

# **Measuring Innovation in the Informal Economy - Formulating an Agenda**

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## **Abstract**

This paper reviews options for measuring innovation in the informal sector and proposes an agenda for future work. It starts with a review of surveys of innovation in the formal business sector, and related definitions, as sources of questions and definitions which could be applied to the informal sector. Then, labour force surveys, and those that are combined with establishment surveys to measure informal sector activities, are examined with a view to adding questions, or modules, on the measurement of innovation in the informal sector. In addition, the advantages of using semi-structured interviews and ad hoc questionnaires in specific sub-sectors of the informal sector are explored. The discussion leads to a possible agenda for future work on the development of policy relevant indicators of innovation in the informal economy. Its main strength lies in the new combination of tested approaches in both informal sector and also innovation surveys.

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## Introduction

Innovation happens everywhere, in the formal and the informal economy, in private or public institutions, and in households and communities. Measuring innovation is a challenge for researchers and statisticians but developing indicators of innovation supports monitoring and evaluation of innovation policies, once they are implemented, and the development of new policies. Measuring innovation in all sectors is important.

For the formal business sector successive editions of the Oslo Manual (OECD 1992, OECD/Eurostat 1997, 2005) have guided the measurement of innovation for over twenty years and the most widely used survey is the European Union (EU) Community Innovation Survey (CIS). Selected results of the CIS are published in scoreboards and are part of public policy discourse.

There is also substantial work on public sector innovation (Bloch 2013), household innovation (Hienerth et al. 2014, de Jong and von Hippel 2013), and an emerging literature on social innovation (Mulgan et al. 2013). Not yet well developed is work on measuring innovation in the informal sector and that, and the production of policy relevant indicators, are the subjects of this paper.<sup>1</sup> It concentrates on Africa, but the findings are more widely applicable.

The paper approaches measurement of innovation in the informal sector in three ways: reviewing the potential for adapting existing work from innovation measurement in the business sector in the formal economy; working with existing measurement activities in Africa, particularly labour force surveys linked to establishment surveys to measure economic activities in the informal sector; and developing a more flexible approach using semi-structured interviews and ad hoc surveys to identify innovation activities in sub-sectors of the informal sector. The contribution of the paper lies in the novel combination of tested approaches in informal sector surveys, on the one hand, and innovation surveys in the formal sector, on the other hand.

In the coming years, new efforts are planned to gather data and better measure innovation in developing countries, such as the third edition of the African Innovation Outlook. This will widen the scope of reporting and analysis to include coverage of innovations in the informal sector (AU-NEPAD 2014). The suggestions in this chapter are intended to lay important groundwork for future empirical work, to help develop appropriate indicators and support new approaches to innovation policy in developing countries. Pragmatic suggestions are formulated, pointing to potential opportunities and challenges. Two viable scenarios emerge: (i) adding a

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<sup>1</sup> The origins of this work lie in a [project initiated by the Member States of the WIPO to implement Recommendation 34 of WIPO's Development Agenda](#) via the Committee on Development and Intellectual Property. The task was to more empirically assess the interactions between the informal economy, innovation, knowledge appropriation and development. The research project has been ongoing since 2011. First, a [conceptual study](#) was developed. A workshop on "[Innovation, Intellectual Property and the Informal Economy](#)" hosted by the Institute for Economic Research on Innovation, Tshwane University of Technology, South Africa, brought together stakeholders in 2012. Second, three studies explored innovation in three informal sectors: herbal medicines in Ghana, metal manufacturing in Kenya and the manufacture of home and personal care products in South Africa. A model questionnaire was developed. Third, a book project – see Kraemer-Mbula and Wunsch-Vincent (2016) - was undertaken with Cambridge University Press. This paper will form Chapter 8 of that book.

couple of innovation questions to existing large-scale surveys of the informal economy and/or (ii) conducting ad hoc questionnaire- and interview-based sectoral studies in selected countries, as was done for the country studies in this book. Both options can benefit from lessons learned in conducting the three different but mutually supporting types of innovation and IE surveys, and their respective expert communities, which have different but complementary skills.

## 1) Measuring Innovation in the Formal Sector and Applicability to the Informal Sector

### What Innovation Surveys Are Carried Out in the Formal Sector?

Since the early 1980s, work has been undertaken to better understand and measure innovation by establishing concepts, guidelines and surveys. The *Oslo Manual* initiated by the Organisation for Economic Co-operation and Development (OECD) introduced standard definitions and indicators in 1992 (OECD 1992). In paragraph 146 of the third edition of the *Manual*: “An innovation is the implementation of a new or significantly improved product (good or service), or process, a new marketing method, or a new organizational method in business practices, workplace organization or external relations” (OECD / Eurostat 2005).<sup>2</sup>

The guidelines have been revised since, in collaboration with Eurostat, the statistical office of the European Commission (OECD and Eurostat 1997, 2005). These guidelines are the starting point for the construction of innovation surveys, most notably the Eurostat Community Innovation Survey (CIS), developed in Europe, which has often been used as the model for ensuing innovation surveys across the world (see [Box 1](#)).

One central aspect of these innovation surveys is that they measure behavior. They ask if the enterprise introduced a new or significantly improved good or service, and they also ask about the introduction of novel organizational activity and marketing activity. The answers provide information about the firm as an innovative firm (OECD / Eurostat 2005, p. 47). There is also a question about ongoing or abandoned innovation activities, a positive response to which classifies the firm as innovation-active (OECD / Eurostat 2005, p. 59).

In this well-established innovation framework, innovation activities could include the acquisition of machinery, equipment, software and licenses, engineering and development work, design, training, marketing and R&D where undertaken to develop and/or implement a product or process innovation. Motives to innovate include the desire to increase market share or enter new markets, improve the product range, increase the capacity to produce new goods, reduce costs and so on. In addition to these questions, surveys of innovation in the formal economy include other questions, for example, on the sources of information for innovation, types and drivers of collaboration and expenditures on selected innovation activities.

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<sup>2</sup> See also paragraph 150: “A common feature of an innovation is that it must have been implemented. A new or improved product is implemented when it is introduced on the market. New processes, marketing methods or organizational methods are implemented when they are brought into actual use in the firm’s operations” (OECD and Eurostat 2005).

### **Box 1 Community Innovation Survey 2012**

The harmonized Community Innovation Survey 2012 includes questions which follow eleven themes of enquiry:

- (1) General information about the enterprise
- (2) Product (good or service) innovation
- (3) Process innovation
- (4) Ongoing or abandoned innovation activities for product and process innovations
- (5) Activities and expenditures for product and process innovations
- (6) Sources of information and cooperation for product and process innovation
- (7) Competitiveness of your enterprise's product and process innovations
- (8) Organizational innovation
- (9) Marketing innovation
- (10) Public sector procurement and innovation
- (11) Strategies and obstacles for reaching your enterprise's goals

On product innovation some of the questions are the following:

2.1 During the three years 2010 to 2012, did your enterprise introduce:

	Yes	No
Goods innovations: New or significantly improved goods (exclude the simple resale of new goods and changes of a solely aesthetic nature) <input type="checkbox"/> <input type="checkbox"/>		
Service innovations: New or significantly improved services <input type="checkbox"/> <input type="checkbox"/>		

2.2 Who developed these product innovations?

	<i>Tick all that apply</i>	
	Goods innovations	Service innovations
Your enterprise by itself <input type="checkbox"/> <input type="checkbox"/>		
Your enterprise together with other enterprises or institutions* <input type="checkbox"/> <input type="checkbox"/>		
Your enterprise by adapting or modifying goods or services originally developed by other enterprises or institutions* <input type="checkbox"/> <input type="checkbox"/>		
Other enterprises or institutions* <input type="checkbox"/> <input type="checkbox"/>		

Source: Harmonized Community Innovation Survey 2012.

The data obtained is classified by size of the enterprise (number of employees), geography and the industrial sector in which the enterprise operates. This allows size-dependent, geographical and sectoral differences to be revealed through micro-data analysis.

Many countries outside high-income economies have adopted these standard innovation survey tools.<sup>3</sup> The UNESCO Institute for Statistics and a range of partners, notably RICYT (Red Iberoamericana de Indicadores de Ciencia y Tecnología) with its *Bogotá Manual*, have produced a set of guidelines on how to implement innovation surveys in developing countries. Estimates suggest that, to date, national innovation surveys have been carried out by ninety-five countries, fifteen of them in sub-Saharan Africa, plus Egypt, Libya, Morocco and Tunisia (see [Table 1](#)).<sup>4</sup>

<sup>3</sup> The goal of the UNESCO Institute for Statistics is to apply these standards across the world to create an international database of innovation statistics for countries at all stages of development.

<sup>4</sup> See also UNESCO Institute for Statistics (UIS), "UIS Catalogue of Innovation Surveys, World," report generated on September 24, 2014.

These surveys are mostly the result of the work on the African Science, Technology and Innovation Indicators (ASTII) program by NEPAD (The New Partnership For Africa’s Development), with involvement from the African Observatory of Science and Technology Innovation (AOSTI).<sup>5</sup>

**Table 1 Innovation surveys in Africa**

Country	Year of implementation of most recent innovation survey	Reference period
Burkina Faso	2009	2006–2008
Ethiopia	2011	2008–2010
Gabon	NA	2010–2012
Ghana	2012	2008–2010
Kenya	2012	2008–2011
Lesotho	2012	2009/10–2011/12
Malawi	NA	NA
Mali	2012	2008–2010
Mozambique	2009	2006–2008
Nigeria	NA	2008–2010
Senegal	2012	2009–2011
South Africa	2008	2005–2007
Uganda	2012	2008–2010
United Republic of Tanzania	NA	2008–2010
Zambia	2012	2008–2010
Egypt	2011	2008–2010
Libya	NA	NA
Morocco	2010	2009–2010
Tunisia	2008	2005–2007

Note: Some of these countries conducted both R&D and innovation surveys as part of the NEPAD ASTII project, whereas others such as Nigeria and Zambia conducted only an innovation survey.

Source: AU–NEPAD (2010, 2014) and UNESCO Institute for Statistics–UIS Catalogue of Innovation Surveys, report generated on November 18, 2014.<sup>6</sup>

The ASTII innovation surveys follow the guidelines of the *Oslo Manual* and are based on the above-mentioned CIS. The areas of enquiry are (i) product innovation, (ii) process innovation, (iii) ongoing or abandoned innovation activities, innovation activities and expenditure, (iv) sources of information and cooperation for innovation activities, (v) effects of innovation during the last two years, (vi) factors hampering innovation activities, (vii) intellectual property rights and (viii) organization and marketing innovations. Survey findings are well documented in the *African Innovation Outlook* (AU–NEPAD 2010, 2014) and in country-specific reports.

<sup>5</sup> [www.nepad.org/humancapitaldevelopment/astii/about](http://www.nepad.org/humancapitaldevelopment/astii/about).

<sup>6</sup> See also Box 1 Chapter 1, pp. 38ff., of Dutta and Lanvin (2013).

## **Are Innovation Surveys Designed for the Formal Sector Applicable to Measure Innovation in the Informal Economy?**

The fact that innovation surveys are now largely deployed in Africa and other developing regions demonstrates significant progress, but some challenges remain.

First, among the existing formal sector innovation surveys, the sector coverage varies greatly,<sup>7</sup> some values are missing, and because of the differing survey methodologies used, in particular the range of sampling cutoffs, it is difficult if not impossible to make country comparisons. Second, small and micro-enterprises in the formal sector might be omitted as well, as participating countries usually exclude firms with less than ten employees from the sample. Arguably, small and micro-enterprises, which are often on the verge between formal and informal activities, are particularly relevant for the study of innovation system in these countries. Third, by definition, none of these business surveys in the formal economy aims to survey innovation in the informal sector.

The first issue can be addressed over time as countries gain more experience and if more resources are available to them. The second issue is receiving attention by the communities designing the innovation surveys, and to ensure that the spectrum of formal micro-firms is not neglected. However, the third issue will continue to be a challenge if action is not taken to address it, as the informal sector will never be covered by full-scale enterprise innovation surveys.

We do not regard extending the large-scale innovation surveys to the informal economy as a viable option. An innovation survey is a business survey and the infrastructure is not present to support it in the informal sector. Adding questions addressing the IE to existing innovation surveys would require their scope and coverage to be expanded to cover the whole universe of economic activity. This would mean that most of the questions would not fit most of the observation units.

Moreover, it would be challenging to ensure that questions were tested in informal sector contexts and the survey was then administered accurately. Identifying and properly sampling informal sector entities, deploying a questionnaire and ensuring reliable responses from them is more challenging than when an innovation survey is sent to a standard list of firms in the formal sector, addresses of which can be easily found from business registers. [Box 2](#) notes some further methodological difficulties.

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<sup>7</sup> Some cover manufacturing, some cover mining and service industries while others include sectors such as higher education and research establishments (see AU–NEPAD [2014](#)).

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## **Box 2 Methodological challenges in surveying the informal economy**

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Irrespective of which type of survey is used to ask innovation questions, methodical challenges exist for any statistical survey targeting the informal sector.

The first question is how to test the questions to get meaningful results. A CIS-like survey consists of a set of questions which ideally will have been tested with businesses in the language used to administer the survey plus a structure that may direct respondents to different parts of the questionnaire depending on their answers to earlier questions. Cognitive testing aims to address the common understanding of the question in the population being surveyed, but it should also take into account linguistic and cultural differences in other jurisdictions if the comparisons of survey results are to be meaningful.

Similar testing would need to be carried out in the informal sector to get a sense of the sort of innovation-related questions that we consider later in this chapter, in the section Review of Existing Informal Economy Surveys. Does one get meaningful results to classic innovation survey questions in the informal sector? How great is the likelihood of misinterpretation – if firms in the formal sector in advanced countries interpret CIS questions differently, how reliably does this predict problems in the informal sector as well?<sup>8</sup>

Second, there are challenges in sampling. For a business survey to provide robust estimates of the variables measured, there must be a survey frame from which a sample is drawn. The frame could be a business register, or the membership list of an industry association or an administrative list used for other purposes than providing a survey frame such as records of firms that pay employment taxes or revenue taxes or records of the registration of firms as a precondition of their doing business.

There are two problems here with regard to the informal sector. There is unlikely to be a list of organizations that trade in the informal sector, and such organizations may not have the characteristics of formal sector firms. They may be extended families, interest, faith or tribal groups, or other informal consortia without registration, accounts or an established practice of reporting to government organizations.

In addition to the frame, there must be a means of conducting the survey. In developed countries, printed questionnaires are still mailed to respondents who then fill them out and return them. Web-based surveys may also be used. In the informal sector, these techniques are unlikely to work as possible respondents may lack a reliable postal address or Internet access, or indeed a sufficient level of literacy. Moreover, informal operators are unlikely to comply with any obligation to respond to an official statistical survey.

As we will explain in more detail in the penultimate part of this chapter, the only option is often to use interviewers to obtain reliable responses in a personal conversation.

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<sup>8</sup> Even with cognitive testing of questions in one context, there may be comparability issues across jurisdictions. See Arundel, O'Brian and Torgugsa (2013) and the literature cited there. See also the section on Business Innovation Surveys in Wunsch-Vincent (2012).

The bottom line is that efforts to survey innovation in the formal economy should focus on perfecting and harmonizing coverage (including all industrial sectors and sizes of firm), reliability and comparability of results within the formal economy. Informal economic activity should be surveyed separately.

However, it is still necessary to consider whether the definitions and questions in formal sector innovation surveys might offer any lessons or templates for surveying the IE, in particular by (i) adding a couple of innovation questions or a short module to existing large-scale surveys of the informal economy and/or (ii) conducting ad hoc questionnaire-based sectoral studies in selected countries, as done for the country studies in this book. Responses to some core questions on innovation collected from enterprises in the informal sector could provide policy-relevant information to firms in the informal and formal sectors and to governments.

At the outset, one might ask if conventional IP and innovation indicators are appropriate in the context of the informal economy. Innovation activities and actors and the underlying incentives for and impacts of innovation might all be different in the IE from their counterparts in the formal sector, whether of developed or developing countries. As a result, some or all existing indicators, survey instruments, notions of collaboration and linkages, and impact assessment tools may not apply directly in this setting.

A thorough review of existing innovation surveys in Africa in the light of our expertise in deploying innovation surveys in Africa's formal sector allows us to draw the following conclusions.<sup>9</sup>

Many of the questions in the CIS-like surveys used now in Africa in the formal sector *are* appropriate in the informal sector. The informal groups that approximate to firms will know whether they have introduced a new or significantly improved product to the market and whether they have improved their transformation or delivery process, their organization or their market development. They will also know, among other relevant things, what their information sources are, which partners they work with and where learning has occurred.

Some changes are needed, modifying or dropping existing questions and adding new ones. For instance, questions on the sources of information for innovation will have to be adjusted to be relevant to respondents in the informal sector. Adaptations are necessary when enquiring about “linkages between the informal and the formal sector,” “learning by imitation of the formal sector” or “innovation co-operation partners.”<sup>10</sup> The ways of learning by doing that prevail in the informal sector and the forms of apprenticeship also need to be reflected in the survey. When asking about methods for maintaining or increasing the competitiveness of product and process innovations (e.g. patents or other forms of formal IP, lead time, complexity, secrecy), it will be necessary to consider other options more relevant to informal sector actors, and to pose questions in a form that such actors will understand.

Some of the questions in CIS-like surveys do not apply to the informal sector. Technically, reliance on public sector procurement is one example. Similarly, public financial

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<sup>9</sup> The Kenya questionnaire is an example taken from the ASTII project (Kenya Ministry of Higher Education, Science and Technology and Kenya National Bureau of Statistics 2012, p. 32).

<sup>10</sup> See, in particular, Kawooya (2014) on this point.

support for innovation activities from government such as subsidies will not be relevant either, although ongoing or emerging policy initiatives will need proper reflection in any tailored survey.

Questions on R&D performance and the use of universities and government laboratories as sources of ideas for innovation and of collaboration will also need to be dropped from surveys or significantly adapted. Most other questions can be adapted to the informal sector but will need to be administered by trained interviewers once a survey sample has been identified.

In addition, new questions are required in order to understand the informal enterprise and its environment. Informal sector actors are surrounded by various actors and underlying policy frameworks, some of which are different from those of the formal sector.

Finally, the question arises whether transposing formal sector innovation surveys to the informal sector is sufficient to grasp the breadth, depth and expected outcomes of innovation in the informal economy.

Clearly, innovation is only considered from the enterprise perspective in CIS-type innovation surveys. New products, processes or other enterprise innovations and their potential impacts on firm performance are the focus of purely behavioral questions which are not normative in nature, and which are only asked at the firm level without later economy-wide assessment of economic or social impacts. So a firm can report behavior that shows that it has innovated, but without being certain that this innovation has produced impacts in terms of increased revenues, process efficiency, reduced prices or increased quality. Furthermore, innovation surveys based on the *Oslo Manual* require innovations to be connected to the marketplace. And formal innovation surveys have a single time scale – usually the last three years; there is no monitoring of previously recorded innovation activities or economic or social outcomes over time.

Yet for the IE – and for innovation in developing countries more broadly – the desired measurement could be different and entail more than measuring innovation activity at the firm level in one period. Importantly, the focus on measuring innovation in a “market context” only might well not be sufficient to capture the fuller dimension of these activities.<sup>11</sup>

Innovation as discussed in the literature on innovation in developing countries is based on concepts which go beyond enterprise innovation and typical firm incentives to innovate, such as increased revenue and market share (AU–NEPAD 2014). Academic and policy discussion of innovation and development now often focuses on themes such as “grassroots,” “frugal,” “inclusive” and/or “social innovation.”<sup>12</sup>

There is no formally agreed official statistical definition of these innovation- and development-related terms, but various authors have attempted to define this field further. Mashelkar (2012), for instance, describes “[i]nclusive innovation” as “any innovation that leads

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<sup>11</sup> See Box 1.2 in WIPO (2011).

<sup>12</sup> See, for example, Gault *et al.* (2012), pp. 23–32; Gupta (2012), pp. 28–39; and Radjou, Prabhu and Ahuja (2012). See also Muchie, Lundvall and Gammeltoft (2003) and Mutua and Mbwana (2012). On “social” innovation, see Mulgan, Joseph and Norman (2013).

to affordable access of quality goods and services creating livelihood opportunities for the excluded population, primarily at the base of the pyramid and on a long-term sustainable basis with a significant outreach.” In most definitions and discussions, the purpose of innovation in terms of improving standards of living – including lower-cost goods and services that meet poor people’s ability to pay – receives attention. Affordability, opportunity and sustainability are connected to the innovation process and outcomes.

All of these definitions address specific issues such as inclusiveness or social outcomes which expand on the definition of innovation. No longer is it just putting a new or improved product on the market or finding a better way of getting there; more is required. This has implications for measurement.

Importantly, measuring the above types of innovation would require a focus on measuring the social contexts and outcomes of innovation. First, not all transfers in the informal sector are mediated by a market as transfers of goods or services may happen for social or other reasons. New concepts and innovation questions going beyond the *Oslo Manual* and CIS-type innovation surveys would be required to capture this dimension. Second, if innovation is intended to be “inclusive” or to meet other social objectives, from the measurement perspective it is not sufficient to record the intention of the firm. Actors other than firms, including entire communities, might need to be studied instead. This last point clearly goes beyond the challenge of measuring innovation in the informal sector.<sup>13</sup>

Furthermore, a one-off survey of one particular entity might not be sufficient to establish whether the innovation did indeed result in greater inclusiveness or any other impact. For this to be done, some sort of survey, most likely a social survey, is required after the innovation has been introduced to the market to assess impacts and, potentially, the innovation’s sustainability.

The point here is that measuring innovation that meets certain economic or social objectives requires coverage of more than one time scale and several different groups of respondents: the producer, consumers, and so on. Such measurement is possible, but it requires more detailed approaches, more longitudinal studies and certainly more time and money. The ad hoc surveys of innovation in the IE used in this book offer some solutions to above challenges, as they aim to capture some of the social components of innovation.

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<sup>13</sup> Non-market innovations, innovations by groups, users, consumers and public institutions are commonplace in developed and developing societies alike. The current innovation literature increasingly reflects these forms of innovation, in particular with respect to “user innovation” (see de Jong and von Hippel 2013). Some contributions discuss how to conceptualize and measure “user innovation” by consumers, as opposed to firms (Hienerth, von Hippel and Berg Jensen 2014). In a related fashion, a suggestion has been made that the link to market be replaced by a link to “potential users” to cover user and public sector innovation (Gault 2012). This is still under discussion in the innovation community, but it would, if adopted, include non-market transfers of goods or services in updated definitions of innovation. The discussion of innovation outside market contexts is developing. Once it is more mature, it can usefully cross-fertilize with progress made on conceptualizing innovation in the informal sector.

## 2) Measurement of the Informal Sector to Date and Scope for Introducing Innovation Survey Questions

The previous section considered the usefulness of classic innovation survey questions in informal sector contexts and their possible adaptation. In this section we examine independent current initiatives to measure the informal sector, focusing again on Africa. We suggest how innovation survey questions might be included in existing informal sector indicator exercises by adding a couple of innovation questions or a short survey module to existing large-scale “combined surveys” of the informal economy.

### Review of Existing Informal Economy Surveys

There have been ongoing statistical efforts to better define and measure the informal sector over the last three decades, with some notable progress.

During the past decade, many surveys of the IE have been carried out across Africa and some of them have addressed some issues regarding innovation. In a few countries they have started to be repeated. As major providers of information for labor force statistics and national accounts purposes, these data collections are expected to become more permanent and continuous and could be developed to include a set of core questions on innovation.

Since the early 1990s, and especially after the adoption of an international definition of the informal sector and recommendations for its measurement, mixed surveys – that is, surveys of informal establishments operated by members of sampled households – have blossomed in many countries, particularly in Africa where the concept was born in the early 1970s. Initially, resource constraints meant that many surveys remained limited to capitals, major cities or urban areas. More recently, their coverage has become more widespread, covering entire national territories.

ILO (2013) provides a detailed picture of the informal sector surveys, and we include some questionnaire extracts at [Annex 2 and Annex 3](#) of this chapter.<sup>14</sup> Broadly, mixed surveys include the following approaches:

- The 1–2 or 1–2–3 surveys are two-stage or three-stage surveys with a labor force survey as the first stage allowing the identification of the informal economic units which are then surveyed in a second stage through an establishment questionnaire, the third stage being a budget-consumption survey of the households of informal operators.
- Ideally, the same questionnaire is used in all countries with marginal changes. Other types of mixed survey may differ from this approach in using a specific questionnaire in each country and also in that the first-stage survey is not always a labor force survey. In some countries, the survey can be limited to the first phase only, as for example in Mali.
- The dedicated modules of LSMS-type<sup>15</sup> surveys can be considered, in a sense, as mixed surveys, with the difference that the module is not administered in a second stage but immediately, and within the premises of a household rather than an enterprise.

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<sup>14</sup> See also Section 1 and the Annex in de Beer, Kun and Wunsch-Vincent (2013).

<sup>15</sup> The Living Standard Measurement Study (LSMS) is a World Bank Program of surveys addressing the measurement of various dimensions of living conditions of households, including their expenditures and economic activities.

Mixed surveys require expanded samples in order to obtain a representative picture of detailed industries because their universe is not known.

Besides these mixed surveys, measurement of the informal sector is being attempted through various other surveys, including various types of combined survey:

- In some countries with an establishment or economic census or a functioning business register, establishment surveys might be a useful way of gleaning more information about the informal economy.
- Combined surveys of establishments and household surveys are a valid tool. Here, the existence of an establishment census allows area-based sampling of enterprises in parallel with household surveys for the capture of home-based and mobile activities.
- Dedicated modules on non-farm enterprises in traditional living standard surveys can foster our understanding of the informal sector.
- Labor force surveys or other types of household survey which focus on the criteria for the measurement of the informal sector are also in use.

[Table 2](#) lists the various types of survey implemented at national level in Africa during the two past decades.<sup>16</sup>

**Table 2 List of countries with informal sector surveys**

Establishment census/survey	Mixed survey		Combined survey	LSMS-type surveys
	1–2 or 1-2-3	Other mixed		
Algeria 2011–12 Tunisia 1997, 2002, 2007, 2012	Morocco 1999/200 0 and 2006/07 Cape Verde 2009	Mali 1989	Egypt 2003, 2004, 2011	Ghana 1995, 2000, 2008
Mauritania 1992	Guinea Bissau 2009 Mauritania 2012 Niger 2012 Senegal 2011 <i>Burundi</i> 2008	Chad 1995–96, 2011	Nigeria 2010	Rwanda 2005, 2011
Rwanda 2006	Cameroon 2005, 2010 DR Congo 2004/05, 2012	<i>Ethiopia</i> 2003 Kenya 1999	Kenya 2015	Uganda 2009/10
	Comoros 2013 Madagascar 2012	Botswana 1999, 2007 Mozambique 2004 Namibia 2008 South Africa 2002, 2005, 2009, 2013		Madagascar 2001, 2002, 2004, 2005, 2010

Source: Charmes (2014). Note: In italics: urban areas only.

<sup>16</sup> To this list can be added the numerous 1–2 surveys undertaken in the capital cities of Western Africa at the beginning of the 2000s: Abidjan, Bamako, Cotonou, Dakar, Lomé, Niamey, Nouakchott, Ouagadougou and also Yaoundé, Bujumbura, Antananarivo.

Many countries have conducted or are conducting economic or establishment censuses, generally for national accounts purposes. These censuses are used as listing-based frames for business surveys, including surveys of the informal sector (except home-based or mobile activities), but must be used immediately after their completion as they go out of date rapidly.

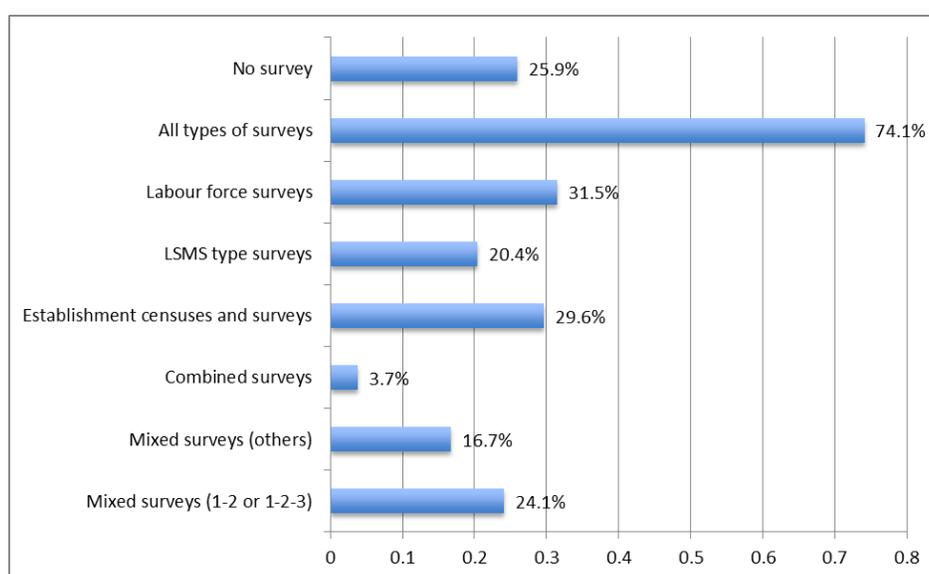
[Table 3](#) and [Figure 1](#) summarize data collection on the informal sector in Africa according to the type of survey. In sum, 44.5 percent of African countries have carried out a mixed or a combined informal sector survey in recent years and another 29.6 percent have implemented an informal sector survey of small establishments.

**Table 3 Types of surveys for the measurement of the informal sector, by sub-regions in Africa**

	Northern Africa	Western Africa	Middle Africa	Eastern Africa	Southern Africa	Africa
Mixed surveys (1-2 or 1-2-3)	1	6	4		2	13
Mixed surveys (others)	1		1	3	4	9
Combined surveys		1		1		2
Establishment censuses and surveys	4	9	1		1	15
LSMS-type surveys		6	1	2	2	11
Labor force surveys	4	1		3	8	16
Total number of countries	4	14	6	4	12	40

Source: Charmes (2014). Note: Several types of survey may be used in a country.

**Figure 1** Proportion of countries using different types of survey in Africa



Source: Table 2 above. Note: Values in percent of 54 countries in Africa.

## Is Innovation Covered in Existing Informal Sector Surveys? If so, how?

It is interesting to look at the content of the informal sector surveys to assess the potential for questions on innovation.

In particular, two types of survey should be considered for the purpose of surveying innovation in the IE: (i) mixed households/establishments surveys, which particularly suit countries with a large informal economy, and (ii) combined surveys, which associate a household survey with a separate establishment survey able to capture small micro-enterprises as well as small and medium enterprises, which often escape surveys on the formal sector.

The major objectives of the mixed/combined/establishment surveys are to collect data on employment and production for labor force statistics and the compilation of national accounts. The questionnaires are designed to assess the performance of informal micro-enterprises in terms of employment creation (characteristics of workers and of jobs) and generation of output, value added, production costs, entrepreneurs' income and also – less systematically – capital formation and assets.

Regarding the characteristics of the workforce, the following information is most commonly collected: sex, age, education level, type of training received and needed, number of years of experience, skill level, stability, type and amount of remuneration.

Because they are embedded within very large questionnaires, the modules on non-farm enterprises operated by household members are strictly limited to the collection of quantitative data on labor, intermediate consumption and costs, assets, revenue and net income and inventory, as in the Ghana Living Standards Survey (GLSS). The only qualitative information refers to the most serious difficulties encountered in establishing (capital, credit, technical know-how, government regulations, other). Furthermore, as these surveys are not conducted within the premises of the establishment, they are unlikely to be a source of information on innovation.

Some other types of informal economy surveys do sometimes include questions which come closer to covering innovation (see [Annex 2](#) and [Annex 3](#)), including questions about competition, difficulties/barriers and prospects. Stage 2 of the 1-2-3 surveys – the mixed informal sector surveys popularized in Western and Central Africa – are typical in this regard. These surveys produce information about the constraints confronting informal sector operators and the solutions that they adopt. They also collect some data on subcontracting: is the informal sector enterprise subcontracting with other informal firms or home-based workers? Is the informal firm subcontracted by some other informal or formal enterprise? However, it is difficult to capture from such questions in mixed surveys data resembling the questions about product, process, marketing or organizational innovation obtained through surveys of innovation in the formal economy.

Combined surveys such as those carried out in Egypt, Kenya and Nigeria are a better way of collecting data on innovation, for at least two technical reasons:

- (1) Area-sampling based on establishment surveys ensures a sufficient number of economic units in the various detailed industries. Specifically, it allows for regular updating; for example, once the areas have been selected with a probability proportional to the number of

establishments, a complete new enumeration of the selected areas can be implemented. Consequently, the detailed questions on innovation are likely to provide a more accurate picture than if they are addressed to a majority of lesser concerned IE actors, for example street vendors or informal units dedicated to trade activities.

- (2) Combined surveys allow flexible sampling ratios in order to reach a sufficient number of units in major industries and small and medium-sized establishments. They go beyond home-based or mobile activities and micro-enterprises and also target small and medium-sized entities, so covering a fuller range of informal economic activities. Traditional mixed surveys tend to cover a huge number of trade establishments but only a small number of manufacturing establishments and small and medium-sized establishments.

However, a realistic approach is required. First, combined surveys require an establishment census to be implemented at a single point in time, which is costly. Second, while combined surveys offer more flexibility in this regard, it is generally difficult to change the design of survey questionnaires where they have been tested and used for a long time. Third, this type of survey is better suited to more advanced developing countries such as Kenya and Nigeria, where the number of small enterprises is significant and not well covered by the surveys of the formal sector. Less developed countries are unlikely to be well covered by such an approach. There is a need to ensure that the scope and coverage of informal sector surveys are geared to the size of firm, and that discrepancies between the scope and coverage of innovation surveys and the scope and coverage of informal sector surveys do not effectively exclude intermediate enterprises.

With these caveats in mind, we can suggest a starting point for integrating innovation questions in combined surveys.

Some of the few existing combined surveys already make a significant effort in this direction. The Kenya Micro Small and Medium Enterprise (MSME) Survey is a good example. The questionnaire is comprised of several modules (see [Annex 3](#) for some portions of the questionnaire), including questions designed to collect information on entrepreneurial dynamics and innovation:

- (1) The modules on employment and workers collect data on skills development received and required by operators, as well as in-service training for employees.
- (2) The module on business expenditure collects information on the cost of licenses issued, advertising costs, product innovation, process innovation and social responsibility.
- (3) The module on access to information and amenities includes access to electricity, telephone and computer services.
- (4) The module on business income and seasonal variations includes a section titled “Product, Process and Marketing Innovation” with four questions that resemble CIS-type innovation surveys:
  - (a) During the period 2009 to 2013, did you introduce new or significantly improved goods or services? Yes/No
  - (b) During the period 2009 to 2013, did you introduce new or significantly improved methods of manufacturing or producing goods or services?
  - (c) During the period 2009 to 2013, did you implement a new marketing method involving significant changes in product design or packaging, product placement, promotion or pricing?

- (d) Please estimate the total turnover in 2013 of goods and services innovations introduced in 2013 (Kenyan shilling, KSh).
- (5) The module on capital and technology comprises six questions which also survey the amount and sources of initial and additional capital, the types of equipment, the type and sources of technological advice and support, and the use of information and communication technologies.
- (6) The module on business organization and marketing comprises seven specific questions on marketing relating to how prices are set, information about buyers, subcontracting, marketing innovation (advertising, etc.) and customer feedback mechanisms.

In sum, questions on all four types of innovation are included, in addition to questions about various sources of information (technical advice, customer feedback, etc.) and cooperation.

Building on this excellent start and the formal innovation survey questions, four to five innovation survey questions could be formulated and surveyed through combined surveys in a more systematic manner and in more countries. The African Observatory for Science, Technology and Innovation (AOSTI) could be asked to review the results of the resulting country initiatives and to convene meetings to review what is working in more than one country, which could give rise to an African-wide measurement initiative.

### **3) Assessment of Informal Sector Innovation via Qualitative, Structured Interviews and Questionnaires**

An alternative option is to undertake more ad hoc surveys based on semi-structured interviews in particular sub-sectors or clusters of the informal economy in specific countries. This is the method applied for the sector- and country-specific studies featured in this book and for most existing sector-specific studies on the informal sector.<sup>17</sup>

In the context of the informal economy, and given the aforementioned methodological challenges, this more flexible and qualitative survey approach is often more satisfactory.

Indeed, personal interviews using semi-structured questionnaires are often the only way of securing high-quality survey replies, especially from respondents in remote locations. The respondent does not need reading or writing skills, and the statistical infrastructure requirements are also much lower than those for a large-scale official statistical survey.

Alongside such practical considerations, this method might also be better in contributing to our understanding of how innovation happens in the informal economy, where ideas from innovation come from, how skills are acquired, how the benefits are appropriated, and what the economic and social context and outcomes of the innovation are. The approach allows for a

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<sup>17</sup> This section draws heavily on Kraemer-Mbula and Tau (2014), Bull *et al.* (2014), Kawooya (2014) and Essegbey *et al.* (2014), and also benefited from the outcomes of the WIPO and IERI International Workshop on “Innovation, Intellectual Property and the Informal Economy,” Pretoria, on November 19–21, 2012, and the work of Open AIR including the methods used for most of its case studies covered in de Beer, Kun and Wunsch-Vincent (2013). Finally, the insights generated by Fu *et al.* (2014), a recent project designed to collect detailed information on the innovation activities of more than 500 formal and informal firms in Ghana, is also taken into account.

mixture of open-ended and closed questions. The interviewer can adapt the interview in light of the responses more dynamically than if a rigid, written-only survey tool was employed. A more open and qualitative format might also be necessary in light of the huge heterogeneity of the informal sector; a single standard questionnaire with identical terms and questions might not appropriately capture important nuances.

Importantly, the structured interview technique is often the only way of building trust with the respondent so as to obtain any reply at all. The experience with the personalized surveys featured in this book showed that gaining the trust of interviewees was critical to obtain reliable answers, particularly when asking about such sensitive topics as the sources of knowledge which contributed to innovation or which appropriation methods, including secrecy, the respondent was relying on to protect his or her innovation. For this reason, the first, rare field studies of the informal sector in the 1970s and 1980s combined qualitative, more anthropological survey approaches with other statistical techniques (see [Box 3](#)). These methods are well accepted outside economics and statistics, in particular in the disciplines of law, management, political science, sociology and anthropology.

However, this area of enquiry is still recent and workable survey templates are only developing. In the remainder of this chapter, we suggest some general lessons and good practice based on recent survey work performed in the informal sector.

### **Box 3 Early studies on apprenticeship, learning by doing, knowledge sharing and innovation in the informal sector in Tunisia**

What follows is largely based on the knowledge acquired at the end of the 1970s and the beginning of the 1980s from structured interviews with a sample of artisans in Tunisia. The respondents were based in the main cities and worked in furniture-making, shoe-making, metal-working, textile and clothing and mechanical repairs. From hundreds of hours of tape-recorded interviews transcribed and translated from spoken Tunisian Arabic, several interesting observations emerge with regard to innovation, IP and transmission of knowledge.

The entrepreneur-craftsmen were identified through the so-called snowball method, that is, they were introduced to the interviewer by a mutual acquaintance. There was no reference to the informal sector when they were approached, because no one would have admitted belonging to what could be seen as an illegal sector. The research method was qualitative and anthropologic. After a brief presentation of the objectives of the study, the interview started by asking about the interviewees' biography: how they learned their craft, how they had opened and run their own workshop, how they organized their work, their suppliers, clients, workers, how they presently saw their role toward their own apprentices and what they regarded as their main problems at a time of stiff competition.

To give a sense of the complex and nuanced insights generated, one lesson learnt concerned the important role of apprenticeship in the sector. Many of the entrepreneurs interviewed explained that they had to steal the secret of their trade from their "master," to test their knowledge hidden from their boss, but ultimately to show him the results in order to be acknowledged, gain his confidence and receive "the key to the workshop" and eventually his

blessing to open their own shop. This kind of selection is interesting. It involves a highly effective means of education, learning by doing, which also gives the young apprentice a sense of responsibility. Furthermore, the existence of a “secret” clearly shows that small entrepreneurs have a precise sense of their IP, and that they are eager to protect it from competitors and safeguard their reputation. They know perfectly well what innovations they have introduced and what “makes the difference” between their work and that of others.

Interestingly, the resulting study was the first step in what was to become the first national survey of the informal sector for national accounts purposes.

Source: Charmes (1978, 1979, 1981, 1982)

Conducting this type of ad hoc, semi-structured survey is far from straightforward. It requires particular methods, survey forms, interview techniques and experience. Specifically, when surveying the informal sector three main non-probability sampling techniques are often used separately or together to make the sample more representative, namely (i) purposive, (ii) snowball and (iii) quota sampling methods. All three approaches are time-intensive, as the actual interview process might involve making initial contact, then reverting to the respondent once or several times to go through the survey questions. Some learning by doing by the interviewer also occurs, as the interview techniques and the nature of the questions can be perfected or adapted over time and case by case.

In the case of purposive sampling, a sample is drawn purposively from available lists or association members; for example, Essegbey *et al.* (2014) used a list of registered Traditional Herbal Medicine Practitioners in Ghana obtained from the Traditional Medicine Practice Council (TMPC). In this case, the researcher needs to exercise their judgment in selecting the units that are being targeted.

The snowball interview technique, also called the chain referral sampling method, is commonly used for the identification of rare populations for which registers do not exist. The researcher starts with some recommended interviewees, then asks them to help refer subsequent interviewees. In the case of the study of informal home and personal care product manufacturers in South Africa, for instance, an initial set of nine companies was identified in collaboration with two technology incubators and two business incubators (Kraemer-Mbula and Tau 2014). The rest were referrals emanating from the interviewees. Konté and Ndong (2012) also provide an example of a case study in the ICT sector where the sample was built using this technique of interviewing traders in a market, gaining trust and introductions to other traders who, in turn, provided links to more traders. Experience shows that interviewees are more willing to provide names of other potential participants after they have responded to the interview themselves.

When sampling following these first two methods, care must be taken to try and survey the relevant populations in a representative manner, that is, having a fair distribution in terms of gender, hierarchical levels (e.g. master versus apprentice, head of the entity versus informal worker), types of actors in the informal sub-sector, and so on.

The starting point for the quota sampling method is that a preliminary knowledge of the population to be surveyed already exists. Quota sampling then consists of selecting an equal and small number of various pre-determined fractions of the population in terms of gender, age,

activity and so on, and proceeding to pick respondents using “itineraries.” An itinerary is defined in the area to be surveyed, and all units in that itinerary are surveyed until a fraction is completed. Once a fraction is completed, no more units from within that fraction will be surveyed. The process continues until all fractions are completed.<sup>18</sup>

In all three methods, bilateral interviews are sometimes replaced by focus group discussions. Rather than just surveying the innovative firm or entity as in CIS surveys, it is attempted in these ad hoc interview-based approaches also to survey a broader set of actors of the relevant innovation ecosystem (see Kraemer-Mbula and Tau 2014, Bull *et al.* 2014 and Essegbey *et al.* 2014). Specifically, the following entities are also surveyed: (i) formal companies supplying informal manufacturers, including contract manufacturers; (ii) the customers of the IE entity, which often play an important role as source of knowledge, (iii) government and regulatory bodies, (iv) intermediary organizations engaged in knowledge transfer, (v) associations representing the informal cluster (e.g. the *jua kali* association), (v) NGOs working to promote innovation and the understanding of IP in the informal sector, and finally, (vi) agencies providing training and skills.

In terms of interview and survey format, rigorous interview guidelines and formats must be agreed at the outset and followed throughout the survey deployment. As outlined above, the interview templates include both open and closed questions to allow them to capture unexpected phenomena and personal experiences that would inform the study (Kraemer-Mbula and Tau 2014). The aim in interviewing is to generate a conversation with the respondent, preferably at the location where manufacturing and/or retailing of products takes place. As Fu *et al.* put it (2014), relevant findings sometimes emerge during informal discussion with a respondent before or after the interview.

One option is to leave interviewing in the hands of few experienced interviewers, obviously limiting the sample size but ensuring that nuances can be captured appropriately. The other option is to aim at a more standard questionnaire which is followed rigorously with closed questions, such as yes-or-no answers or a set of response options. In this case, more general staff enumerators can be recruited and trained for data collection. The potential closed answers need careful prior study to appropriately anticipate the range of potential replies in the particular informal economy sub-sector or cluster.

Where possible, and as usual for official statistical surveys, questionnaire surveys should be tested in a pilot before the full survey is rolled out. It can be helpful to conduct a preliminary study based on in-depth case studies of a small sample of respondents in the informal economy, to better design the more formal questionnaire and survey work later (see Fu *et al.* 2014).

In practical terms, all interviews are recorded and transcribed, helping to gather the data and for purposes of later data cleaning and validation. The data can be collected manually or

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<sup>18</sup> Let us take the example of informal metal workers in Nairobi who are concentrated in a given metropolitan area. An itinerary is defined in this area and *a priori* criteria are decided – gender, age, type of products, and so on. The first metal workshop on the itinerary is surveyed as long as it belongs to the informal sector. The itinerary is pursued until a sufficient number (be it five, ten or twenty) of observations for each criterion or set of criteria is completed in each group of interviewee types.

with the aid of Personal Digital Assistants (PDA).<sup>19</sup> Visual documentation through pictures is undertaken to complement the interview results. They illustrate the range of innovative products or processes, the variations in details of specific products, and the adaptation of products that takes place.

As with regular surveys, it is helpful if the benefits of the survey are clear to the respondent (so-called *benefit sharing*), for example by indicating that the survey results will help influence policy and or that the survey will positively impact on the informal sector. Also, promising to validate responses with respondents and to share the overall results of the survey is known to increase the number and the quality of responses (so-called *validation and restitution*). Restitution is also a matter of ethics in social sciences.

In terms of substance, the survey questions deployed for the studies in this book draw on approaches and questions used in formal CIS-type innovation surveys. Importantly, however, the shared template also relies on significant adaptation to the informal sector generally, and to the specific sub-sector being studied.

[Annex 1](#) contains the survey templates used in the fieldwork for this book (annexes 1.1, 1.2 and 1.3). It also contains surveys for a case study in Uganda (Kawooya [2014](#)) and a study of the ICT sector in Senegal (Konté and Ndong [2012](#)) (annex 1.4 and annex 1.5 respectively).

The sequence of questions, their exact content and formulation varies across our various survey tools, but they feature the following central elements:

- The first survey section usually asks general information about the interviewee – standard demographic variables such as age or gender. Interestingly, and as opposed to formal enterprise innovation surveys, the questionnaire is focused strongly on the respondent himself or herself, be it the owner or an employee. Questions as to his or her educational background and time spent in the cluster are included. The religious or ethnic group and language of the respondent are surveyed as well.
- In addition, respondents are asked about the nature of the firm and work, such as the type of business, its field of activity, its premises, its geographical location and, when the owner is surveyed, the numbers of employees, revenues and other firm performance indicators.
- One particularity of these IE surveys is that in addition to religion and ethnic group, they also often enquire about social values which might have helped in contributing to the economic success of the entity, such as solidarity, sharing, dialogue, hospitality, courage and reserve, as in Konté and Ndong ([2012](#)).
- The remaining sections cover (i) the level and nature of innovation activities, including with questions relating to imitation and adaptation versus originality (“Is this product your original design?”), (ii) sources of information and knowledge, (iii) innovation partners and collaborators, with a focus on useful network and linkages, (iv) innovation endowment and capacity in terms of skills, apprenticeships, teaching and learning (“Where did you learn the process of making the product from?”), (v) obstacles to innovation, (vi) support measures

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<sup>19</sup> As Fu *et al.* note ([2014](#)), “the use of PDAs supports the work of enumerators, allowing them to code consistency checks during the interview and systematic skips. Since the data is already entered in a digital format, no other data entry is needed, which saves time and as a system is less prone to mistakes. However, PDAs bring some disadvantages compared to paper-based surveys, mainly in terms of the reliability of the devices and the computer skills needed to use them.”

and the role of the national or local governmental authorities, and finally, given the specific focus of our questionnaires, (vii) the role of various methods to appropriate innovation investments such as lead time, secrecy and formal IP rights.

The language of questions about innovation activities is simpler than that used in formal sector innovation surveys. Examples are: “Have you originated a new product/changed the process of producing the product since you started working? Why? Where did you learn about the new process? Do you do any research to improve the process of production? Did any of the following institutions assist you in overcoming production weaknesses? What benefits did you have from the change in process?”

The surveys also broach the topic of product design, enquiring whether the design is original or modified. With respect to the various forms of innovation, and similar to the Kenyan MSE survey mentioned in the section above on “Measurement of the informal sector to date and scope for introducing innovation survey questions,” a number of questions are devoted to commerce and marketing strategies as they relate to pricing, customer relations and supplier relations.

A central concern of these questionnaires is also to identify the potential desire to scale up activity and the obstacles to scaling-up. Significant attention is then spent on apprenticeships and on-the-job or other training, and the supply and diffusion of skills, for example: “Where have you learnt your craft? What is the relationship with your trainer? Do you provide training on production processes?” A number of questions try to disentangle the possible shared sources of knowledge in the cluster, such as “Are your products based to some extent on indigenous and/or traditional knowledge?” The portability of skills and knowledge from one job to another is also an area of enquiry (“When you move jobs, do you keep or share the secrets of production from your previous employer?”).

The topic of knowledge flows and collaboration in the cluster, and reasons for and against it, is also surveyed intensively. A number of questions are particularly concerned with the determinants of cooperation, for example underlying personal relationships such as family ties or friendships, or factors which relate to geographical proximity or belonging to the same association, cluster, community or another social or professional group. Care is applied when surveying collaboration among the different potential partners (e.g. suppliers, producers and customers). The role of private or government associations as a source of information and knowledge is surveyed.

To conclude, significant portions of the interviews are also dedicated to the different methods which informal sector participants might use to appropriate their innovation efforts, ranging from lead time and secrecy to more formal IP rights, for example: “What mechanisms do you use to protect your innovation or innovative ideas? Are you concerned with possible commercialization of your innovations without your knowledge or consent? What forms of appropriation are most appropriate for your sector (list of options indicated)?”

The surveys generated rich and interesting insights into informal sector innovation and knowledge sharing. As with the previous qualitative work described in [Box 3](#), it could be argued that the experience and results generated from these surveys are a necessary stepping-stone toward better formulating and deploying large-scale formal innovation surveys as well.

## **Conclusion and an agenda for future work**

The discussion in this paper suggests three approaches for measuring and understanding innovation in the informal sector. The first is the adaptation, for use in the informal sector, of questions and analytical techniques from surveys, and their definitions, used to measure innovation in the business sector of the formal economy. The second is the adding of a few innovation questions, or a survey module, to existing surveys which combine labour force surveys with establishment surveys of activities in the informal sector. The third is the conducting of interview-based studies and the use of ad hoc questionnaires in sub-sectors of the informal sector.

The second approach is limited to countries with an existing survey infrastructure which can produce population estimates following from their combined labour force/establishment surveys. It is to these surveys that questions on innovation could be added. However, these questions have to be developed for application in the informal environment. Existing questions from the Community Innovation Survey, and some from other surveys that have been conducted in the informal sector, could be considered for this purpose. To move forward, the statistical offices of African countries and the African Centre of Statistics at UNECA would have to be engaged.

Experience would have to be gained by running surveys and analysing the results but the outcome could be a standard, and comparable, survey of informal activities, including innovation and the use of intellectual property rights. As well as for national statistical offices, there is a key place in this work for the AUC African Observatory of Science, Technology and Innovation (AOSTI) and the AU/NEPAD African Science and Technology Innovation Indicators (ASTII) initiative, both of which are established organisations.

Surveys, as just described, require standard concepts and definition and this study comes at a time when the Oslo Manual is being revised. The revised manual, or the work being undertaken as part of the revision, could go beyond the present business sector focus to consider innovation in other sectors in the System of National Accounts (EC et al. 2009) such as the public sector and the household sector (Gault 2015).

Consideration could also be given to groups of people solving their problems for their collective benefit. This ‘social innovation’ relates directly to the measurement and understanding of innovation in the informal economy. However, the revision of the Oslo Manual and the development of standard questions for use in existing surveys of the informal sector will take time and will require investment.

The third approach is flexible and has a greater likelihood of producing more timely results. Ad hoc questionnaires and interview-based surveys can be developed, put into the field and the results analysed. This would result in a body of knowledge about sub-sectors of the informal sector which could be used in the development of standard questions for the labour force/establishment survey approach. Meanwhile, the findings of the case studies could be used to influence policy development and the monitoring and evaluation of policy that has been implemented. Not only would there be collective learning about the informal sector but the feedback to the policy makers could result in learning from those policies that did not perform as expected. There is a role here for AOSTI as the archive of the results and the facilitator of the discussion based on the findings of the surveys.

The approaches presented in this paper provide ways forward to gain better understanding of the innovation in the informal economy, and to support innovation policy in African countries and beyond.

The suggestions in this chapter are intended to lay important groundwork for future empirical work, for the development of appropriate indicators and to support new approaches to innovation policy in developing countries.

Two viable scenarios emerge: (i) adding a couple of innovation questions or a small survey module to existing large-scale surveys of the informal economy and/or (ii) conducting ad hoc questionnaire- and interview-based sectoral studies in selected countries. As discussed in this chapter, option (i) is only relevant for countries able to produce population estimates and where the possibility of running combined surveys exists.

To facilitate progress on option (i), further work should be encouraged to develop a core set of innovation-related survey questions, some from Eurostat's CIS and some from the informal sector surveys that we have described. In Africa, this work could be supported by AOSTI and AU/NEPAD.

At the outset, a short set of questions could be suggested to the stakeholders of the mixed surveys, if they were convinced of the value of such an approach for the understanding of the dynamics of the informal sector in Africa. Stakeholders might, for example, include Afristat and DIAL, Eurostat and Paris21, and the ILO. But the better approach is combined surveys. To this end, the stakeholders to be approached are the departments of economic statistics within the national statistical offices and at the African Centre of Statistics at UNECA, and also employers' associations in certain countries which are sometimes involved in the design and implementation of such surveys (for instance in Nigeria).

After experience is gained, a standardized AU survey of informal economy activities, including innovation and IPR use, could be considered. The theme could be picked up in future editions of the African Innovation Outlook.

Work in other regions should be considered too, in particular Latin America and South East Asia.

The OECD started to revise the Oslo Manual in 2015, and there will be consideration of new areas of interest such as public sector innovation, user innovation and social innovation.

There could also be a discussion of where innovation happens – in the formal sector and in the informal sector – and how guidelines for each would differ. It helps that the AU (both AOSTI and NEPAD), South Africa, RICYT (and Chile, Colombia and Mexico), Brazil, China, India and the Russian Federation are involved in the revision process.

In the meantime, the second option of more ad hoc questionnaire- and interview-based surveys in selected countries is the more promising one. Studies and results can be obtained more quickly, and sector studies based on more qualitative work could be more effective in helping us develop a rich understanding of innovation in the informal sector. In turn, this will also help formulate better questions to be included in systematic large-scale surveys as developed under option (i). The survey templates, experiences and results generated as part of this book, and summarized in this chapter, could be helpful to further research. Similarly, work will be needed to build common approaches among the academic and statistical community on how to better run these surveys. Ideally, AOSTI would agree to act as an archive for and coordinator of the related discussion as this work moves forward.

Taken together, this work will be an important contribution to our developing understanding of innovation in the informal sector.

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# Annexes

## Annex 1 Ad Hoc Interview Guidelines and Questionnaires

### Annex 1.1 Survey on Kenyan informal metal manufacturing

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<b>Characteristics of the jua kali operators</b>	<i>Write the code in the unshaded box</i>
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1	Gender: 1- Male 2- Female	
2	What is your highest level of education?	
1..	No formal education	
2..	Preprimary	
3..	Primary	
4..	Secondary	
5..	College	
6.	University	
3	To which category of jua kali operator do you belong?	
1..	Fundi worker	
2..	Fundi owner who hires workers	
3..	Businessman/woman who contracts fundi to work for me	
4.	Other (specify)	
4	What is the value of your business?	
5	When did you join the cluster?	

**Production history**

		<i>Write the code in the unshaded box</i>
6	What product do you make?	
1..	Chips cutter	
2..	Chips warmer	
3..	Wheelbarrow	
4..	Popcorn maker	
5.	Other (specify)	
7	Was this your first product?	
	Yes [1]	
	No [2]	
8	When did you start making the product?	
9a.	Is this product your original design?	
	Yes [1] No [2]	
b.	If “yes,” specify how you came up with design	
c.	If “no,” explain where you obtained the design from?	
10	How did you choose the product?	
11a	Did you know whether a market for your product already existed?	
	Yes [1] No [2]	
b	If “yes,” specify	
c	If “no,” explain	
12	What motivated you to begin production?	
13	Where did you obtain the idea of making the product from?	
14	Where did you learn the process of making the product from?	
15	If you imitated the product design, what adjustments have you made to the product since you introduced it?	
16a	Have you changed the process of producing the product?	
	Yes [1] No [2]	

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- 
- b If “yes,” Why did you change?
- c If “no,” why have you not changed?
- 17 Where did you learn about the new process?
- 18 Do you keep secrets about the changes you have made?
- 19 What benefits have you made from the recent changes in production?
- 20 How do you secure the skills of the fundi who has learnt about the changes in production?
- 21 Do you keep your fundi for a long time?
- 22a Do you do any research to improve on the process of production?  
Yes [1]  
No [2]
- b If “yes,” describe the research you do to improve the process.
- c If “no” explain the reasons why you do not do any research to improve the process of production.
- 23 What major obstacles do you face in improving the process of production?
- 24 What are your weakest areas in the process of production?
- 25 How do you overcome your production process weaknesses?
- 26 Whom do you seek help from in case you have production process weaknesses?
- 27 Have any of the following institutions assisted you in improving the process of production?  
1. Youth polytechnic  
2. National polytechnics  
3. Institutes of technology  
4. Universities
- 28 Which of the following institutions would you comfortably work with to improve your processes of production?  
1. Youth polytechnic  
2. National polytechnics  
3. Institutes of technology  
4. Universities
- 29 What are the positive and negative issues of people in the same cluster producing the same things?

---

**Positive**

**Negative**

---

**Collaboration in production**

*Write the code in the unshaded box*

- 30 How do you relate with people producing similar products like yours?
- 31 Do you collaborate with people producing the same product as you?  
Yes [1]  
No [2]
- 32 Do you feel threatened by people producing the same product as yours?  
Yes [1]  
No [2]
-

33	Do you feel threatened by non-jua kali people producing the same product as yours? Yes [1] No [2]	
34a	Do you have an idea to stop non-jua kali people from producing similar products to yours? Yes [1] No [2]	
b	If “yes,” specify	
c	If “no,” explain	
35a	Do you collaborate with non-jua kali people producing the same product? Yes [1] No [2]	
b	If “yes,” specify	
c	If “no,” explain	
36	What should be the relationship between jua kali people producing the same product?	
37	What should be the relationship between non-jua kali people and jua kali people producing the same product?	
<b>Training</b>		<i>Write the code in the unshaded box</i>
38	Where were you trained?	
39a	Have you had to go back for training to improve the process of making your product? Yes [1] No [2]	
b	If “yes,” specify	
c	If “no,” explain	
<b>Acquisition of intellectual property rights</b>		<i>Write the code in the unshaded box</i>
40	Have you considered securing intellectual property rights for your product? Yes [1] No [2]	
41	If “no,” why have you not considered securing intellectual property rights for your products?	
42	Has the association assisted you in securing intellectual property rights? Yes [1] No [2]	
43	Is there government support in securing the intellectual property rights of your products? Yes [1] No [2]	
44	What limitations do you face in securing the intellectual property rights of your products?	
45	How should jua kali products’ intellectual property rights be secured?	
<b>Employment and training of fundis</b>		<i>Write the code in the unshaded box</i>
46	How do you recruit your fundi?	
47	What employment contract do you have with your fundi?	
48	What do you consider when hiring a fundi?	
49	How long do you keep your fundi?	
50a	Do you provide them with further training on the production process? Yes [1] No [2]	
b	If “yes,” where do they go for training?	
c	If “no,” explain	

- 
- 51 How do you prepare your fundi when introducing a new product?
- 52a Do you change your fundi often?  
Yes [1]  
No [2]
- b If “yes,” explain  
c If “no,” explain
- 53a Do you provide incentives to your fundi to facilitate them to acquire new production technology?  
Yes [1] No [2]
- b If “yes,” explain  
c If “no,” explain
- 54 Is there enough supply of fundis with enough technological know-how?  
Yes [1]  
No [2]
- 55 Where do they come from?
- 56 Do you train your own fundi?  
Yes [1]  
No [2]
- 57 What role do fundis play in spreading jua kali production processes and products to others?

**Section II- Fundis  
employment**

*Write the code in the  
unshaded box*

- 58 What is the relationship between you and the business owner?
- 59 How do you relate with the business owner?
- 60 Did you know the business owner before he/she hired you?  
Yes [1]  
No [2]
- 61 What do you consider when taking a job from a business owner?
- 62a Do you change jobs frequently?  
Yes [1]  
No [2]
- b If “yes,” explain  
c If “no,” explain

**Training**

*Write the code in the  
unshaded box*

- 63 Where did you obtain your skills from?
- 64 When did you receive training?
- 65 How long did it take?
- 66 Who trained you?
- 67 What is your relationship with the trainer?
- 68 Have you trained others?  
Yes [1]  
No [2]
- 69 Have you attended further skill training since you started work?  
Yes [1]  
No [2]

**Production process**

*Write the code in the  
unshaded box*

- 70 Have you originated a new product since you started working as a fundi?  
Yes [1]  
No [2]
- 71 a Have you changed the production process since you started working in the cluster?
-

- 
- Yes [1]  
No [2]
- b If “yes” specify  
c If “no” explain
- 72 Who assisted you in the origination of this product?  
73 Where did you obtain the design from?  
74 Have you received support from any of these institutions in technology upgrading?
1. Youth polytechnic
  2. National polytechnic
  3. Institutes of technology
  4. University
  5. National Youth Service
  6. NGO
  7. KIDRI
- 75 If you had an idea of originating a new product, which of the following institutions would you go to?
1. Youth polytechnic
  2. National polytechnic
  3. Institutes of technology
  4. University
  5. National Youth Service
  6. NGO
  7. KIDRI

**Acquisition of intellectual property rights**

*Write the code in the unshaded box*

- 76a Have you secured intellectual property rights for your products?  
Yes [1]  
No [2]
- b If “yes” specify  
c If “no” explain
- 77 What difficulties do you encounter when securing intellectual property rights?  
78 Do government agencies assist in securing property rights?  
Yes [1]  
No [2]
- 79 Does the association assist you in securing property rights?  
Yes [1]  
No [2]
- 80 Do you feel you own the idea and the product you make?  
Yes [1]  
No [2]
- 81a Do you allow your fellow fundi to copy your idea and product?  
Yes [1]  
No [2]
- b If “yes,” specify  
c If “no,” explain

**Collaboration in the cluster**

*Write the code in the unshaded box*

- 82a Do you collaborate with fundis who are making similar products?  
Yes [1] No [2]
- b If “yes,” specify how you collaborate  
c If “no,” explain why you do not collaborate
- 83a Do you feel threatened by fundi making similar product in the cluster?  
Yes [1] No [2]
-

- 
- b If “yes,” explain  
c If “no,” explain  
84 How do you determine which fundi to collaborate with?  
85 Are they relatives, friends or people from the same village or area of residence?  
86a Do you collaborate with non-jua kali fundi who make similar products?  
Yes [1]  
No [2]  
b If “yes,” specify  
c If “no,” explain  
87a Do you feel threatened by non-jua kali fundi?  
Yes [1] No [2]  
b If “yes,” specify  
c If “no,” specify

**Product design**

*Write the code in the unshaded box*

- 88 How do you modify the design?  
89 Why do you modify the design?  
90 What factors do you consider when modifying the design?  
91 Do you consider the function of the product in production?  
Yes [1]  
No [2]  
92 When you make a job move, do you keep or share the secrets of production from your previous employer?  
Keep [1]  
Share [2]

---

Source: Bull *et al.* (2014).

## Annex 1.2 Survey on South African informal manufacturing of home and personal care products

### General Information

Name of Respondent:.....Gender: Male [ ] Female [ ]

Age: [\_\_\_\_\_]

Educational level: Primary [ ] Secondary [ ] Tertiary [ ] No formal education [ ]

Location of practice: ..... District: ..... Region: .....

### I Information about the Business

1. Does your company have a name? If yes, name of business:
2. Description of your main line of products and services (specialty of the respondent)

.....

3. Why did you start your own business? (motivation)

4. Is your business registered? Yes [ ] No [ ]

- 4.a. If yes, what was the motivation to register your business?

- 4.b. If yes, was it difficult to register your business?

Very difficult [ ] Difficult [ ] Easy [ ] Very Easy [ ]

5. Do you employ other people? Yes [ ] No [ ]

- 5.a. If yes, please describe the employment (temporary, permanent, seasonal)

.....

- 5.b. If yes, do you have formal contract with your employees? Yes [ ] No [ ]

6. How long have you had this business? [ ] years, [ ] months

- 6.a. What did you do before?

7. What are your main products?

- 7.a. Which one(s) did you start with?

- 7.b. Please describe how you gradually moved into new products or services

.....

8. Are all your products registered? Yes [ ] No [ ]

- 8.a. If yes, please indicate the institution you registered the products with

.....

- 8.b. If yes, was it difficult to register your products?

Very difficult [ ] Difficult [ ] Easy [ ] Very Easy [ ]

- 8.c. If yes, what was the motivation to register your products?

- 8.d. Please explain the process and requirements for product registration.

9. How did you get the funding to start your business?

Own funds [ ] Loan [ ] Friends and family [ ] Other [ ]

Please describe .....

- 9.a. Have you ever obtained a loan from the bank for your practice? Yes [ ] No [ ]

- 9.b. Have you ever received any financial assistance from government? Yes [ ] No [ ]

10. How profitable do you find your business?

Very profitable [ ] Quite Profitable [ ] Not profitable [ ]

11. Do you get other benefits from your business beyond the financial profit? (value)

12. Do you keep regular accounts of the business? Yes [ ] No [ ]

13. Would you be able to give us a rough estimate of your business sales over the last year?

14. Where do you sell your products? .....

15. Who are your main customers? .....

16. Do you produce on a large scale for people to collect and retail for you? Yes [ ] No [ ]

17. Do you have some of your products in formal establishments or shops? Yes [ ] No [ ]

### II Sources of Knowledge

18. Where did you obtain the knowledge to manufacture your products? Please describe:

19. Have you received any type of training? Yes [ ] No [ ]

- 19.a. When did you do your training [ ] year, and how long was your training? [ ] (number of years/months/days)

19.b. Please describe the nature of your training .....

20. Have you provided training to other people?

20.a. If yes, to how many?

20.b. Please describe the nature of the training provided .....

21. Are your products based to some extent on indigenous/traditional knowledge?

Yes [ ] No [ ] Partially [ ]

21.a. If yes, how did you acquire that knowledge? Please describe:

### III

#### **Innovation**

22. What do you think makes your products successful?  
.....

23. Please describe your main method or production process  
.....

24. Please describe the equipment you use for manufacturing/production  
.....

25. Describe new technologies, machines, production techniques or innovations you adopted in the last 2–3 years  
.....

26. Have you introduced new or significantly improved products in the last 2–3 years? Yes [ ] No [ ]

26.a. If yes, please describe:  
.....

27. Have you introduced any new or significantly improved method of production or production practices the last 2–3 years? Yes [ ] No [ ]

27.a. If yes, please describe

28. What exactly do you do to improve on your products or practice?

29. What/who is your inspiration to develop new products/processes?

30. What are your main challenges to come up with new products and processes? (please describe)

### IV

#### **Networking and Knowledge Flows**

31. Do you belong to any association? Yes [ ] No [ ]

31.a. If yes, name of the association(s)

32. Have you interacted with any formal organizations (i.e. recognized institution in South Africa, such as research centers, NGOs, incubators, etc.) while seeking support for your practice?

Yes [ ] No [ ]

32.a. If yes, please name the organizations

32.b. If yes, please describe the nature of the interaction

32.c. If yes, please indicate the benefits of those interactions

33. Do you interact or collaborate with other producers? Yes [ ] No [ ]

33.a. If yes, what kind of knowledge do you exchange?

34. Do you interact or collaborate with your suppliers? Yes [ ] No [ ]

34.a. If yes, what kind of knowledge do you exchange?

35. Do you interact or collaborate with your customers? Yes [ ] No [ ]

35.a. If yes, what kind of knowledge do you exchange?

36. Do you interact or collaborate with members of your community? Yes [ ] No [ ]

36.a. If yes, what kind of knowledge do you exchange?

37. Do you share knowledge about manufacturing with your employees? Yes [ ] No [ ]

Please explain:

38. Would you want to team up with somebody to commercialize on a large scale? Yes [ ] No [ ]

### V

#### **Intellectual Property and Knowledge Appropriation**

39. Do you have your own brand? Yes [ ] No [ ]

40. Do you feel that you own the ideas for the new products you make? Yes [ ] No [ ]

Please explain:  
.....

41. Are you concerned about possible commercialization of your innovations/innovative ideas without your knowledge or consent? Yes [ ] No [ ]

42. Do you protect your ideas in any way? Yes [ ] No [ ]

42.a. If yes, what mechanisms do you use to protect your innovation or innovative ideas? (formal or informal)

43. Do you think open transfer or exchange of innovative ideas is useful in your sector? Yes  No
44. What mechanisms for the protection of knowledge (e.g. patent, trademark, secrecy) do you think are most appropriate for the manufacture of home and personal care products? Please describe:  
 .....  
 .....
45. Would you like to make use of formal mechanisms of knowledge appropriation to protect your ideas? (e.g. patents, trademarks) Yes  No
46. How do you assess South African IP legislation in connection with your sector?
47. What are your suggestions to improve the appropriation of knowledge of micro-producers of home and personal care products in South Africa?

Source: Kraemer-Mbula and Tau (2014).

## Annex 1.3 Survey on the Ghanaian traditional, informal herbal medicine sector

### Section I General Information

1. Name of Respondent ..... Gender: Male  Female
2. Age: [\_\_\_\_] Marital Status: Single  Married  Divorced  Widow  Separated
3. Educational level: Primary  JHS/MSLC  Secondary  Tertiary  No Formal education
4. What religion do you practice? Christian  Muslim  Traditional   
 Other.....
5. Location of practice ..... District ..... Region:  
 .....

### Section II Traditional Medical Practice (TMP)

6. Name of Enterprise (if your traditional medical practice is done under the name of a company).....
7. Specialty of respondent.....  
 .....
8. Is your enterprise/practice registered? Yes  No .
9. How many other employees? [\_\_\_\_]
10. Do you contribute to social security? Yes  No
11. Were you able to get some loan from a bank for your practice? Yes  No .
12. If yes which bank? .....
13. Have you ever received any financial assistance from the government? Yes  No .
14. Give the name of any agency which helped you in your practice?.....
15. For how long have you been in traditional medical practice? [ ] years
16. Which year did you actually start practicing? .....
17. How did you become a Traditional Medical Practitioner? (e.g. apprenticeship, family business, divine call, hobby).....
18. If you trained to be a TMP, how long was your training? [ ] (number of years)
19. Explain the nature of your training.....
20. What are your main herbal products?.....
21. Which one(s) did you start with?.....
22. Are all your herbal products registered? Yes  No .
23. State the institution you registered the products with.....
24. What are the requirements to have your products registered by these organizations?
25. Why did you register your product(s)?
26. How do you assess the registration process in Ghana?  
 Very difficult  Difficult  Easy  Very Easy
27. How profitable do you find the TMP? Very profitable  Quite Profitable  Not profitable
28. Explain your answer above to question 22.....

### Section III Innovation

29. Describe new technologies, machines, production techniques or innovations you adopted in the last five years.....
30. Describe new products and processes you developed in the last five years .....
31. Have you patented or formally appropriated any of your products? Yes  No

32. Do you know the process you go through to patent or formally appropriate a product? Yes/No  
 33. Where do you sell your products?.....  
 34. Who are your main customers?.....  
 35. The products you adopted, where do they come from?.....  
 36. What exactly do you do to improve on your products or practice?.....  
 37. Do you produce on large scale for people to collect and retail for you? Yes [ ] No [ ]  
 38. Do you have some of your products in chemical/pharmacy shops? Yes [ ] No [ ]  
 39. Which of your products (if any) are on the Essential Drugs List (EDL) of the Ministry of Health?  
 40. What do you think accounted for that (your medicine sold in pharmacy or on the EDL)?

#### **Section IV. Networking and Knowledge Flows**

41. Do you belong to any traditional medicine association? Yes [ ] No [ ]  
 42. Give the name of the association(s).....  
 43. State the benefits of your membership of the association(s).....  
 44. State any training you have received in your association.....  
 45. Have you worked with any recognized institution in Ghana before (CSIR-Mampong, Noguchi, KNUST, KCCR, Legon)? Yes [ ] No [ ]  
 46. Explain how you worked – or are still working – with these institutions.  
 47. What are the other institutions you worked with?.....How  
 Do you work with these other institutions?  
 48. Would you want to team up with somebody to commercialize on a large scale? Yes [ ] No [ ]

#### **Section V. Intellectual Property Protection**

49. Are you concerned about possible commercialization of your innovations/innovative ideas without your knowledge or consent?  
 Yes [ ] No [ ]  
 50. If yes, what mechanisms do you use to protect your innovation or innovative ideas?  
 51. What is the cost of appropriation?.....  
 52. Is open transfer or exchange of innovation/innovative ideas useful in traditional medicine?  
 Yes [ ] No [ ]  
 53. What main intellectual property mechanism (e.g. patent, trademark, secrecy) do you think is most appropriate for traditional medical products?.....  
 54. How do you assess the IP policy regime in Ghana among traditional medical practitioners?  
 Very high [ ] High [ ] Average [ ] Low [ ] Very low [ ] Non-existent [ ]  
 55. What do you suggest to improve the IP situation in the country?.....  
 56. What do you suggest to improve traditional herbal practice in Ghana?.....  
 At end of interview, switch off recorder and thank the participant.

Source: Essegbey *et al.* (2014).

### **Annex 1.4 Senegalese informal ICT and trade sector**

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

**Address** (Optional):

Telephone No.

(Optional):

#### **1 Information on the respondent**

Name – First name

Gender – Male/Female

#### **Position in the IPU**

Junior employee

Technical manager

Administration

General manager/Manager

Other (please specify):

## **2 Socio-demographic information on the owner/creator/manager of the IPU**

### **2.1 Who created the IPU?**

- You alone
- Your Father/Mother
- Your brother/sister
- Your uncle/aunt
- A friend
- A third party
- The family
- Associates
- A cousin
- Other (please specify):

### **2.2 Gender – Male/Female**

### **2.3 Matrimonial status**

- Married, monogamous
- Married, polygamous
- Single
- Divorced
- Widowed
- Other

### **2.4 What is your ethnic group?**

- Wolof
- Serer
- Toucouleur
- Diola
- Mandingo
- Other Senegalese ethnic group (please specify):
- Foreigner (please specify):

### **2.5 Languages spoken (you can check more than one box)**

- Wolof
- Serer
- Toucouleur
- Diola
- Mandingo
- French
- English
- Spanish
- Chinese
- Arabic
- Other languages (please specify)

### **2.6 Place of origin:**

### **2.7 Religion practiced or brotherhood**

- Tidiane
- Mouride
- Layenne
- Catholic
- Protestant
- Animist
- Other (please specify):

### **2.8 Level of Education**

- None
- Primary
- General secondary
- Technical secondary
- Higher
- Professional training

- Koranic school
- Other (please specify):
- 2.9 Socio-professional trajectory (please number in sequence)
  - Unemployed
  - French school
  - Koranic school
  - Craftsperson
  - Employed in the modern sector
  - Other
- 3 Nature and Structure of the IPU and its activities**
- 3.0a. Do you have a NINEA registration number?
  - Yes
  - No
- 3.0b. Does your business have
  - Written SYSCOA-compliant accounting?
  - No SYSCOA-compliant accounting?
  - Other (please specify)?
  - If the business has a NINEA registration number and formal accounting to SYSCOA standards,
- 3.1 How long has your IPU been in existence?
- 3.2 How would you categorize your activity?
  - Sale of recharge cards, telephones
  - Maintenance and servicing
  - Mobile telephone decoding
  - Computer and peripheral device assembly
  - Sale of computer hardware, office electronics
  - Sale of audiovisual equipment
  - Sale of CDs, VCDs, DVDs
  - Asset creation
  - Repairs
  - Services
  - Other (please specify):
- 3.3 What material resources does your IPU use to conduct its activities?
  - Computer
  - Printer
  - Scanner
  - Telephone
  - Photocopier
  - Repair kit
  - Fax
  - Other (please specify):
- 3.4 What kind of premises do you have for conducting your activities? (you can check more than one box)
  - Street
  - Stall in the street
  - Vehicle
  - Market stall
  - Workshop
  - Shop
  - Kiosk
- 3.5 How did the idea for this activity originate?
  - Market demand
  - Social demand
  - Something to do
  - Advice from a third party
  - Imitation
  - More freedom
  - Fewer constraints

- Other (please specify):
- 3.6 What are the general stages in carrying out the activity? (please number in sequence)
- Identifying targets
  - Financing
  - Equipment
  - Cooperation
  - Human resources
- 3.7 Are there especially favorable periods in the year for conducting your activities?
- Religious festivals
  - Religious events
  - End of year
  - Return to school
  - Weekly markets
  - Fairs
- 3.8 How do you take advantage of these favorable periods?
- Investments
  - Pricing strategy
  - New product
  - Work organization
  - Special offers
- 3.9 How did this happen?
- 3.10 What problems have you had to face in conducting a new activity? (you can check more than one box)
- Technical
  - Financial
  - Human
  - Organizational
  - Institutional
  - Other (please specify)
- 3.11 How have you overcome these problems?
- Technical:
  - Financial:
  - Human:
  - Organizational:
  - Institutional:
  - Other (please specify):
- 3.12 Over the last few years, has your business invested in the following activities?
- Acquiring a machine
  - Acquiring outside knowledge
  - Training
  - Buying software
  - Other (please specify):
- 3.13 What sources of information have you used for setting up your activities?
- The family
  - Market
  - State and State departments
  - Religious associations
  - Business culture
  - Community living conditions
  - Internet
- 3.14 Which types of financing do you use for keeping your activities going?
- Own resources
  - Family resources
  - Tontines
  - Mutual savings and loan associations
  - Bank
  - Religious associations

Other (please specify)

3.15 Which of the following social values have helped you to increase turnover?

Solidarity (*Ndimbaleunté*)

Sharing (*seddo*)

Honesty (*djoub ak ngor*)

Dialogue (*disso*)

Hospitality (*teranga*)

Courage (*diom*)

Reserve (*mandou*)

Perseverance (*goorgolou*)

3.16 Give an explanation for each value checked?

Solidarity:

Sharing:

Honesty:

Dialogue:

Hospitality:

Courage:

Reserve:

Perseverance:

#### **4 Work Organization**

4.1 How many people work in the IPU?

4.2 How is the work distributed?

Based on skill

Based on kinship

Based on friendship

Based on age

4.3 How are employees paid?

Monthly

Weekly

Daily

Hourly

Irregularly

4.5 What are the methods of remuneration?

Commission (sales)

Quotas

Wages

#### **5 Commerce and Marketing**

5.1 What is your main strategy for market occupancy?

Social network

Advertising

Price

Accessibility

Other (please specify):

5.2 Do your product prices vary according to:

Market

Customer

Place

Time

Other (please specify):

5.3 What is your main pricing mechanism?

Bargaining

Fixed price

5.4 What are your customer relations based on?

Trust Work Family Religion Place of origin

5.5 Who are your main suppliers?

Wholesalers

Outside partners  
Retailers (traders)  
Formal businesses

5.6 What are your supplier relations based on?

Trust  
Work  
Family  
Religion  
Place of origin

5.7 How would you assess the competition in your field of activity?

Very strong  
Strong  
Average  
Weak  
Very weak

5.8 Who are your main competitors?

Formal sector  
Participants in the same sector  
Foreign participants

5.9 What do you think is the most important factor in being competitive?

Proximity  
Product quality  
Affordable price  
Capital  
Other (please specify)

5.10 What innovative strategies do you adopt for facing this competition?

Cutting prices  
Using new sales  
Improving product quality  
Other (please specify)  
Techniques (packaging, etc.)

## **6 Partnership and Cooperation**

Does your IPU belong to a group or network?

Yes  
No

If yes, please specify the group:

Who are your IPU's partners in implementing an activity?

Informal sector  
Modern sector  
State  
NGO  
Religious association  
Other

What links does your business have with the so-called modern sector? (you can check more than one box)

Customer  
Supplier  
Competitor  
Associate

What relations does your business have with the State and State departments?

Business tax  
Tax  
Subsidy  
No problem

3.14 Has your business benefited from public financial support for new activities?

Yes  
No

If yes

Local authorities  
Government  
Other

Source: Konté and Ndong (2012).

## Annex 1.5 The diffusion and transfer of IP-related innovation between formal and informal sectors in Uganda

### Background Information:

Name \_\_\_\_\_

Workplace \_\_\_\_\_

Work specialty \_\_\_\_\_

Education: (a) Formal \_\_\_\_\_ (b) Informal \_\_\_\_\_

**Section I** Questions about work (for researchers the questions will focus on education and research work):

1. What exactly do you do?
2. How and when did you learn about the work you do?
3. What “experience” do you have for this work? (In local language this means how long respondent has been at this work)
4. How has this work changed over the years and why?
5. What are the benefits you have realized through this work?
6. What are the main challenges?

**Section II** Questions on networks [linkage below refers to formal–informal (F–I), informal–informal (I–I), informal–formal (I–F) exchanges]:

7. Looking at your work [as a researcher/artisan/farmer], do you have linkages with people in [formal/informal] sector?
8. What kinds of linkages do you have and of what benefit to you/them?
9. If you don’t have linkages in [formal/informal] sector, is that something you would consider establishing? If yes/no, why/why not? If yes, how can they be established and/or enhanced? If yes, will the linkage benefit from formalized mechanisms for the diffusion, transfer or exchange of innovation or are informal mechanisms ideal?
10. Which areas [will] benefit most from linkages between you/your work and [formal and informal] sector actors working in the same area as yours?
11. What are the challenges of the linkages between you and [formal and informal] sector actors?
12. What are your main concerns about the linkages?

**Section III** Linkages, innovation exchange and intellectual property:

13. Do the linkages involve the diffusion, transfer or exchange of innovation/innovative ideas between you and [formal/informal] collaborators/actors?
14. Are the innovations/innovative ideas applied by the recipient party – applied meaning translated into commercialization or non-commercial application?
15. Are you concerned about possible commercialization of innovations/innovative ideas?
16. If, yes to (15), does this often lead to secrecy, restricted access or lack of sharing of innovation/innovative ideas?
17. Is open transfer or exchange of innovation/innovative ideas possible?
18. Do you think about intellectual property/intellectual property laws or ownership of innovations in instances of exchange of innovation/innovative ideas with your collaborators?
19. If yes to (18), is that due to the potential for commercialization of some or all of the innovation by the other party/parties?
20. If no to (18), is IP/IP laws something on your horizon?
21. Any instance where IP/IP laws have affected your work in any way (negative or positive)?
22. Any instance where IP/IP laws have hindered or slowed down the exchange of innovation/innovative ideas?
23. Any government policies you know of to encourage linkages and/or exchange of innovation between you and the [formal and informal sector]?

24. If no policies exist, will the formation of such policies facilitate or deepen the linkages and exchange of innovation/innovative ideas between you and [formal and informal] sectors?

Source: Kawooya (2014).

## Annex 2 Extract 1 from the Generic Questionnaire of Stage 2 of the 1-2-3 Survey

CUSTOMER, SUPPLIER AND COMPETITOR (E).	
<b>E1. Who is your main customer (to whom do you mainly sell)?</b>	
1. Government units	5. Institutional and nonprofit organizations
2. Public enterprises	(NGOS, etc.)
3. Private enterprises (traders)	6. Household
4. Private enterprise (non trade)	7. Direct export
<b>E2. Who is your main supplier (from whom do you mainly buy)?</b>	
1. Government units	5. Institutional and nonprofit organizations
2. Public enterprises	(NGOS, etc.)
3. Private enterprises (traders)	6. Household
4. Private enterprise (non trade)	7. Direct export
<b>E3. Do you export part of your production?</b>	
1. Yes	2. No → Go to E4
<b>E3a. Which share?</b> →  _ _  % of production	
<b>E3b. To which country(ies)?</b> _____	
<hr/>	
<b>E4. Who is your main competitor?</b>	
1. Big trading firm	3. Big non trading firm
2. Small trading firm	4. Small non trading firm
<b>E5. Do the products of your main competitor come from the local market or from abroad?</b>	
1. Local market → Go to E6	
2. Abroad	
3. Both	
4. Don't know → Go to E6	
<b>E5a. From which country(ies)?</b> → _____	
<hr/>	
<b>E6. Do you market foreign products?</b>	
1. Yes	2. No → Go to E7
<b>E6a. From which country(ies)?</b> _____	
<hr/>	
<b>E7. Compared to your main competitor, your prices are ...</b>	
1. Higher	
2. Lower → Go to E9	
3. Same → Go to E10	
<b>E8. Why are your prices higher?</b>	
1. Equipment less productive	
2. Not enough customers	
3. No access to credit	
4. Higher quality	
5. Supplying more expensive	
6. Other (specify): _____	
<b>Go to E10</b>	
<b>E9. Why are your prices lower?</b>	
1. Do not pay taxes	
2. Labor cost lower	
3. Customers less wealthy	
4. Quality inferior	
5. Other (specify): _____	

*For all*

**E10.** Who set the price of your main products/services?

- 1. Contractor(s) without bargaining → **Go to E11**
- 2. Contractor(s) with bargaining → **Go to E11**
- 3. Yourself

**E10a.** You set prices according to ...

- 1. Costing, by adding a %
- 2. Competitors' prices
- 3. Producers' union
- 4. Other (specify): \_\_\_\_\_

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**Extract 2 from the generic questionnaire of stage 2 of the 1-2-3 survey**

**PROBLEMS AND PROSPECT (G.)**

**G1.** Why did you choose the activity you are carrying out?

- 1. Family tradition
- 2. Knowledge of the job
- 3. Brings in better profit
- 4. More stable profit compared with others
- 5. No better choice
- 6. Other (specify): \_\_\_\_\_

**G2.** You set the level of activity, according to ...

- 1. Actual orders
- 2. Previsions
- 3. Production capacity
- 4. Physical capacities
- 5. Other (specify): \_\_\_\_\_

**G3.** How do you behave with customers

- 1. Waiting for them to come
- 2. Make me known through family, friends, etc.
- 3. Marketing
- 4. Other (specify): \_\_\_\_\_

**G4.** You select your main supplier(s), according to ...

- 1. Prices
- 2. Product quality
- 3. Delay of delivery
- 4. Credit facilitation
- 5. Imposed by contractors/customers

**G4a.** Do you face problem with the supplying of raw materials? *2 answers maximum*

- 1. Quality problems
- 2. Quantity problems
- 3. Price too high
- 4. Long delivery delay
- 5. No facility storage
- 6. Other (specify): \_\_\_\_\_
- 7. No problem

**G5.** Is energy supply affecting your level of activity?

- 1. Yes, due to energy shortage
- 2. Yes, too expensive
- 3. No

**G6.** Would you say your equipment and machinery are suited to your activity?

- 1. Yes
- 2. No, lack of equipment
- 3. No, equipment too old

**G7.** Which main difficulty are you facing for selling your products/services?

- 1. Lack of customers
- 2. Too much competition
- 3. Lack of direct access to market/customers
- 4. Other (specify): \_\_\_\_\_
- 5. No problem

**G8. When facing cash problems, how do you react?**

- 1. You borrow money from your family, friends
- 2. You ask your supplier for a credit
- 3. You ask your customer/contractor for a cash advance
- 4. You borrow money from a money-lender
- 5. Other (specify): \_\_\_\_\_

**G9. Finally what are the 3 main problems you are facing for carrying out your activity ... Spell out**

	<u>1<sup>st</sup></u>	<u>2<sup>nd</sup></u>	<u>3<sup>rd</sup></u>	
Premises	1	1	1	<input type="checkbox"/>
Equipment and machinery	2	2	2	
Staff	3	3	3	<input type="checkbox"/>
Raw materials supply	4	4	4	
Marketing (selling products)	5	5	5	<input type="checkbox"/>
Financing and credit problem	6	6	6	
Management problems	7	7	7	
Regulation and taxes	8	8	8	

**G10. Do you belong to a professional organization (producer, shopkeeper, etc.), or do you benefit from a specific assistance project/programme ?**

- 1. Yes
- 2. No → Go to G11

**G10a. In which fields does this organization help you? 3 answers**

	<u>G10b</u>	<u>G11</u>	
1. Technical training	1	1	
2. Management and accounting training	2	2	<input type="checkbox"/> <input type="checkbox"/> <input type="checkbox"/>
3. Assistance with suppliers	3	3	
4. Sharing modern machinery	4	4	
5. Access to credit	5	5	
6. Solve administrative problems	6	6	
7. Advice on law and regulation	7	7	
8. Other (specify) _____	8	8	

*For all*

**G11. To solve your present problems, in which fields do you need assistance? 3 answers**

**G12. How do you usually react when facing decrease in demand? Maximum 2 answers**

- 1. Reduce staff
- 2. Reduce salary/costs
- 3. Reduce profit
- 4. Diversify activities
- 5. Look for another job, or a secondary job
- 6. Upgrade quality of products/outputs
- 7. Other (specify) \_\_\_\_\_

**G12. What is the major risk you may face?**

- 1. Decrease in demand in local market
- 2. Decrease in demand in foreign markets
- 3. Supply of raw materials
- 4. Too much competition

**G13. For the past two years, has your income ...**

- 1. Increased
- 2. Decreased → Go to G13b
- 3. Stabilized → Go to G14
- 4. Not applicable → Go to G15

**G13a. Your income increased due to ...**

1. Rise in sold production/activity	2. Rise in unit margin	<input type="checkbox"/>
	3. Both 1 and 2	
<i>Go to G15</i>		
<b>G13b. Your income decreased due to ...</b>		
1. Decline in sale	3. Both 1 and 2	<input type="checkbox"/>
2. Decline in unit margin		
<b>G14. For the past two years, the number of customers has:</b>		
1. Increased	2. Decreased	3. Stabilized
		<input type="checkbox"/>
<b>G15. For the past two years, have you got new customers who previously went to a big firm?</b>		
1. Yes	2. No	<input type="checkbox"/>
<b>G16. For the next 6 months, compared to the present, do you expect the situation to be...</b>		
1. Better	2. Worse	3. The same
		<input type="checkbox"/>
<b>G17. Are you willing to register your business to the administration?</b>		
1. Yes	2. No	<input type="checkbox"/>
<b>G18. Do you think the Government can help improving your business?</b>		
1. Yes	2. No →Go to G19	<input type="checkbox"/>
<b>G18a. How? _____</b>		
_____		
<b>G19. Would you like your children to take over your business if they wanted to?</b>		
1. Yes	2. No	<input type="checkbox"/>

## Annex 3 Kenya 2014 MSME Survey

1. The module on business income and seasonal variations includes a section on *Product, Process and Marketing Innovation* with four questions:
  - a. During the period 2009 to 2013, did you introduce new or significantly improved goods or services?  
Yes/No
  - b. During the period 2009 to 2013, did you introduce new or significantly improved methods of manufacturing or producing goods or services?
  - c. During the period 2009 to 2013, did you implement a new marketing method involving significant changes in product design or packaging, product placement, promotion or pricing?
  - d. Please estimate the total turnover in 2013 of goods and services innovations introduced in 2013 (Ksh).
2. The module on capital and technology comprises six questions on ICT, besides the amount and sources of initial and additional capital and the types of equipment:
  - a. What other type of support did you receive?
    - 1 = Marketing information
    - 2 = Accounting
    - 3 = Legal
    - 4 = Training
    - 5 = Business planning
    - 6 = Stock layout
    - 7 = None
    - 8 = Other (specify)
  - b. Indicate source of technological advice if any received.
    - 1 = Government institutions
    - 2 = Research institutions
    - 3 = NGO
    - 4 = Contracting MSME
    - 5 = Contracting non-MSME
    - 6 = Salesmen
    - 7 = Publications
    - 8 = Other (specify)
    - 9 = N/A
  - c. Does the business use any type of ICT? Yes/No
  - d. Specify the types of ICT used
    - 1 = Mobile phone
    - 2 = Fax
    - 3 = Computer
    - 4 = Email/website
    - 5 = Internet
    - 6 = Other (specify)
  - e. What is the purpose of using ICT?
    - 1 = Ordering supplies
    - 2 = Marketing
    - 3 = Getting general information
    - 4 = Other (specify)
  - f. Why does the business not use ICT?
    - 1 = Too costly
    - 2 = Not needed
    - 3 = No electricity
    - 4 = Not accessible
    - 5 = Other (specify)
3. The module on business organization and marketing comprises seven specific questions on marketing
  - a. How are prices set?
    - 1 = Independently
    - 2 = In consultation with others

- 3 = Buyers
- 4 = Suppliers
- 5 = Others (specify)
- b.** Main source of inputs or agency
  - 1 = MSMEs
  - 2 = Non-MSMEs
  - 3 = Farmers
  - 4 = Direct imports
  - 5 = Individual suppliers
  - 6 = Government
  - 7 = Other (specify)
- c.** Main buyer of products or services
  - 1 = MSMEs
  - 2 = Non-MSMEs
  - 3 = Direct exports
  - 4 = Individual consumers
  - 5 = Government
  - 6 = Other (specify)
- d.** Indicate any subcontracting arrangements for inputs or orders received from clients
  - 1 = None
  - 2 = MSMEs
  - 3 = Non-MSMEs
  - 4 = Middlemen
  - 5 = Government
  - 6 = Other (specify)
- e.** Indicate any subcontracted arrangement for your products or services
  - 1 = None
  - 2 = MSMEs
  - 3 = Non-MSMEs
  - 4 = Middlemen
  - 5 = Government
  - 6 = Other (specify)
- f.** Main method of advertisement of products and services
  - 1 = None
  - 2 = Electronic media
  - 3 = Print media
  - 4 = Trade exhibition
  - 5 = Posters/fliers/brochures
  - 6 = Public marketing/promotion bodies
  - 7 = Private market/promotion bodies
  - 8 = Quality of products/clientele satisfaction
  - 9 = Other (specify)
- g.** What are your customer feedback mechanisms?

Source: The Kenya MSME Survey is a repetition of the 1999 Baseline Survey of Micro and Small Enterprises (see CBS-ICEG-K-Rep (1999) National Micro and Small Enterprise Baseline Survey 1999, Survey Results, Nairobi, Central Bureau of Statistics, International Centre for Economic Growth and K-Rep Holdings Ltd). It was planned for 2014 by the Kenya National Bureau of Statistics (KNBS), but was postponed to end of 2015 for budgetary reasons.