> Capital	
<input type="checkbox"/> Other (please specify)				
5.10 What innovative strategies do you adopt for facing this competition?				
<input type="checkbox"/> Cutting prices	<input type="checkbox"/> Using new sales	<input type="checkbox"/> Improving product quality	<input type="checkbox"/> Other (please specify)	

	techniques	(packaging, etc.)	
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6. PARTNERSHIP AND COOPERATION				
Does your IPU belong to a group or network?				
<input type="checkbox"/> Yes		<input type="checkbox"/> No		
If yes, please specify the group:				
Who are your IPU's partners in implementing an activity?				
<input type="checkbox"/> Informal sector	<input type="checkbox"/> Modern sector	<input type="checkbox"/> State	<input type="checkbox"/> NGO	<input type="checkbox"/> Religious association
<input type="checkbox"/> Other				
What links does your business have with the so-called modern sector? (you can check more than one box)				
<input type="checkbox"/> Customer	<input type="checkbox"/> Supplier	<input type="checkbox"/> Competitor	<input type="checkbox"/> Associate	
What relations does your business have with the State and State departments?				
<input type="checkbox"/> Business tax	<input type="checkbox"/> Tax	<input type="checkbox"/> Subsidy	<input type="checkbox"/> No problem	
3.14 Has your business benefitted from public financial support for new activities?				
<input type="checkbox"/> Yes	<input type="checkbox"/> No			
If yes				
<input type="checkbox"/> Local authorities	<input type="checkbox"/> Government	<input type="checkbox"/> Other		

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