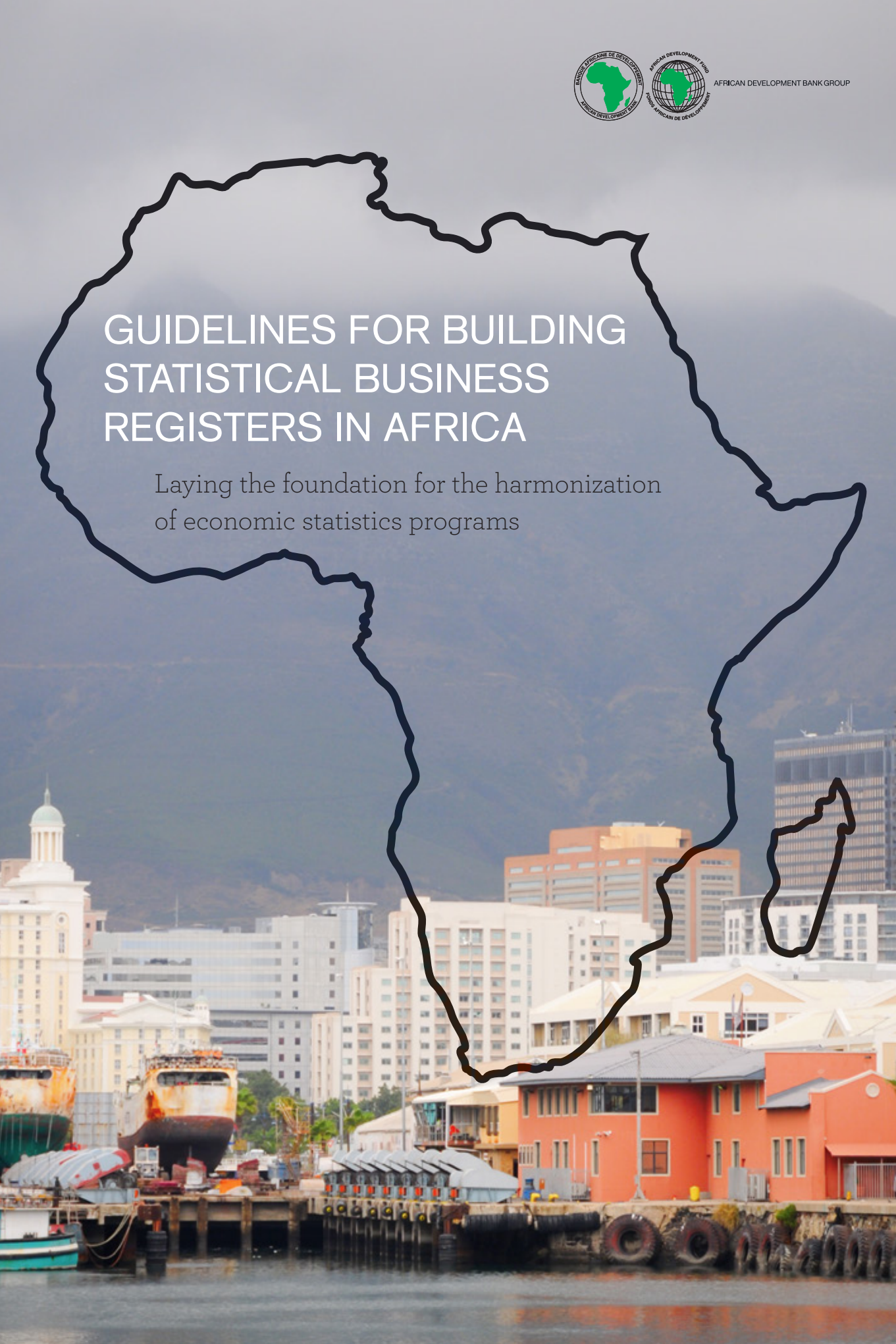




AFRICAN DEVELOPMENT BANK GROUP

GUIDELINES FOR BUILDING STATISTICAL BUSINESS REGISTERS IN AFRICA

Laying the foundation for the harmonization
of economic statistics programs



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This publication was prepared by the Statistical Capacity Building Division of the Statistics Department in the Office of Chief Economist at the African Development Bank. The preparation of the Guidelines involved a participatory process including an expert group meeting and seminars which were held with economic and labor statistics experts from the Bank's regional member countries. The Guidelines conform to internationally accepted standards and methods but while every effort has been made to provide technically sound information, the African Development Bank accepts no responsibility whatsoever for any consequences of their use.

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PREFACE

Coordination of the individual surveys and administrative collections that constitute the economic statistics program of a national statistical office (NSO) is vital. Coordination depends upon the use of a common conceptual framework, including in particular the System of National Accounts (SNA). A crucial requirement in making this framework operational is to ensure that individual survey frames are properly harmonized.

An up-to-date survey frame is required for each repetition of a regularly conducted survey. It is more effective and efficient to maintain a frame so that it can support the sequence of repetitions of a survey than it is to create the frame afresh with each repetition. Thus, survey frame maintenance is best achieved through the development of a single statistical business register (SBR) and its use as the source of frames for all business surveys.

The design, development, and introduction or enhancement of an SBR is so important that it typically constitutes a core goal in the five-year national strategy of most if not all African NSOs. Thus, in response to requests from NSOs, the African Development Bank (AfDB) has prepared these Guidelines detailing all the essential elements of an SBR.

The general objectives of the Guidelines are to provide:

- a general background to the need for an SBR and the concepts on which it is based;
- a description of the functions of an SBR;
- detailed information on SBR development and implementation; and
- a starting point for harmonization of SBRs across African NSOs.

The Guidelines are directed first and foremost at economic and labor statistics practitioners in national statistical offices and policy analysts in development, economic, and labor ministries, as well as those in central banks. They should be useful to a wide spectrum of users, including:

- *SBR managers and staff* – by detailing SBR concepts and creation and maintenance procedures, and SBR quality and performance measures;
- *Business survey managers and staff* – by providing the basic concepts on which an SBR is based and describing the production of survey frames from the SBR;
- *Business statistics staff* – by providing the basic concepts, including what data to be included and how SBR data may be published;
- *Staff responsible for communications* with other organizations in the national statistical system (NSS) and with international organizations – by providing the basic concepts;
- *Staff responsible for respondent relations* – by defining and enabling calculation the individual and cumulative respondent burden associated with business surveys; and
- *Senior managers* – by providing the basic concepts, quality and performance measures, and suggestions for quality improvement.

This version of the Guidelines incorporates comments and examples from a team of SBR experts that met in Pretoria in May 2012 to discuss the previous version of the document in detail. Further comments and suggestions are welcome and will be taken into account for any future editions of the Guidelines.

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The book was prepared under the close and direct supervision of Charles L. Lufumpa (Director, Statistics Department), under the overall guidance of Mthuli Ncube (Chief Economist and Vice President of the AfDB).

The preparation of the Guidelines involved a wide-ranging consultative process which included heads and experts of economic and labor statistics units from a number of national statistical offices in Africa. The final product was a result of intensive discussions during the expert group meeting held in Pretoria in May 2012.

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ABBREVIATIONS

ABS	Australian Bureau of Statistics
AEWS	Annual Economy-Wide Survey
AfDB	African Development Bank
ANZSIC	Australian and New Zealand Standard Industrial Classification
BR	Business Register
BRQMF	Business Register Quality Management Framework [Statistics South Africa]
BSF	Business Sampling Frame
DDI	Data Documentation Initiative
EG	Enterprise Group
EN	Enterprise
ESS	European Statistical System
GEO	Geographical Unit
GSBPM	Generic Statistical Business Process Model
G-SIF	Generic Survey Interface File
G-SUF	Generic Survey Universe File
GST	Goods & Services Tax
HO	Head Office
ICLS	International Conference of Labor Statisticians
ICT	Information and Communications Technology
ILO	International Labor Organization
IMF	International Monetary Fund
ISIC	International Standard Industrial Classification of Economic Activities
KAU	Kind-of-Activity Unit
LBU	Large Business Unit
MCV	Metadata Common Vocabulary
MDA	Ministries, Departments and Agencies
MoU	Memorandum of Understanding
NAICS	North American Industry Classification
NOE	Non-Observed Economy
NPISHs	Non-Profit Institutions Serving Households
NSDS	National Strategy for the Development of Statistics
NSI	National Statistical Institute
NSO	National Statistical Office
NSS	National Statistical System
NUTS	Nomenclature of Territorial Units for Statistics
OECD	Organization for Economic Cooperation and Development
PAYE	Pay As You Earn
QPI	Quality and Performance Indicator
RO	Regional Office
SBR	Statistical Business Register
SDMX	Statistical Data and Metadata Exchange
SFA	Survey Frame Assessment
SID	Solutions Integrated Development
SLA	Service Level Agreement
SNA	System of National Accounts
SNA 1993	System of National Accounts – 1993 Version
SNA 2008	System of National Accounts – 2008 Version
SSA	Statistics South Africa
SSU	Standard Statistical Unit
TOGAF	The Open Group Architecture Framework
TQM	Total Quality Management

UIF	Unemployment Insurance Fund Unit
UKONS	UK Office for National Statistics
UNECE	United Nations Economic Commission for Europe
UNSD	United Nations Statistical Division
VAT	Value Added Tax
XML	Extended Markup Language

1 • INTRODUCTION

1.1 NEED FOR A STATISTICAL BUSINESS REGISTER

Harmonization of the individual surveys and administrative collections that constitute the economic statistics program of a national statistical office (NSO) is vital, particularly when they have been established more or less independently of one another at different times. Coordination depends upon the use of a common conceptual framework. A crucial requirement in making this framework operational is to ensure that the individual survey frames are properly harmonized. Here, *survey frame* means the list of units to be surveyed together with the characteristics of these units required to conduct the survey.

An up-to-date survey frame is required for each repetition of a regularly conducted survey. It is more efficient to maintain a frame so that it can support the sequence of repetitions of a survey than it is to create the frame afresh with each repetition. This is particularly true in the case of sub-annual surveys, where an overlap of sampled units from period to period is essential. Survey frame maintenance is best achieved through the development of a single *statistical business register (SBR)* and its use as the source of frames for all business surveys.

There are three reasons why the construction and use of an SBR is desirable. First, if survey frames are independently created and maintained, there is no means of guaranteeing that they are harmonized. As a result there may be unintentional duplication and/or omission of activities. Second, an SBR enables the practical application of standard statistical units and their classifications, which is a crucial requirement for survey outputs to be integrated. Third, it is more efficient for a single organizational unit to maintain the SBR as a source of frames for all business surveys than for each survey team to be independently maintaining its own frame.

1.2 OBJECTIVES, USES, AND PREPARATION OF THE GUIDELINES

The general objectives of the Guidelines may be summarized as providing:

- a general background to the need for an SBR and the concepts on which it is based;
- a description of the functions of an SBR;
- detailed information on SBR development and implementation; and
- a starting point for harmonization of SBRs across African NSOs.

Users and uses of the Guidelines

The Guidelines are expected to be useful to:

- *SBR managers and staff* – by detailing SBR concepts and creation and maintenance procedures, SBR frame production procedures, SBR-based publication options, and SBR quality and performance measures;
- *business survey managers and staff* – by providing the basic concepts on which an SBR is based and describing the production of survey frames, samples, and control files from the SBR;
- *business analysts and national accountants* – by providing the basic concepts on which the SBR is based and the quality of the data it produces;
- *staff responsible for communications* with other organizations in the national statistical system (NSS) and with international organizations – by providing the basic concepts;

- *staff responsible for respondent relations* – by defining and enabling calculation of the individual and cumulative respondent burden imposed by business surveys; and
- *senior managers* – by providing the basic concepts, quality and performance measures, and suggestions for quality improvement.

Focus of the Guidelines

The Guidelines focus on the construction and use of an SBR to provide frames for list-based surveys of businesses, i.e., surveys that are based on lists that are themselves primarily derived from administrative sources. The Guidelines do not provide information relevant to surveys that are based on area frames, nor surveys of agriculture, except in so far as farms and other agricultural businesses appear in administrative registers and can be treated like other businesses. Also, although the Guidelines discuss measurement of the businesses in the non-observed economy, this is not an objective of the SBR as, by definition, such businesses are precisely the ones that are unlikely to be included in the administrative lists on which the SBR is based.

More specifically, it is envisaged that an economic statistics program comprises basically three components:

- a suite of business surveys based on frames provided by the SBR and covering the formal sector of the economy;
- an occasional household-based survey of household enterprises not included in the SBR and constituting the informal sector; and
- a suite of surveys of farms and small holdings not included in the formal or informal sectors.

The SBR plays a major role in the first and (typically) largest component.

The SBR must be seen in context. It is a means to an end rather than an end in itself. As such, it is a component – a vital component, but only one component – in an integrated program of economic surveys. The ultimate goal is the production of

comprehensive, coherent, and well-used economic statistics.

Preparation of the Guidelines

The design, development, and introduction or enhancement of an SBR is so important that it typically constitutes a core goal of the five-year national statistical development strategy (NSDS) for most if not all African NSOs. Thus, in response to requests from NSOs, the AfDB has prepared this document detailing all the essential elements of an SBR.

The steps in the preparation of the Guidelines were:

- an initial outline by a consultant and its review by AfDB staff;
- preparation of a revised version and its review at an Expert Group Meeting (EGM) held in Pretoria in May 2012; and
- based on EGM comments and suggestions, preparation of this document.

It is envisioned that the next edition of the Guidelines will increasingly focus on the implementation of the Guidelines through: (i) the development of a generic SBR system; (ii) the introduction of SBR standards; and (iii) the harmonization of economic statistics programs.

1.3 BASIC NOTIONS AND TERMINOLOGY

In describing the SBR, it is important that there is a clear and commonly shared understanding of the terms involved – in short, a common vocabulary. The definitions used in the Guidelines are based on internationally accepted definitions in so far as these exist. In particular, as further elaborated in Chapter 2, the System of National Accounts (SNA) provides the conceptual framework underpinning an integrated economic statistics program and is the theoretical starting point for designing the SBR. Conversely, the SBR helps to operationalize the SNA.

The SNA defines precisely what is meant by *economic production* and the *enterprises* that are economic producers. Thus, it sets a benchmark

for the units and their economic activities that are to be covered (or not covered) by the SBR. The SNA defines an enterprise as a *legal or natural person in an economic production role*, i.e., in their capacity as a producer of goods or services. Enterprises may be large or small, may be government or privately owned, and may range from large corporations to subsistence farmers. A large enterprise may be engaged in several different types of economic activity at several different locations. Thus, for the purpose of collecting data, a large enterprise may be subdivided by economic activity and region into smaller units referred to as *establishments*. The International Standard Industrial Classification of All Economic Activities (ISIC) provides the basis for classification of enterprises and establishments by economic activity.

While the term *business* is not explicitly defined by the SNA, it is generally understood to be a commercial enterprise as distinct from, for example, a government department, which is also an enterprise in SNA terms.

Data may be obtained from enterprises in accordance with administrative regulations and/or by survey. As previously noted, a prerequisite for a survey is a *survey frame*, meaning a list of units to be surveyed together with the characteristics of these units required to conduct the survey. Business survey frames are best achieved through a single Statistical Business Register (SBR).

The term *statistical business register* includes the qualifier *statistical* for two reasons. The first is to emphasize that the register is created for statistical purposes. The second is to distinguish it from a register of business organizations that might have been constructed for administrative purposes and that might well be referred to as a business register, for example a register of businesses created for administering value added tax (VAT).

Economic survey refers to a survey of enterprises (or their subdivisions). The term *business survey* refers to a survey of businesses, i.e., commercial enterprises (or their subdivisions). Likewise, the term economic statistics refers to statistics about enterprises, and the term business statistics to statistics about businesses, i.e., commercial enterprises (or their subdivisions).

Other terms defined in the text are:

- person, legal person, business person, legal unit;
- units model, branch, division, local unit, administrative unit;
- administrative source, administrative register, administrative transaction data;
- large business profiling, SBR survey;
- standard statistical unit, target unit, sampling unit, observation unit; and
- target population, sampled population, and respondent.

The Glossary (Annex B) gathers together all the terms that are defined in the document.

1.4 CONTENT AND STRUCTURE OF DOCUMENT

Part I: Underlying Concepts and Methods

An SBR is not a stand-alone function. It is primarily a service function providing frames for surveys and, as such, is part of the infrastructure of an economic statistics program. In designing an SBR, it is important to understand this context. The first aim of Part I is therefore to describe the environment within which an SBR operates by summarizing the elements of an economic statistics program, and by indicating the role of the SBR.

In developing new procedures and systems, national statistical offices (NSOs), even those in countries with well-developed statistical systems, try to take maximum advantage of the experiences of others. This is particularly important in the African context given, first, the desire to produce internationally comparable statistics and, second, the limited resources available for research and development. It means utilizing internationally acknowledged standards and best practices to the fullest extent possible. Thus, the second aim of Part I is to detail the underlying concepts and methods, including international, broadly accepted principles and practices, on the basis of which an SBR should be designed, developed, and implemented.

- Chapter 2 summarizes the conceptual framework for economic statistics provided by the System of National Accounts (SNA) in so far as it is relevant to the SBR. It defines what is meant by economic production and the units that are involved, and it introduces the International Standard Industrial Classification of All Economic Activities (ISIC).
 - Chapter 3 describes the various types of units – legal, administrative, statistical – that are important in the context of survey frames, in particular, the sets of standard statistical units, and the classifications of these units.
 - Chapter 4 discusses the elements of an economic statistics program, especially the process of collecting economic data by surveys. It describes the need for and use of a frame for each survey, and it details the contents of a frame.
 - Chapter 5 explains the reasons for an SBR, its primary function in providing survey frames, its other possible functions in measuring business respondent burden and as a stand-alone source of business statistics, and its components.
- maintain the SBR. This includes the identification of appropriate sources, specification of procedures for automated updating of the SBR, and identification of errors or anomalies requiring manual investigation.
 - Chapter 8 describes the additional sources of SBR data, all involving direct collection of data, including the profiling of large businesses, SBR surveys, the use of survey feedback, and other investigations.
 - Chapter 9 indicates how the various sources are used in combination to update the SBR as businesses are created, transformed, and disappear over time.
 - Chapter 10 sets out the specifications for an SBR maintenance strategy and update procedures.

Part II-B: SBR Design – Outputs and Output Functions

Part II-B presents the design framework within which the outputs and output functions of the SBR should be developed.

- Chapter 11 discusses the primary output functions of the SBR, namely the production of survey frames, the coordination of sample selection across surveys and the creation of survey control files.
- Chapter 12 deals with the other output functions relating to respondent management, business statistics, and linkage of data across sources. It describes how the reporting commitments of individual business respondents can be identified and overall respondent burden can be compiled. It discusses the production of business statistics directly from the SBR and the role of the SBR in bringing together data from surveys and administrative sources.

Part II-C: SBR Design – Operations, Systems, and Quality Management

Part II-C presents the design framework within which the SBR should be organized and operated, the SBR systems and database built and installed, and quality and performance measured and improved.

Part II: SBR Design

Based on the descriptions of the SBR context and corresponding international, broadly accepted principles and practices in Part I, Part II presents the SBR design framework. Within the framework, an NSO should formulate its own SBR design, taking account of its particular circumstances. Part II is divided into three parts as follows.

Part II-A: SBR Design – Coverage, Contents, and Inputs

Part II-A focuses on the coverage and content of the SBR, and the input sources and functions by which they are created and maintained.

- Chapter 6 presents a framework for the specification of the economic units model and the coverage and content of the SBR.
- Chapter 7 provides details of the administrative sources of SBR data and how they are used in combination to construct and

- Chapter 13 discusses SBR organization and operations.
- Chapter 14 deals with SBR systems, i.e., application programs and database.
- Chapter 15 focuses on SBR quality and performance management and evaluation.

Part III: SBR Implementation and Enhancement

Based on the design framework described in Part II, Part III details the steps in the implementing an SBR and in reviewing and enhancing an existing SBR.

- Chapter 16 presents a broad level plan for first-time design, development, and introduction of an SBR.
- Chapter 17 presents a broad level plan for review of an existing SBR, for determination of the extent of the changes required – reengineering, major enhancement, or continuous improvement – and for implementation of these changes.

Annexes

The Annexes include a list of reference documents, a glossary, extracts from international and supranational standards, and examples from NSOs.



PART I
UNDERLYING CONCEPTS
AND METHODS

2 • CONCEPTUAL FRAMEWORK

2.1 INTRODUCTORY REMARKS

The aim of this chapter is to describe the conceptual framework that underpins, or should underpin, the economic program of an NSO, and that should be taken into account in designing, developing, and implementing an SBR. The two international standards constituting the core components of the framework are the *System of National Accounts (SNA)* and the *International Standard Industrial Classification of All Economic Activities (ISIC)*. In addition, guidance on how to handle economic production activities that are hard to measure is provided by the international publication *Measuring the Non-Observed Economy: A Handbook* (OECD et al., 2002).

2.2 SYSTEM OF NATIONAL ACCOUNTS

There have been five versions of the SNA, the most recent being the System of National Accounts 2008 (SNA 2008). Most countries are presently using the previous version, System of National Accounts 1993 (SNA 1993), and some countries still use SNA 1968. The following paragraphs are based on SNA 2008.

“The SNA has a very important statistical function by serving as a coordinating framework for economic statistics in two different senses. In the first place, the SNA is seen as the conceptual framework for ensuring the consistency of the definitions and classifications used in different, but related, fields of statistics. Second, the SNA acts as an accounting framework to ensure the numerical consistency of data drawn from different sources, such as industrial inquiries, household surveys, merchandise trade statistics, VAT returns, and other administrative sources” (SNA 2008: 1.57).

Thus the SNA 2008 provides the framework for an integrated economic statistics program. More specifically, it is the conceptual starting point for

designing the SBR. Conversely, the SBR helps to operationalize the SNA. Thus an understanding of the SNA concepts and terminology is a prerequisite for viewing the SBR within the overall context of an economic statistics program.

The SNA 2008 defines precisely the notions of *economic production* and of economic producers, which it refers to as *enterprises*. It thereby implicitly defines the set of businesses that should, in principle, be included in the SBR if coverage of economic production is to be complete. It also indicates the need to partition very large enterprises that have multiple activities or operate in multiple regions into smaller units for statistical purposes.

Economic production

The SNA defines (*economic*) *production* in general terms as a “physical process carried out under the control and responsibility of an institutional unit that uses inputs of labor, capital, goods and services to produce outputs of goods and services” (SNA 2008: 1.40).

It further states that “all goods and services produced as outputs must be such that they can be sold on markets or at least be capable of being provided by one unit to another” (SNA 2008: 1.40). Thus, purely natural processes such as unmanaged growth of fish stocks and basic human activities such as eating and sleeping are excluded.

It defines *production within the SNA production boundary* as the subset of general production that excludes production of services for own final consumption within households, except for the services produced by employing paid domestic staff and the own-account production of housing services by owner occupiers (SNA 2008: 1.42).

This definition of production within the SNA boundary is crucial in defining an integrated

program of business surveys and in understanding the productive activities that will normally be measured by direct data collection or using administrative data, and the activities that will not be covered.

Institutional units

The SNA defines an *institutional unit* as “an economic unit that is capable, in its own right, of owning assets, incurring liabilities, and engaging in economic activities and in transaction with other entities” (SNA 2008: 4.2).

It further states that “there are two main types of units in the real world that may qualify as institutional units, namely persons or groups of persons in the form of households and legal or social entities” (SNA 2008: 4.3).

Institutional sectors

On the basis of their principal functions, behavior, and objectives, institutional units are grouped into five mutually exclusive institutional sectors (SNA 2008: 2.17):

- *non-financial corporations* – principally engaged in the production of market goods and non-financial services;
- *financial corporations* – principally engaged in financial intermediation or in auxiliary financial activities;
- *general government* – undertaking political responsibilities, economic regulation, and redistribution of income and wealth, also producing (principally non-market) services and, possibly, goods;
- *households* – comprising an individual or a group of individuals, supplying labor, being final consumers of goods and services, and producing market goods and services; and
- *non-profit institutions serving households* (NPISHs) – principally engaged in the production of non-market services.

Enterprises

The SNA 2008 defines an *enterprise* as “the view of an institutional unit producing goods and

services. The term enterprise may refer to a corporation, a quasi-corporation, a non-profit institution (NPI) or an unincorporated enterprise” (SNA 2008: 5.1), as further described below.

The term *corporation* is used more broadly than in just the legal sense. In general, “all entities that are: a) capable of generating a profit or other financial gain for their owners, b) recognized in law as separate legal entities from their owners who enjoy limited liability, and c) set up for purposes of engaging in market production; are treated as corporations however they may describe themselves or whatever they are called” (SNA 2008: 4.38).

“Some unincorporated enterprises function in all (or almost all) respects as if they were incorporated. These are termed *quasi-corporations*” (SNA 2008: 4.42). Three main kinds of quasi-corporations are recognized in the SNA:

- unincorporated enterprises owned by government units that are engaged in market production and that are operated in a similar way to publicly owned corporations;
- unincorporated enterprises, including unincorporated partnerships or trusts, owned by households that are operated as if they were privately owned corporations; and
- unincorporated enterprises that belong to institutional units resident abroad, referred to as ‘branches’ (SNA 2008: 4.43).

Non-profit institutions are “legal or social entities created for the purpose of producing goods and services whose status does not permit them to be a source of income, profit, or other financial gain for the units that establish control or finance them” (SNA 2008: 4.83).

Unincorporated enterprises may be conducted by governments or households. Government unincorporated enterprises are likely to consist largely, or entirely, of non-market producers:

“that is, producers most or all of whose output is supplied to other units free, or at prices that are not economically significant...such units may include government producers supplying non-market goods or services to other government units for purposes of intermediate

consumption or gross fixed capital formation: for example, munitions factories, government printing offices, transport agencies, computer or communications agencies, etc. However, it is possible for an unincorporated enterprise within a government to be a market producer...for example a bookshop within a museum" (SNA 2008: 4.123).

Household unincorporated enterprises may be considered in two groups: household unincorporated market enterprises and household unincorporated enterprises producing for their own final use.

"Household unincorporated market enterprises are created for the purpose of producing goods or services for sale or barter on the market. They can be engaged in virtually any kind of productive activity: agriculture, mining, manufacturing, construction, retail distribution or the production of other kinds of services. They can range from single persons working as street traders or shoe cleaners with virtually no capital or premises of their own through to large manufacturing, construction or service enterprises with many employees" (SNA 2008: 4.155).

"Household unincorporated market enterprises also include unincorporated partnerships that are engaged in producing goods or services for sale or barter on the market. The partners may belong to different households." (SNA 2008: 4.156).

In summary, the SNA definition of enterprise is much broader than the common understanding. This is because the term covers all units that have economic production activities within the SNA production boundary. By including governments and households producing goods primarily or entirely for their own final use, the definition of enterprise goes far beyond what most statisticians would regard as an "enterprise" or "business."

SNA Classifications of enterprises

The SNA 2008 specifies the use of a number of standard classifications of enterprises. Those of concern from the SBR perspective are classification by institutional sector (as noted above) and classification of economic activity using the International Standard Industrial Classification of All

Economic Activities (ISIC) (as further described in Section 2.3).

Principal and ancillary activities

The principal activity of an enterprise is the activity whose outputs are, or could be, delivered to other institutional units and whose value added exceeds that of any secondary activities carried out by the enterprise. An *ancillary activity* is incidental to the main activity of an enterprise. It facilitates the efficient running of the enterprise but does not normally result in goods and services that can be marketed (SNA 2008: 5.10).

Partitioning enterprises by economic activity and geography

The SNA 2008 and ISIC recognize that a large enterprise may be engaged in a range of different types of economic activities at a set of different locations. In such a case, the classification of a large enterprise to a single type of activity at a single location would result in a blurring of detail that would not be useful for the purpose of analysis. This leads to the concept that, for statistical purposes, large enterprises should be divided into smaller, more homogeneous *producing units* that can be more precisely classified and that collectively represent the enterprise as a whole.

One way to partition an enterprise is by reference to its activities. A unit resulting from such a partitioning is called a kind-of-activity unit (KAU). A *kind-of-activity unit* is an enterprise, or a part of an enterprise, that engages in only one kind of productive activity or in which the principal productive activity accounts for most of the value added (SNA 2008: 5.12).

Enterprises often engage in productive activity at more than one location, and for some purposes it may be useful to partition them accordingly. Thus, a *local unit* is an enterprise, or a part of an enterprise, that engages in productive activity at or from one location... "Location" may be interpreted according to the purpose, narrowly, such as a specific address, or more broadly, such as within a province, state, county, etc. (SNA 2008: 5.13).

The *establishment* combines both the kind-of-activity dimension and the locality dimension. An establishment is an enterprise, or part of an enterprise, that is situated in a single location and in

which only a single productive activity is carried out, or in which the principal productive activity accounts for most of the value added. Establishments are sometimes referred to as local kind-of activity units (SNA 2008: 5.14).

These partitioning options are illustrated in Figure 2.1.

In practice, an establishment may usually be identified with an individual workplace in which a particular kind of productive activity is carried out: an individual farm, mine, quarry, factory, plant, shop, store, construction site, transport depot, airport, garage, bank, office, clinic, etc. (SNA 2008: 5.17).

However, identification of establishments is not always straightforward, as in the case of so-called *integrated enterprises*.

“A *horizontally integrated enterprise* is one in which several different kinds of activities that produce different kinds of goods or services for sale on the market are carried out simultaneously using the same factors of production. An example is the production of electricity through a waste incineration process...The activity of waste disposal and the activity of electricity production cannot be separated in this case.” (SNA 2008: 5.21).

“A *vertically integrated enterprise* is one in which different stages of production, which are usually carried out by different enterprises, are carried out in succession by different parts of the same enterprise. The output of one stage becomes an input into the next stage, only the output from the final stage being actually sold on the market. Examples of common vertical integration include tree felling and subsequent on-site sawmilling, a clay pit combined with a

brickworks, or production of synthetic fibres in a textile mill.” (SNA 2008: 5.23).

Further partitioning for analytical purposes

In most fields of statistics, the choice of statistical unit and methodology used, are strongly influenced by the purposes for which the resulting statistics are to be used.

For analytical purposes, further partitioning of establishments may be desirable. The SNA notes that:

“...for purposes of input–output analysis, the optimal situation would be one in which each producer unit were engaged in only a single productive activity, so that an industry could be formed by grouping together all the units engaged in a particular type of production without the intrusion of any secondary activities. Such a unit is called a ‘*unit of homogeneous production*.’” (SNA 2008: 5.52)

“...it may not be possible to collect directly from the enterprise or establishment the accounting data corresponding to units of homogeneous production. Such data may have to be estimated subsequently by transforming the data supplied by enterprises on the basis of various assumptions or hypotheses. Units that are [in effect] constructed by statistical manipulation of the data collected... are called *analytical units*.” (SNA 2008: 5.53)

“If it is desired to compile production accounts and input–output tables by region, it is necessary to treat units of homogeneous production located in different places as separate units even though they may be engaged in the same activity and belong to the same institutional unit.” (SNA 2008: 5.54)

FIGURE 2.1: SNA/ ISIC PARTITIONING OF AN ENTERPRISE

		Partition by Location	
		No	Yes
Partition by Economic Activity	No	Enterprise	Local Unit
	Yes	Kind of Activity Unit	Establishment

As will be further discussed later, analytical units are not of direct relevance to an SBR, as they are not defined or used for data collection purposes.

Groups of enterprises

The SNA 2008 notes that:

“...large groups of corporations, or *conglomerates*, may be created whereby a parent corporation controls several subsidiaries, some of which may control subsidiaries of their own, and so on. For certain purposes, it may be desirable to have information relating to a group of corporations as a whole. However, each individual corporation should be treated as a separate institutional unit, whether or not it forms part of a group. Even subsidiaries that are wholly owned by other corporations are separate legal entities that are required by law and the tax authorities to produce complete sets of accounts, including balance sheets.” (SNA 2008: 4.51)

“Another reason for not treating groups of corporations as single institutional units is that groups are not always well defined, stable or easily identified in practice. It may be difficult to obtain data for groups whose activities are not closely integrated. Moreover, many conglomerates are much too large and heterogeneous for them to be treated as single units, and their size and composition may be continually shifting over time as a result of mergers and takeovers.” (SNA 2008: 4.52)

Head offices and holding companies

The SNA 2008 notes that:

“Two quite different types of units exist that are both often referred to as *holding companies*. The first is the *head office* that exercises some aspects of managerial control over its subsidiaries. It may sometimes have noticeably fewer employees, and more at a senior level, than its subsidiaries but it is actively engaged in production. These types of activities are described in ISIC Rev. 4 in section M class 7010 as... including the overseeing and managing of other units of the company or enterprise; undertaking the strategic or

organizational planning and decision making role of the company or enterprise; exercising operational control and managing the day-to-day operations of their related units.” (SNA 2008: 4.53)

“The type of unit properly called a *holding company* is a unit that holds the assets of subsidiary corporations but does not undertake any management activities. They are described in ISIC Rev. 4 in section K class 6420 as...units that hold the assets (owning controlling-levels of equity) of a group of subsidiary corporations and whose institutional units and sectors’ principal activity is owning the group. The holding companies in this class do not provide any other service to the enterprises in which the equity is held, i.e. they do not administer or manage other units.” (SNA 2008: 4.54)

Ownership and control

The SNA 2008 notes that:

“The ownership of a listed corporation is diffused among the institutional units that own its shares in proportion to the shareholdings. It is possible for one single institutional unit, whether another corporation, a household or a government unit, to own all the equity or shares in a corporation but, in general, ownership of a listed corporation is diffused among several, possibly very many, institutional units.” (SNA 2008: 4.68)

“A single institutional unit owning more than a half of the shares, or equity, of a corporation is able to control its policy and operations... Similarly, a small, organized group of shareholders whose combined ownership of shares exceeds 50 percent of the total is able to control the corporation by acting in concert... Because many shareholders do not exercise their voting rights, a single shareholder, or small number of shareholders acting together, may be able to secure control over a corporation, even though they may hold considerably less than half of the total shares... It is not possible to stipulate a minimum shareholding below 50 percent that will guarantee control in all cases.” (SNA 2008: 4.69–4.71)

“Corporation B is said to be a subsidiary of corporation A when either: (a) corporation A controls more than half of the shareholders’ voting power in corporation B; or (b) corporation A is a shareholder in corporation B with the right to appoint or remove a majority of the directors of corporation B. Corporation A may be described as the *parent corporation* in this situation...Very large families of corporations, described as conglomerates, are encountered in some countries...Conglomerates that include corporations resident in different countries are usually described as *multinational corporations*.” (SNA 2008: 4.73-4.74)

2.3 INTERNATIONAL STANDARD INDUSTRIAL CLASSIFICATION OF ALL ECONOMIC ACTIVITIES (ISIC)

To enable cross-country comparisons, it is essential to be compatible with the international standard for classification by economic activity, namely the *International Standard Industrial Classification of All Economic Activities (ISIC)*. Revision 4 is the most recent version of the standard and is specifically designed to classify enterprises, kind-of-activity units, and establishments as defined in the SNA 2008 according to their principal economic activity. Previous versions of the standard still in use are ISIC Rev. 3 (which is referenced in SNA 1993) and ISIC Rev. 3.1.

In ISIC Rev. 4 (and ISIC Rev. 3.1 and Rev. 3), economic activities are subdivided in a hierarchical, four-level structure of mutually exclusive categories, thereby facilitating data collection, presentation, and analysis at detailed levels of the economy in an internationally comparable, standardized way.

1. Categories at the highest level are alphabetically labeled broad groupings called *sections* (sometimes called *sectors* by NSOs). They are identified by letters. Examples are A: Agriculture, forestry and fishing; C: Manufacturing, F: Construction, and O: Public administration and defence; compulsory social security.
2. The next level contains two-digit divisions. Examples are *Division 03*: Fishing and aquaculture; *Division 13*: Manufacture of textiles.

3. The third level contains three-digit *groups*. Examples are Group 031 Fishing; Group 131: Spinning, weaving and finishing of textiles.
4. The most detailed level contains four-digit *classes*. Examples are Class 0312: Freshwater Fishing; Class 1312: Weaving of textiles.

At each level of ISIC, a statistical unit is assigned to one and only one ISIC code. The set of statistical units that are classified into the same ISIC category is referred to as an *industry*. Examples are:

- *the furniture industry* – all units classified in ISIC division 31 (Manufacture of furniture);
- *the construction industry* – all units classified in ISIC section F (Construction).

At the finest level of detail of ISIC, an industry comprises all establishments within an ISIC class. Some countries introduce additional, fifth-level breakdowns of certain classes to suit their particular circumstances. This is perfectly within keeping of the international standard.

Assigning classification codes

ISIC class descriptions and explanatory notes are used in determining the class of activities under which a particular statistical unit is classified. As a unit typically undertakes economic activities falling into more than one class, it is classified according to its principal activity. When determining the principal activity, all activities are considered but only the principal activity is used to classify a unit.

The principal activity of the unit can usually be determined from the goods that it sells, or ships, or the services that it renders to other units or consumers. However, the inputs to the activity and the production process may also play a part.

2.4 NON-OBSERVED ECONOMIC PRODUCTION

Complete coverage of economic production is a vital aspect of the quality of the national accounts. However, as noted in *Measuring the Non-Observed Economy: A Handbook* (OECD et

al., 2002), it is hard to achieve because of the difficulties in accounting for certain types of productive activities. Activities that are typically missing from the basic data used to compile the national accounts are said to constitute the *Non-Observed Economy (NOE)*. Making estimates for these activities in the national accounts is referred to as measurement of the NOE and this aspect is covered in Chapter 25 of SNA 2008.

As described in more detail in Annex E of these Guidelines, productive activities may be non-observed for a variety of reasons. They may be informal or illegal/underground activities, or comprise household production for own final use. They may also escape observation due to deficiencies in the basic data collection system. The following paragraphs provide sufficient information about these types of activity for SBR purposes. They indicate that, for the most part, non-observed activities are outside the scope of surveys using an SBR.

Informal sector

The informal sector represents a very important part of the economy in many countries and thus SNA 2008 recommends use of Resolution II of the Fifteenth International Conference of Labor Statisticians 1993 (SNA 2008: 25.36) in defining the informal sector. The Resolution requires the informal sector be defined as a subset of *household unincorporated enterprises*, comprising those enterprises that:

- produce at least some output for the market; and
- are less than a specified size in terms of the number of persons engaged, or of employees or of employees employed on a continuous basis; and/or
- are not registered under specific forms of national legislation, such as factories or commercial acts, tax or social security laws, professional groups' regulatory acts, or similar acts, laws or regulations established by national legislative bodies.

Enterprises that are involved in agricultural production may, optionally, be included or excluded.

It is important to recognize that these criteria provide a framework for a definition of the informal

sector, rather than a single, unambiguous definition. Thus, there are variations across countries in how the informal sector is actually defined. As further discussed in Part II of the Guidelines, the most practical definition, and the recommendation of these Guidelines, is to define the informal sector as the set of non-agricultural household enterprises that have market production but that are not registered with the administrative source(s) on which the coverage of the SBR is based.

This definition is in accordance with the Resolution and has the virtue of making the formal/informal boundary very visible and easy to implement. It means that:

- the suite of business surveys based on the SBR and administrative data measure the formal sector; and
- household market enterprises not included in the SBR constitute the informal sector.

Household production for own final use

Household production of goods for own final use is not part of the informal sector. It includes production of crops, livestock, clothing, and other goods for own use, construction of own dwelling and other own-account fixed capital formation. Hence it covers subsistence farming. It also includes imputed rents of owner-occupiers and services of paid domestic servants.

As data about household production for own final use are obtained from households, not from registered businesses, the SBR has no role to play in its measurement.

Illegal production

SNA 2008 (Para: 3.96) states that productive illegal activities should be included in national accounts. Illegal production can involve:

- production and distribution of illegal goods, such as banned drugs;
- production of illegal services, such as prostitution (in countries where this is illegal);
- production activities that are illegal when carried out by unauthorized producers, such

as unlicensed medical practices, and unlicensed gambling;

- production and sale of counterfeit products, such as watches with false trademarks and unauthorized copies of artistic originals, for example CDs and DVDs;
- smuggling, for example of tobacco, weapons, alcohol, food, and people, and resale of stolen goods, and
- bribery and money laundering.

However, although there seems to be common agreement on the correctness, in principle, of including illegal activities in the national accounts, very few countries explicitly do so, and the methods available are still experimental.

In summary, in countries where the value of illegal productive activities is quantitatively insignificant, it is almost certainly a poor use of resources to try to measure it precisely. In any case, an SBR based on administrative registration data cannot be expected to assist in measurement. If an enterprise undertaking illegal production is registered, it will be included in the SBR but the enterprise will disguise its illegal activities. If the enterprise is unregistered, it will be not be included in the SBR. In either case the SBR plays no role.

Underground production

Certain activities may be both productive and legal but deliberately concealed from public authorities for a number of reasons:

- to avoid the payment of income, value added or other taxes, or social security contributions;
- to avoid having to meet certain legal standards such as minimum wages, maximum hours, safety or health standards;

- to avoid complying with administrative procedures such as completing administrative forms.

Much the same remarks as were made for illegal production apply to underground production. Unless underground production is very widespread, it is almost certainly a poor use of resources to try to measure it precisely, and in any case, the SBR has no role to play in its measurement.

Omissions due to deficiencies in the data collection system

The reasons why productive activities may be missed by the basic data collection system can be categorized as follows.

1. *Under-coverage of enterprises.* Enterprises, or parts of them, are excluded from the data collection program though in principle they should have been included. This may occur, for example, because an enterprise is new and has not yet been included in the survey frames, or it falls below the size cut-off for surveys, or it has been incorrectly classified by kind of activity or by region and thus improperly excluded from a survey frame.
2. *Non-response by enterprises.* Enterprises are included in the sample but no data are collected from them (for example, because the survey questionnaire was wrongly addressed or the enterprise, or part of it, did not return the questionnaire) and no imputation is made for the missing observations.
3. *Data are underreported by enterprises.* Data are obtained from enterprises, but value added is underreported; or correct data are received but inappropriately edited or weighted by the NSO.

The economic survey program is designed to minimize these deficiencies. The SBR plays a significant role with respect to the first item.

3 • UNITS AND CLASSIFICATIONS

3.1 INTRODUCTORY REMARKS

The aim of this chapter is to describe the statistical units and their classifications as used in the context of economic statistics, especially business statistics and to relate them to units defined by businesses for legal, organizational, and administrative purposes.

3.2 STANDARD STATISTICAL UNITS MODEL

The set of standard statistical unit (SSU) types into which the SNA 2008 partitions an enterprise (as described in Section 2.2) is an example of an SSU model used by statisticians as the basis for collecting data. The model is a statistical abstraction and simplification of the rather messy and complicated set of legal, operational, and administrative units that exist in the real world, i.e., the economic world that the NSO is measuring.

Alternatives to the SNA 2008 model could be obtained by changing the partitioning to produce other subdivisions of an enterprise.

- For example, an SSU model could be defined in which an enterprise was partitioned into units capable of supplying balance sheet and financing data. (This definition would typically result in somewhat larger units than kind-of-activity units.)
- Alternatively (or as well) the model could define a unit for which employment and earnings data can be obtained. (This definition would typically result in somewhat smaller units than establishments.)

In addition, an SSU model may extend beyond partitioning enterprises to include the notion of grouping legal units that are linked by ownership and/or control. The set of enterprises associated

with an ownership and control group is usually referred to as an *enterprise group (EG)*.

In summary, despite the widespread agreement on the use of SNA and ISIC, there is no universally adopted SSU model. EU regulations prescribe a model for EU member states, but NSOs in other countries define their own models, with the result that there is a plethora of different models in use across the world.

Example from the European Union

European Council Regulation (EEC) No 696/93 on the statistical units for the observation and analysis of the production system in the Community defined eight units, namely:

- *enterprise* – similar to the SNA 2008 enterprise except that it may encompass more than one legal entity;
- *institutional unit* – similar to the SNA 2008 institutional unit;
- *enterprise group* – referenced in the SNA 2008 as conglomerates;
- *kind-of-activity unit* – similar to the SNA 2008 kind of activity unit;
- *local unit* – similar to the SNA 2008 local unit;
- *local kind-of-activity unit* – similar to SNA 2008 establishment;
- *unit of homogeneous production* – similar to the SNA 2008 unit of homogeneous production; and
- *local unit of homogeneous production* – similar to regional breakdown of the unit of homogeneous production in the SNA 2008.

It turns out that there are too many units to be useful for SBR purposes. In particular, the units of homogeneous production can never been fully operationalized in an SBR. Thus, the more recent Business Register (BR) Regulation (EC) No. 177/2008, establishing a common framework for business registers for statistical purposes, includes a much simplified model containing just four units – namely, legal unit, enterprise, local unit, and enterprise group – as illustrated in Figure 3.1.

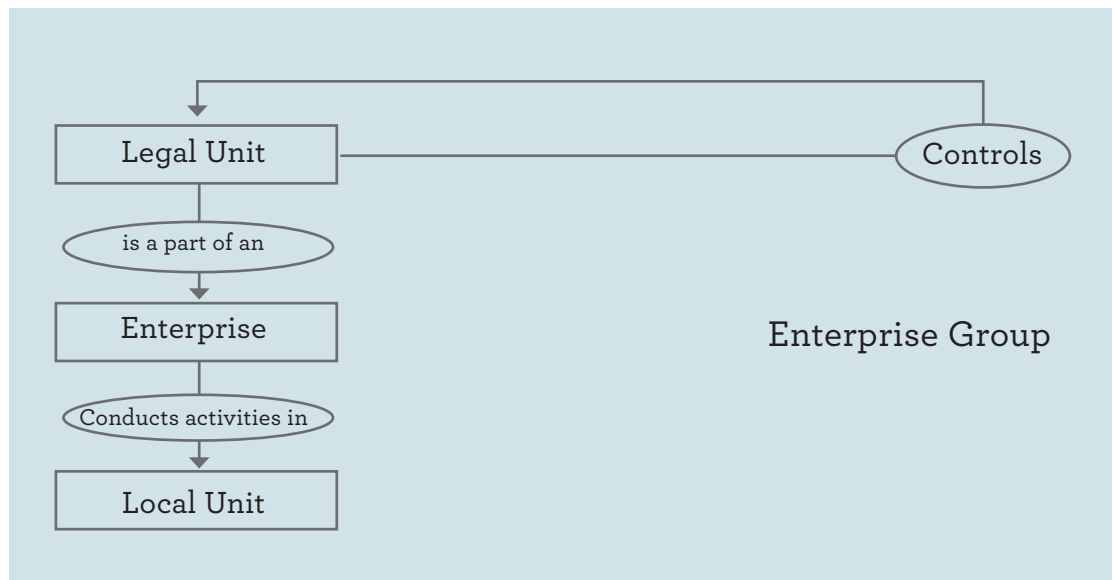
In this particular model, an enterprise can embody one or several legal units. In other models (including SNA 2008), enterprises and legal units are in a one-to-one relationship. The notion of legal units is discussed in Section 3.3 and the relationship of legal units and enterprises is further described in Chapter 6.

Choice of model

An NSO must define or select its own SSU model. The key principle in choosing a statistical units model is for it to be as simple as possible while providing sufficient detail to meet user needs. There are two reasons for simplicity. The first is the high cost of dividing enterprises into smaller producing units in practice. The second is the high cost of building and maintaining a database that is capable of supporting a complex model.

The simplest model of all is to have a single SSU, namely the *enterprise*. In this case, the only way to obtain data broken down by kind of economic activity and location is to ask the enterprise to provide the breakdown. This does not work well, as an enterprise cannot be expected to make such a breakdown in a systematic and consistent way.

FIGURE 3.1: EUROPEAN COUNCIL BR REGULATION NO. 177/2008 MODEL



3.3 ECONOMIC UNITS MODEL

The set of standard statistical units is based on (and is a simplification of) real economic world units, like legal person, business, division, plant, sales outlet, etc. (These units are referred to as *real-world units* because they exist independently of the NSO whereas statistical units are NSO constructs.) Thus, the idea of defining an SSU model can be extended to the definition of a more comprehensive economic units model that includes all unit types that are relevant in collecting economic data.

At the very minimum, NSOs tend to include legal units in addition to the standard statistical units in their models. In this context, *legal unit* refers to an entity with legal personality, meaning the right to ownership, to dispose of assets, to engage in activities, to enter into contracts, and to institute legal proceedings. A legal unit may be either a legal (or juridical) person or a natural person. The notion of legal unit coincides with the SNA notion of *institutional unit*, except that the latter refers to households (containing natural persons) rather than individual natural persons. Sometimes, as is the case of the ESS Statistical Units Regulation,

legal unit by definition does not include all natural persons, only those with economic activity.

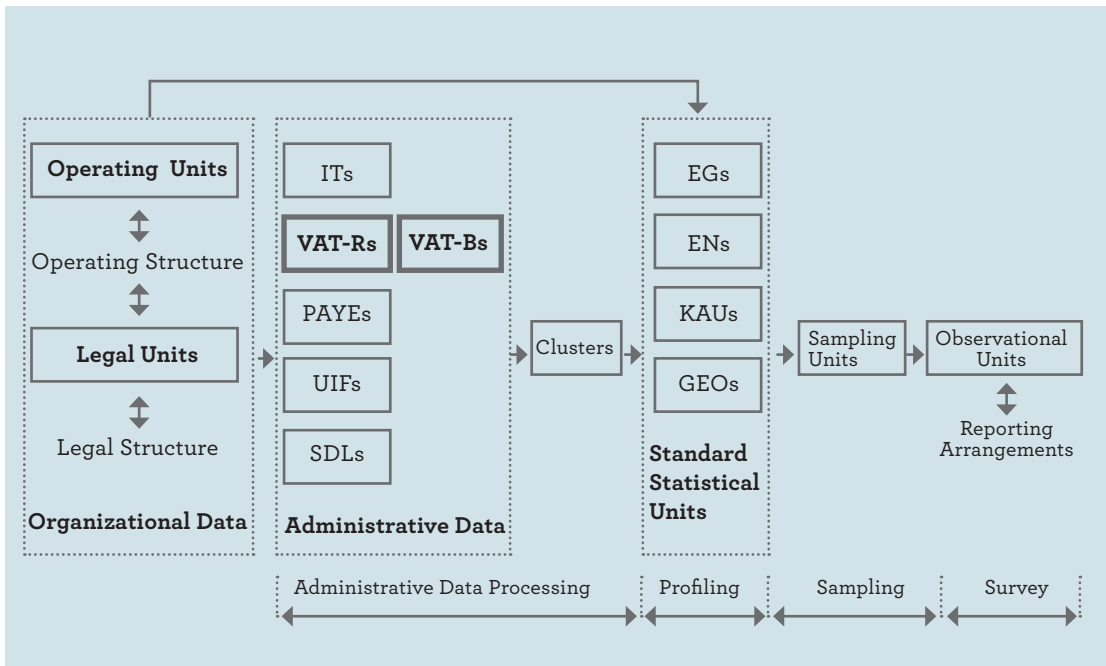
A comprehensive economic units model contains all the types of units belonging to or associated with enterprises that are relevant in defining and identifying statistical units. It includes:

- *legal units* – such as legal person, natural person, groups of legal persons linked by ownership or control;
- *operational units* – such as division, branch, plant, and outlet into which legal units organize themselves; and
- *administrative units* – such as VAT unit or income tax unit, or employer unit, that are created by legal units in response to administrative requirements.

It also includes the notions of *sampling*, and *observational units*, which are used in conducting a survey, as further described in Section 4.3.

An excellent example is the economic units model developed by Statistics South Africa (SSA),

FIGURE 3.2: SOUTH AFRICAN UNITS MODEL



which is illustrated in Figure 3.2. This includes all types of units relevant to its SBR. At the core of the model are the four statistical units:

- EG means *Enterprise Group*, comprising enterprises linked by common ownership and control, similar to the SNA 2008 notion of conglomerate;
- EN means *Enterprise*, similar to the SNA 2008 enterprise;
- KAU means *Kind-of-Activity Unit*, similar to the SNA 2008 kind of activity unit;
- GEO means *Geographical Unit*, a cross between the SNA2008 establishment and local unit.
- VAT-R means *VAT-registered unit*; VAT-B means *VAT branch*;
- PAYE means *Pay-As-You-Earn Unit*;
- UIF means *Unemployment Insurance Fund Unit*; and
- SDL means *Skills Development Levy Unit*.

Clusters are groups of administrative units that have been linked by name, address, and other characteristics into something close to a legal unit. The notion of a cluster is unique to SSA. It reflects the attempt to bring together administrative units referring to the same business without having a common identifier. Specific recommendations regarding the choice of economic units model are made in Chapter 6.

As regards the administrative units:

- IT means *Income Tax Unit*;

FIGURE 3.3: EXAMPLES OF CLASSIFICATION CATEGORIES

Attribute being classified	Examples of categories	Standard classification
Activity status	Not yet active, active, inactive...	No international standard. NSO needs to define its own standard
Economic activity	Manufacturing of leather goods...	ISIC Rev. 4 (latest version available, earlier versions are acceptable).
Geography	Specific province, municipality...	Country-dependent standards (depending upon size and administrative arrangements)
Legal form	Corporation, partnership, sole proprietorship...	Country-dependent standard (depending upon country's Company Act)
Type of ownership	Government, private...	Country-dependent standard
Institutional sector	Non-financial corporation, government	SNA 2008 (latest version; 1993 version is acceptable)
Size	Between 10 and 19 employees, turnover exceeding \$1m	No international standard. NSO needs to define its own standard(s). There may be several standards using different size measures

3.4 CLASSIFICATIONS OF STATISTICAL UNITS

As previously noted, the inputs, activities, and outputs of enterprises are heterogeneous. Thus, for data collection and for analytical purposes, partitioning of economic data by economic activity is invariably required, and partitioning by region and/or institutional sector is useful. In addition, for sampling and data collection purposes, and for some analytical purposes, partitioning by size, legal form, type of ownership, and activity status is required.

The required partitioning is based on the corresponding attributes of enterprises. The value domain for each attribute is typically defined using an appropriate standard classification. The classifications for partitioning by economic activity, region, size, etc., are described in the following paragraphs. Figure 3.3 lists the classifications required. While they are all presented with reference to an enterprise, the classifications may also be applicable to other SSUs.

To ensure complete and unambiguous assignment of an enterprise, the categories of a classification are always mutually exclusive and exhaustive. Typically, categories within a large classification are represented by classification codes.

Classification by activity status

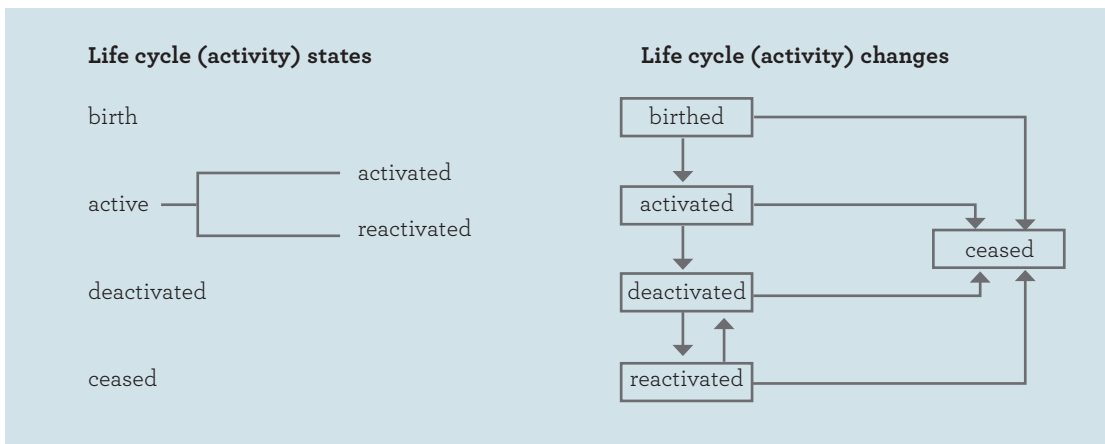
An enterprise may be in a number of different activity states. For example, it may be in formation and yet to start production; it may be active; it may be temporarily or seasonally inactive; it may have ceased its activities; or it may no longer exist. There is no international standard classification for activity status. A national standard should be defined and used.

An example from Statistics South Africa is shown in Figure 3.4 below. The four possible activity states (referred to as life cycle states) are: birth, active (activated or reactivated), deactivated, and ceased. Figure 3.4 also indicates the possible changes in activity status.

Classification by economic activity

As previously described, ISIC Rev. 4 is the current international standard for classification by economic activity. However, it is common for an NSO to define its own version of an economic activity classification for use in its country. Neighboring countries may define a version for common use. Typically, country versions are designed in such a way as to be compatible with ISIC, for example, by further partitioning four-digit classes, or by combining adjacent four-digit classes. There are also more complex variations that require correspondence tables to relate the classes of the version to those of ISIC, and conversely.

FIGURE 3.4: EXAMPLE OF ACTIVITY STATUS CLASSIFICATION



Examples of International Economic Activity Classification

EU member states: An important example is Regulation (EC) 1893/2006 establishing the European statistical classification of economic activities, referred to as NACE Revision 2, which is used by the NSOs in EU member countries.

Australia and New Zealand: Another example is the Australian and New Zealand Standard Industrial Classification (ANZSIC) used by the Australian Bureau of Statistics and Statistics New Zealand; and

US, Canada, and Mexico: A third example is the North American Industry Classification (NAICS) 2007 used by Canada, Mexico, and the United States.

Classification by geography

A hierarchical classification by geography is required to produce regional data at various levels of detail. There is no single international standard for geographical classification as countries are quite different in shape and size.

The European Statistical System (ESS) defines a classification framework referred to as nomenclature of units for territorial statistics (NUTS) within which regional classification should be formulated for EU countries. (NUTS is a French acronym for nomenclature des unités territoriales statistiques). The NUTS coding scheme is alphanumeric and consists of a two-letter country prefix and a series of numbers, letters, or both. NUTS codes are arranged in a hierarchy. NUTS-1 areas are the largest and are divided into NUTS-2 areas, and so on. Often NUTS areas coincide with administrative units such as states or counties within a country. However, the correspondence may not be the same in different countries. For example, the states of Germany correspond to the NUTS-1 level, but the states of Austria correspond to the NUTS-2 level.

The most important principle is that, within a country, statistical measurements should all be based on a single national geographical classification.

The classification should be hierarchical, but it may also include alternative breakdowns.

The factors to be taken into account in selecting or designing this national standard are:

- user needs for geographic breakdown;
- the area boundaries of most use for sample stratification and data collection; and
- the existing administrative boundaries – in addition to the fact that users may require data for administrative areas, it is more effective, efficient, and cheaper if the government organization responsible for regional and municipal matters defines and maintains the geographical classification.

Classification by legal form / type of ownership

The legal form and type of ownership of an enterprise are interrelated. They are relevant in determining its institutional sector, and are indicative of the administrative sources that may contain data about the enterprise. There are no international standards as the options for establishing legal persons vary from country to country. Each NSO has to define and use its own national standards.

Classification by institutional sector

The SNA classification of institutional sector (as described in Chapter 2) is required for national accounting purposes. Most NSOs adopt this standard without change. Some make a minimal change, for example the Australian Bureau of Statistics produces separate statistics for only four sectors (non-financial corporations, financial corporations, governments, and households) i.e., not for Non-Profit Institutions Serving Households (NPISH).

Classification by size

Enterprises can vary enormously in size. Thus classification by size is vital for data collection purposes, and is useful for analysis. There is no universal standard size classification. Each NSO has to define its own classification for dividing enterprises into size groups. Typically, employment or turnover is used as the basis for the

classification. Often an NSO will define more than one size classification.

Current practice suggests that a classification into four size categories is appropriate for sampling. Fewer categories tend to result in inefficient sampling, while more categories tend to result in classification errors and, again, inefficient sampling.

3.5 BUSINESS DYNAMICS – CHANGES IN UNITS AND THEIR ATTRIBUTES

Many types of changes to the economic situation occur in a country over time. These changes are reflected in the creation, transformation, and disappearance of the real world legal, organizational, and administrative units. Businesses may

be initiated, increase in size, change economic activity, move location, open new sites, be merged, amalgamated, split up, etc. In conjunction with administrative agencies or in response to administrative agency exigencies, businesses may apply for new administrative accounts, or may relinquish such accounts.

These changes in legal, operational, and statistical units need to be taken into account by the NSO when making changes to the corresponding standard statistical units. This is a constant challenge that will be further discussed in Section 5.5 and Chapters 8 and 9. Typically, such changes are detected through changes in corresponding administrative units or in the observation units contacted by surveys.

4 • ECONOMIC STATISTICS PROGRAM

4.1 INTRODUCTORY REMARKS

The aim of this chapter is to provide more contextual information by describing the environment within which an SBR operates, namely the economic statistics program, especially the business surveys that comprise a substantial part of the program.

4.2 DESIGNING AN ECONOMIC STATISTICS PROGRAM

User demand

User demand is the starting point for developing the program for the collection and dissemination of statistics. Whilst there are international standards such as the SNA and numerous European Statistical System (ESS) regulations defining specific data requirements, there are no international standards covering all possible user demands for data. Each NSO has to develop its own list of requirements through discussions with its principal users.

The list may be partitioned according to coverage and content into economic statistics, social statistics, and other statistics. Some statistics (for example, labor statistics) are both social and economic. The ESS provides a more detailed breakdown by statistical theme. There are nine general headings, namely: General and regional statistics, Economy and finance, Population and social conditions, Industry, trade and services, Agriculture and fisheries, International trade, Transport, Environment and energy, and Science and technology. Each general heading is divided into a number of themes.

As this Guidebook is about SBRs, it focuses on economic statistics and, more specifically, on business statistics.

Summarizing user demand

The broad-level user requirements for economic statistics (in particular the data required to compile the national accounts) coupled with the resources available within an NSO, determine the coverage, content, and output frequency of an NSO's economic statistics program.

- *Coverage* is defined in terms of a type of unit (e.g., enterprise) and a particular population of these units (e.g., large and medium size manufacturing enterprises);
- *Content* is defined in terms of data items (also called variables or indicators) that measure the counts or characteristics (attributes) of the population of units together with the reference period or point to which those data refer (e.g., retail sales for January 2012, or employment in the third quarter of 2011);
- *Output frequency* refers to the frequency with which the data are published (e.g., monthly, quarterly, annually, occasionally). Typically but not necessarily, the frequency is the inverse of the reference period (e.g., data for a monthly reference period are published monthly).

Components of an economic statistics program

Whilst the SNA 2008 defines data requirements, it does not specify data collection methods, and the ESS regulations provide only limited guidance. Thus, each NSO has to decide on its own data acquisition program.

For acquisition purposes, data requirements are typically grouped by target population and/or collection method. Collection methods may be classified into five types:

- *survey* – a collection of data for statistical purposes, usually based on probabilistic sampling procedures, involving direct collection of data from sampled members of the population. The term *survey* includes a census in which all units are selected as well as a sample survey in which only a sample of units is selected;
- *administrative collection* – the acquisition and processing of registration and/or transaction data from an administrative source and use of these data to produce statistics;
- *mixed source collection* – involving both survey and use of administrative data;
- *price and other economic index collection* – differing from a survey in the sense that there is a specialized economic theory to define the target concepts and concepts such as quality adjustment, replacement and re-sampling, and that nonprobability sampling is often used; and
- *statistical compilation* – assembling data from a variety of primary sources to obtain aggregates with a special conceptual significance, such as the national accounts or the balance of payments.

Price collections take advantage of lists of businesses but typically select businesses purposively, so having a complete list is not important. Compilations are usually at the aggregate level and do not require business lists. Thus, from the perspective of an SBR, surveys and administrative collections are the collection methods of interest.

For data collection purposes, data items are typically grouped into surveys and administrative data collections, each survey or administrative collection obtaining a specific type of data item from a specific population. For example, the types of data collected may fall under headings such as production, capital expenditure, employment, stocks and sales, foreign trade, prices, etc.

Benefits and disadvantages of administrative collections

An administrative collection is invariably less costly to an NSO than a survey, as the data acquisition is undertaken by the administrative

process. Thus, administrative collection is the preferred method of data collection where an appropriate source is available. Typically, administrative collections provide coverage of the general government and defense sectors, of financial institutions, and of government-provided health and education.

However, administrative registers are not designed with statistical data requirements primarily in mind. The administrative organization determines the data coverage and content. It is possible that an NSO can persuade the administrative organization to collect a few extra data items simply for statistical purposes, or to make use of a standard statistical classification such as ISIC. However, it is unlikely that the NSO can influence the coverage at all or the content in a substantive way. Thus, administrative collections by themselves are not sufficient to meet all user demands for statistics. Surveys are invariably required to fill the gaps in data available from administrative sources. In either case, whether collected by survey or administrative collection, the data collected generally originate in the accounting, employment, and other records of enterprises.

4.3 SURVEYS

Standard format for description of survey

It is useful to have a standard format for describing the processes that collectively constitute a survey. For example, SSA defines the processes comprising a survey as the *survey value chain*. The Generic Statistical Business Process Model (GSBPM), developed by the Joint UNECE/Eurostat/OECD Work Session on Statistical Metadata (METIS), provides an internationally accepted format. The original intention was for the GSBPM to provide a basis for NSOs to agree on standard terminology for discussing statistical metadata systems and processes. However, it has a more general application as a template for describing all forms of data production processes, specifically including surveys and administrative collections.

The GSBPM divides a statistical process into 9 standard phases, each of which is further divided into 5–10 subprocesses. The GSBPM also outlines the elements to be covered in the description of each subprocess. Figure 4.1 indicates these phases and subprocesses.

The subprocess most relevant to the design, development, and use of an SBR is *Subprocess 2.4. Design frame and sample methodology*, which is described in the GSBPM as follows:

“This subprocess identifies and specifies the population of interest, defines a sampling frame (and, where necessary, the register from which it is derived), and determines the most appropriate sampling criteria and methodology (which could include complete enumeration). Common sources are administrative and statistical registers, censuses and sample surveys. This subprocess describes how these sources can be combined if needed. Analysis of whether the frame covers the target population should be performed. A sampling plan should be made. The actual sample is created in subprocess 4.1 (Select sample) using the methodology specified in this subprocess.”

This description gives only a broad indication of the role an SBR may play in the conduct of a survey. Thus, although the GSBPM nicely summarizes the context within which a survey frame is created, it is not sufficiently detailed as a basis for describing the part played by an SBR. Thus, the essential components of a survey from the perspective of an SBR are described in the following paragraphs and further elaborated in Chapter 11.

Survey repetitions

A survey may be conducted once, or repeated at regular intervals, or at irregular intervals. Repetitions of a survey with essentially the same objectives and methodology are referred to as *survey repetitions* (or *survey cycles* or *survey occasions*). The whole set of survey repetitions is deemed to constitute the survey.

FIGURE 4.1: GENERIC STATISTICAL BUSINESS PROCESS MODEL (GSBPM)

Quality Management / Metadata Management								
1 Specify Needs	2 Design	3 Build	4 Collect	5 Process	6 Analyze	7 Disseminate	8 Archive	9 Evaluate
1.1 Determine needs for information	2.1 Design outputs	3.1 Build data collection instrument	4.1 Select sample	5.1 Integrate data	6.1 Prepare draft outputs	7.1 Update output systems	8.1 Define archive rules	9.1 Gather evaluation inputs
1.2 Consult & confirm needs	2.2 Design variable descriptions	3.2 Build or enhance process components	4.2 Set up collection	5.2 Classify & code	6.2 Validate outputs	7.2 Produce dissemination products	8.2 Manage archive repository	9.2 Conduct evaluation
1.3 Establish output objectives	2.3 Design data collection methodology	3.3 Configure workflows	4.3 Run collection	5.3 Review, Validate & edit	6.3 Scrutinize & explain	7.3 Manage release of dissemination products	8.3 Preserve data and associated metadata	9.3 Agree action plan
1.4 Identify concepts	2.4 Design frame & sample methodology	3.4 Test production system	4.4 Finalize collection	5.4 Impute	6.4 Apply disclosure control	7.4 Promote dissemination products	8.4 Dispose of data & associated metadata	
1.5 Check data availability	2.5 Design statistical processing methodology	3.5 Test statistical business process		5.5 Derive new variables & statistical units	6.5 Finalize outputs	7.5 Manage user support		
1.6 Prepare business case	2.6 Design production systems & workflow	3.6 Finalize production system		5.6 Calculate weights				
				5.7 Calculate aggregates				
				5.8 Finalize data files				

Survey target population

The objectives of a survey are expressed in terms of a *target unit type*, a *target population* of these units, and a set of *data items* that reflect the attributes of interest. For economic surveys, the target unit type is typically one of the standard statistical units defined in the units model, such as an enterprise or an establishment. The target population (also sometimes referred to as the *scope* of the survey) may be all such units within the country, or within a particular industrial sector, or within a particular region. The set of data items may, for example, refer to production, or labor costs, or capital expenditure.

Usually, but not always, a survey has a single type of target unit. A well-known exception is an annual economy-wide survey, such as is conducted by the Australian Bureau of Statistics, in which financial data are collected from enterprises and production data from establishments. Likewise, the Ethiopian Central Statistical Agency collects manufacturing data from establishments and also requests financial statements from the corresponding enterprises.

Survey sampled population

Frequently it is impossible to identify and list the complete *target population*, and this leads to the concept of the *sampled population* (also referred to as the *coverage* of the survey), comprising those units that can actually be listed.

The sampled population contains the set of *sampling units* from which the survey sample is actually selected. Usually, the sampling unit type is the same as the target unit type, but the sampled population is a subset of the target population. For example, for a survey of capital expenditure, the target population may be all enterprises within the country, and the sampled population may be all enterprises in the country that are commercially registered.

The set of sampling units that are selected leads to the set of *observation units* on which the data are actually collected. The observation units are the subset of the target units corresponding to the sample. In addition, for each observation unit there may be a special reporting arrangement, reflecting how and from whom the data are to be obtained from each particular observation unit.

For example, the data from a particular enterprise may be obtained from a separate company that provides accounting services to that enterprise.

Occasionally, the sampling unit type is different from the target unit type. For example, in the case of a production survey, the target and observation unit types may be the establishment whereas the sampling unit type is the enterprise.

Types of survey

Surveys may be divided into types, according to the type of observation units on which data are collected.

- Precisely defined, an *enterprise survey* is a survey in which the observation unit is the enterprise. More loosely defined, it is a survey in which the target unit and/or the sampled unit and/or the observation unit is an enterprise or establishment. This is the sort of survey for which an SBR is relevant.
- A *household survey* is typically a multi-stage, area-based survey in which the final stage sampling unit is the household. For example, a labor force survey is invariably a household survey. The SBR is not relevant for this sort of survey.

A *household-based enterprise survey* is a two-phase survey. The first phase is a household survey in which households having an enterprise are identified. The second phase is a survey of these enterprises. This is a particularly useful type of survey for informal enterprises that are not included in the SBR, as discussed in Part II.

Survey frame and types of survey frame

The sampled population together with attributes of the sampling units needed for survey purposes is referred to as the *survey frame*. Surveys may be divided into two types:

- *list frame-based surveys* are those in which the sample is selected from a frame comprising a pre-existing list of units; and
- *area frame-based surveys* are multistage cluster surveys in which the initial (first stage) sampling units are a set of geographical areas within which (final stage) sampling

units can be listed and samples selected. There may be two or more stages, for each of which there is a frame.

To the extent possible, economic surveys should be list-based for the following reasons.

- List-based surveys are more efficient than area frame-based surveys. More specifically, a smaller sample is required in order to get the same precision, because an area frame-based approach involves cluster sampling.
- Maintenance of a list frame (which is typically based on an administrative source) is cheaper than maintenance of an area frame.
- Area-based sampling is inappropriate for large enterprises that operate in several areas because it may not be possible to collect data from only those parts of the enterprises that lie within the areas actually selected. Furthermore, it is advisable to survey large enterprises in their entirety, not just parts of them.

In countries with a large informal sector and/or an agricultural sector with many farms or peasant holdings, the set of list-based surveys has to be supplemented with area-based surveys of farms/peasant holdings and of household enterprises, as further discussed in Part II.

Frame data

The unit attributes required to identify the relevant population, to stratify and select the sample, and to define and contact the observation units, are referred to as *frame data items*. They comprise:

- *identification and contact data* – unit name, unit identification code, physical and mailing addresses, e-mail address(es), telephone and fax numbers, contact persons;
- *descriptive data* – legal form, institutional sector, economic activity, size, region, activity status (as described in Section 3.4);
- *demographic data* – date of creation, date of incorporation as a legal person (if applicable), date of recent change of structure or economic activity, or activity status; and

- *linkage data* – links to related units, including links to other units associated with the enterprise, (including the legal units that own them), and links to data about the same unit in other files.

Survey sample

For each survey, a sample is selected from the survey frame in accordance with the sampling specification provided by the survey-sampling specialist. A sample specification defines the sampling method, the overall sample size, the stratification, and the target coefficients of variation (or equivalent accuracy targets) for key data item(s) and strata.

Production of survey control file and survey shell database

Following selection of the survey sample, the next step is the production of a *survey control file*, which provides the basis for conducting and controlling data collection. The survey control file contains the survey observation units on which data are collected, the details about these units required for data collection, and any special reporting arrangements, for example, the address of a (quite separate) accounting company that will be providing data about and on behalf of the unit.

Following the creation of the survey control file, an embryonic version of the database in which survey data will ultimately be stored is created. This is referred to in these Guidelines as the *survey shell database*.

4.4 ADMINISTRATIVE COLLECTIONS

Except there is never any sampling, an administrative collection comprises a similar set of processes to a survey. The main difference is that many of these processes are undertaken by an administrative organization rather than by the NSO. In particular, the creation of the administrative register is a part of the administrative collection process and the SBR does not have a role to play.

However, the SBR is relevant as a mechanism for linking administrative data on which the SBR is based with survey data obtained by direct collection.

5 • ROLE AND COMPONENTS OF A STATISTICAL BUSINESS REGISTER

5.1 INTRODUCTORY REMARKS

As previously noted, for separate surveys to produce coherent statistics, it is essential that they be harmonized. Therefore coordination of the individual surveys and administrative collections constituting an economic statistics program is vital, particularly given that, in many cases, surveys have been established more or less independently of one another at different times. Coordination depends upon the use of a common conceptual framework. A crucial factor in making the framework operational is to ensure that the individual survey frames are properly harmonized. To this end, the key requirement is for *surveys to draw their frames from a single source containing data about enterprises or other commonly used standard statistical units.*

This requirement provides the justification for a statistical business register (SBR) and determines its primary purpose, role, inputs and outputs, as described in the following sections and elaborated in Part II.

5.2 PRIMARY OBJECTIVE AND BENEFITS OF AN SBR

An up-to-date frame is required for each repetition of a regular survey. It is more efficient to maintain and update the survey frame so that it can support the sequence of repetitions than to create the frame afresh with each repetition. This is particularly true in the case of monthly and quarterly surveys, where an overlap of sampled units from period to period is essential.

Furthermore, from the perspective of harmonization and efficiency, it is preferable for frames for all surveys to be produced by a single function. Thus, *frame maintenance is best achieved through the construction of a single statistical business register and its use as the source of frames for all list-based enterprise surveys.*

More specifically, there are three basic reasons why an SBR is greatly beneficial.

- First, if survey frames are independently created and maintained, there is no means of guaranteeing that they are harmonized. There may be unintentional duplication or omission of enterprises in the coverage provided by the suite of surveys. For example, surveys of construction and of manufacturing are supposed to have mutually exclusive coverage, but there is no guarantee that they will unless the survey frames are drawn from a single source.
- Second, an SBR enables practical application of a standard framework of units and their classifications, which is a crucial requirement if surveys and survey outputs are to be harmonized.
- Third, it is more efficient for a single organizational unit within the NSO to maintain the SBR as a source of frames for all business surveys than for each survey area to be independently maintaining its own frame.

This does not mean that the SBR should provide the frame for every economic survey. There are two major types of exclusion:

1. Where a purpose-built administrative source is available from which to collect data, this should be used in preference to a survey. Even if the administrative collection has to be supplemented by a survey to obtain additional data items, the administrative source may well provide the most appropriate frame. An example is the collection of data about registered banks, for which the national central bank is almost certainly a definitive source. However, even in this case, it is desirable that the banks be recorded in the SBR as they will

be in scope for surveys of wage costs, research and development, innovation, etc.

2. Surveys of informal activities or of small-scale agriculture are best conducted using area frames to establish samples of households with small-scale business or agricultural production activities.

In summary, the primary objective of the SBR is to underpin an integrated economic survey program by providing good quality frames for economic (especially business) surveys, and to do so efficiently and in accordance with agreed standards for units and classifications. The primary benefits of an SBR are better coverage, harmonization of surveys, integration of survey data, and reduction of costs.

5.3 SUMMARY OF SBR COMPONENTS

Figure 5.1 summarizes the components of an SBR.

The *primary outputs* are survey frames generated on a quarterly, annual, or occasional basis, as required, and delivered as services to survey areas. These outputs are described in Section 5.4.

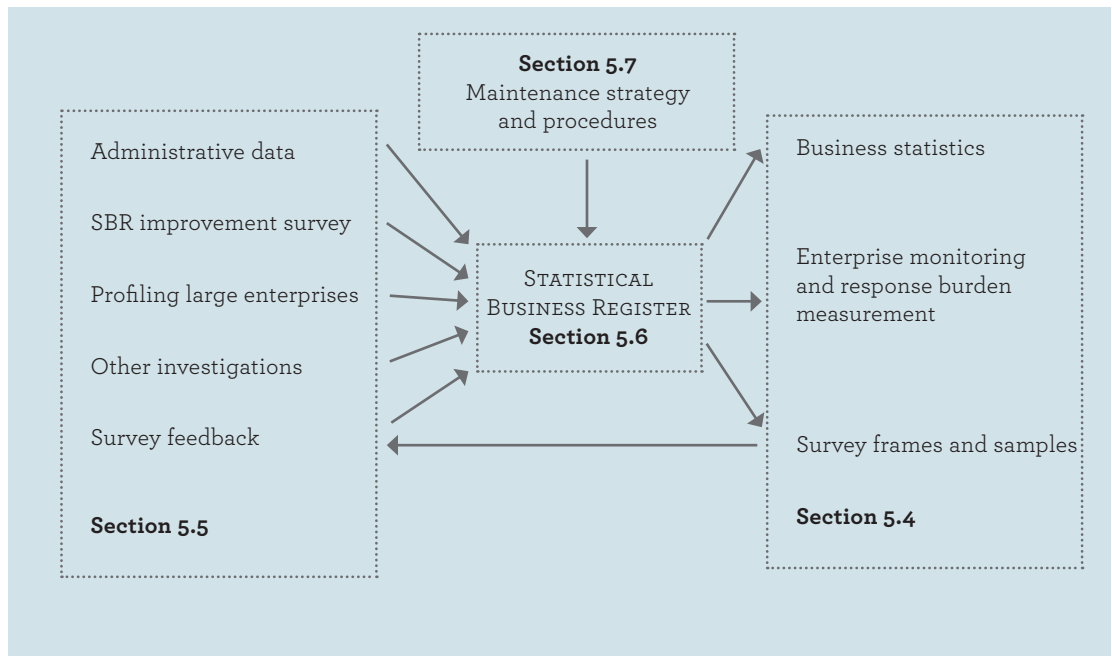
The *primary inputs* (further described in Section 5.5) are data from administrative sources supplemented by data directly acquired through profiling, SBR improvement survey program, feedback from business surveys, and other investigations. These inputs are used in combination in continually creating and updating the SBR (as described in Section 5.6) in accordance with a maintenance strategy (as described in Section 5.7).

5.4 SBR OUTPUTS AND SERVICES

The SBR can do more than just produce survey frames. The services it can provide may be summarized as follows:

1. *frames* for economic (especially business) surveys – as just discussed, this is the primary output;
2. *samples, survey control files, and survey shell databases* for these surveys – strictly speaking, these outputs are downstream from the SBR itself, but are viewed in these Guidelines as being part of the SBR complex of functions;
3. *register-based statistics* – including point in time statistical unit counts, and demographic

FIGURE 5.1: PRIMARY INPUTS AND OUTPUTS OF AN SBR



data regarding births, deaths, mergers, and changes over time;

4. *linkages* – between economic data collected by different surveys and held in different databases;
5. *monitoring respondents* – by indicating which enterprises are being contacted by which surveys and by enabling measurement of overall respondent burden; and
6. *frames for surveys by other organizations* – in response to requests.

These outputs, and the functions that produce them, are outlined below and specified in detail in Chapters 11 and 12.

Provision of survey frames

The most important SBR output is frames for economic (especially business) surveys. For each survey, a frame is produced in accordance with the *survey frame specification* submitted by the survey manager. The frame specification defines the reference period to which the frame should refer, the type of sampling unit, the population of units to be included, the data items that are required for sample selection, and (for the sampled units only) the contact data items required for conducting the survey. In the case of large and complex enterprises, the specification also includes the requirements for additional information about other types of statistical units associated with the enterprise. A critical measure of the success of the SBR is the extent to which it is actually used. Evidently, a very well-designed SBR is of little practical value if it is not the source of most business surveys measuring the formal economy.

Selection of survey samples and production of survey files

Given that the SBR is the source of economic survey frames, it is vital that the SBR frame extraction software interfaces nicely with the programs that perform sample stratification and selection and that initialize the survey control files and the survey shell databases in which the survey data will ultimately be stored.

For each survey, a sample should be selected in accordance with the *sampling specification* provided

by the survey sampling specialist. A sample specification defines the sampling method, the overall sample size, the stratification, and the target coefficients of variation (or equivalent accuracy targets) for key data item(s) and strata.

In order to ensure that small enterprises do not find themselves included in several different surveys, sample selection procedures should incorporate *sample overlap control* facilities that reduce or eliminate the possibility that a small enterprise is contacted by more than one regular economic survey.

The procedures and systems for sample selection, and the creation of a survey control file and survey shell database, are generally regarded as outside the core functions of the SBR itself. However, in order to ensure that these functions are well integrated with core SBR functions, these Guidelines take the view that they should be regarded as part of the *SBR complex*, and that the resulting samples, survey control files, and shell survey databases should be viewed as SBR outputs.

Production of business statistics

Statistics about businesses can be published directly from the SBR. This should be done only if the data are of sufficiently good quality, and this is likely only for well-developed and mature SBRs. Such data outputs include counts and quarterly growth rates of enterprises by sector/division and/or by region. They may also include enterprise demographics – births, deaths, changes over time – and, if the SBR contains enterprise ownership and control data, counts by domestic/foreign ownership.

Linkage of business data

Through its unique enterprise identification number, the SBR provides a mechanism for linking individual enterprise data across survey specific databases.

Response and respondent burden monitoring

As the SBR includes the functions of sample selection and survey control file creation, it is possible to list all the surveys to which any given enterprise has to respond in a particular year, and to determine the current status of these responses.

The actual respondent burden in hours imposed on enterprises by an individual survey may be computed as the number of enterprises in the sample responding to the survey multiplied by the estimated average time to make the response. The total for the year aggregated over all completed surveys may also be computed. This is done by the Australian Bureau of Statistics, for example, but not currently by any African NSO.

Provision of survey frames to other organizations

The NSO may consider requests for lists of enterprises with corresponding frame data from other government agencies, or even private organizations or academic researchers who wish to conduct a survey. The feasibility of responding to such requests depends upon confidentiality provisions in place in the country. Typically there is a statistics act of some form that, amongst other things, guarantees confidentiality of statistical information collected by surveys. This may prevent some or all data about individual enterprises being provided in the form of a survey frame.

5.5 SBR INPUTS AND MAINTENANCE FUNCTIONS

In principle, SBR data can be obtained and maintained by enumeration of all enterprises in the country. In recent years, an SBR has been developed from an economic census in Botswana, Mozambique, Uganda, and Zambia. However, although this was once a common practice, it is no longer used for well-developed SBRs. The problems with the approach are threefold.

- First, economic censuses are very expensive and not considered to be cost-beneficial by most countries.
- Second, the small household businesses located during the course of area enumeration in a census are very volatile in the sense that they may go rapidly in and out of business or change their activities or addresses. There is therefore little point in having a list of them unless it is constantly updated.
- Third, the only effective means of updating such a list is by a full-scale ongoing enumeration operation, which is prohibitively expensive. Uganda and Zambia are still

trying to maintain small businesses in their BRs and both note that they are short of resources to do so.

The following paragraphs summarize a more effective and efficient approach that is based on the use of administrative sources complemented by direct data collection. The methods described are discussed in detail in Chapters 8-10.

Use of administrative sources

The standard approach for obtaining and maintaining SBR data is to make use of administrative sources. Each government regulation relating to businesses results in: (i) an *administrative business register* of businesses (or associated units) bound by that regulation and (ii) *transaction data* resulting from application of the regulation. Furthermore, the register and transaction data are continually updated in accordance with the ongoing application of the regulation.

The register and data are referred to collectively as an *administrative source*, or sometimes *administrative register*. For example, administration of a value added tax (VAT) legislation results in a register of business units registered for VAT, and in transaction data itemizing VAT payments by these units. The unit registered may be an enterprise, part of an enterprise, or even (but much less likely) a group of enterprises under common control.

Choice of base administrative source

Every administrative source involving businesses is potentially useful in creating and maintaining the SBR. The most appropriate source has to be selected as the *base administrative source* according to its coverage and content, i.e., the businesses and the details about them that it contains. Typical candidate sources are those relating to value added tax (equivalently goods and services tax), corporate and individual business income tax, commercial registration requirements, and employee payroll deduction requirements. The best choice is likely to vary from country to country depending on local legislation.

An ideal administrative source would be one that provides complete, up-to-date coverage of all enterprises within the SNA production boundary, without duplication or inclusion of defunct units, and which includes all the data about these

enterprises required for survey sampling and data collection. However, given the very broad range of enterprises within the production boundary (including unincorporated household enterprises with no market output), no such administrative source is ever available in practice.

Improving coverage by use of more than one administrative source

Given that no single source provides all the data required, adding data from other administrative sources is one way to improve on the coverage obtained from the base source. However, this involves ensuring that there is no duplication in the set of enterprises that results from using sources in combination.

Experience has shown that trying to identify and eliminate duplicates by matching businesses across sources is very expensive and almost impossible to achieve *unless the sources use the same business identifier or unless they are known to be mutually exclusive*. In cases where there is no common identifier and where the sources overlap, the benefit of increased coverage resulting from incorporation of data from an additional administrative source is far outweighed by two disadvantages. The first is increased costs associated with attempting to detect and remove duplications of businesses; the second disadvantage resides in the duplications that remain undetected.

In summary, use of more than one administrative source is practical only if the corresponding administrative registers are known to contain mutually exclusive sets of enterprises, or if they share a common identification scheme that allows records for the same enterprise to be brought together and thus not duplicated.

Statistics South Africa's Business Register, referred to as the Business Sampling Frame (BSF), was designed to be based on VAT data. In 2006, SSA attempted to improve coverage by adding enterprises based on Income Tax (IT) returns. Because the VAT and IT systems do not share a common identification system, and because the routines that match records based on name and address information cannot achieve perfect results, a large number of duplicate enterprises were created in the BSF. As a result, the decision was made to revert to the production of frames from enterprises based on VAT records, with IT records simply being used to provide supplementary information.

Need for directly collected data

Even if several administrative sources are used in combination, they will not provide all the data needed for the SBR. First, some data items may not be available from any source, or may be wrong, anomalous, or out of date. Second, no administrative source will provide precisely the required breakdown of large complex enterprises by economic activity and region. These deficiencies have to be addressed.

There are four basic mechanisms by which an NSO directly acquires the additional data required to build and maintain an SBR:

- *large business profiling* – for large complex enterprises;
- *SBR improvement survey* – for all enterprises except those included in the large business profiling program;
- *feedback of data from business surveys* – for all enterprises from which data are collected by survey; and
- *other investigations* – perusal of newspapers, business directories, published corporate accounts, trade journals, etc.

Profiling

Identification of appropriate statistical and reporting units for large complex enterprises is done by SBR staff using a process commonly referred to as *profiling*. Profiling procedures include the rules for identifying all the types of units defined in the units model, based on information about the enterprise collected from the enterprise itself, and, in the case of corporations, from the publicly available annual reports. The profiling of an enterprise or group of enterprises typically requires one or more personal visits by experienced SBR staff to gather the required information from very senior managers at the enterprise(s) – usually the chief accountant and/or the company secretary.

SBR improvement survey program

Deficiencies in frame data for enterprises not covered by large business profiling are typically addressed through an *SBR improvement survey* (also referred to as *proving survey*, *nature of business survey*, or *coverage survey*) conducted by SBR staff, usually on a continuous basis.

The basic goals of the SBR improvement survey program are to verify existing data item values and/or to obtain the values of missing frame data items, for a selected set of enterprises or other statistical units. The survey is never a source of new enterprises, but occasionally a source of new establishments.

The survey design, in particular the frequency with which enterprises are contacted and number contacted, depends upon the quality of the data from the administrative sources, the capacity of the NSO, and the frequency with which changes occur, as discussed in a later chapter.

Business survey feedback

Feedback of frame data obtained from previously conducted business surveys is another vital source of information. Typically, the first few questions asked by any business survey constitute a check of the data items in the survey frame, such as name, address, contact information, and activity status. Subsequent questions may collect updated versions of economic activity and size measures. All these data are fed back to the SBR to supplement, correct, or update the information there.

Other investigations

In addition to the SBR survey, SBR staff may conduct other ad hoc investigations aimed at solving particular problems. These problems include data item omissions, errors, or anomalies arising during the course of administrative data processing, and unit duplications. In addition, staff may collect information to initiate large business profiles.

5.6 SBR CONTENT

In order to deliver frames and other services, the SBR contains statistical data. In addition, as the basis for creating and maintaining these statistical data, the SBR contains administrative data and organizational data from businesses, data about its own (i.e., SBR) operations, data describing survey reporting obligations, and response data as briefly outlined below.

Statistical data

The primary content of the SBR is data about enterprises and other standard statistical units that are used to generate survey frames. As noted in Section 4.3 and further elaborated in Section 7.3, they comprise:

- *identification and contact data* – unit name, unit identification code, physical and mailing addresses, e-mail address(es), telephone and fax numbers, contact persons;
- *descriptive data* – legal form, institutional sector, economic activity, size, region, and activity status;
- *demographic data* – date of creation, date of incorporation as a legal person (if applicable), date of recent change of structure or economic activity, or activity status; and
- *linkage data* – links to related units, including to other units associated with the enterprise, including the legal units that own them), links to data about the same unit in other files.

Administrative data

Data received from administrative sources are stored in the SBR without change of content (as further elaborated in Chapter 8). They provide the basis for automated creation and update of statistical units and their attributes.

Organizational data

The SBR also contains the legal and operational data about large, complex enterprises obtained during the course of profiling (as further discussed in Chapter 9). These data are the basis for the creation and updating of enterprise groups and establishments.

SBR operational data and metadata

SBR operational data are generated during the course of SBR operations. As further discussed in Chapter 11, these data include snapshots of the enterprises in the SBR at points in time, survey frames, random numbers (assigned permanently to enterprises at the time they are created and used in sampling to control the overlap between survey samples), and survey control files and survey shell databases. The corresponding metadata include quality and performance measures (as further discussed in Chapter 15).

Survey response status and respondent burden data

For each survey for which the SBR has provided a frame, for each enterprise in the survey sample, and for each observation unit belonging to that enterprise, the status of the response of the observation unit should be fed back and held in the SBR (as further discussed in Chapter 12).

5.7 SBR ENTERPRISE MAINTENANCE STRATEGY

A country's economy is constantly changing – new businesses are formed, existing businesses merge, change production activities or location, go bankrupt, etc. To ensure that the SBR enterprises (and other standard statistical units) remain aligned with and representative of legal units and their businesses, these changes have to be detected and the SBR has to be updated. This process as is referred to as *SBR maintenance*.

Maintenance groups

Given that the resources available for maintenance are always limited, a maintenance strategy has to be articulated and implemented to ensure resources are used effectively. It is intuitively obvious that the amount of maintenance effort devoted to an enterprise should be in accordance with its size and potential impact upon published statistics, and should take into account its propensity to change and the sources of updating information. Thus, for maintenance purposes, enterprises are typically partitioned by size into *maintenance groups*, each of which is subject to a particular set of maintenance procedures. This is illustrated by the two examples cited below, viz. maintenance procedures for the Statistics South Africa Business Register and the Australian Bureau of Statistics Business Register.

Statistics South Africa Business Register: maintenance procedures

For maintenance purposes, enterprises are divided into two groups:

1. Enterprises subject to profiling. This set of enterprises is maintained by profiling operations. Indications of changes from administrative sources or from business surveys are used as signals indicating the need for re-profiling. The enterprises are not included in SBR improvement surveys, nor are they subject to ad hoc investigations.

2. All other enterprises. All other enterprises are maintained using updating information from administrative sources and business survey feedback, which is supplemented as needed by information gathered by SBR improvement surveys and ad hoc investigations.

Australian Bureau of Statistics (ABS) Business Register: maintenance procedures

As for Statistics South Africa, ABS enterprises are divided into two groups for maintenance purposes. However, the groups, and their treatment, are somewhat different.

1. ABS maintained enterprises. These enterprises are maintained by the SBR staff by profiling, BR survey, business survey feedback and ad hoc investigations, as appropriate according to their size.

2. Australian Tax Office (ATO) maintained enterprise. These enterprises are maintained entirely by taxation data from the ATO. No ABS sources are used. Even if evidence of a change to an enterprise is detected by the ABS, for example through a business survey, BR data for the enterprise are not updated unless and until the change manifests itself through the taxation source. The benefits of expending no ABS maintenance effort are considered to outweigh the failure to make use of the ABS derived information.

of statistical units that are needed to reflect the changes actually taking place in the real economic world. These rules, often simply known as continuity rules, determine the circumstances under which an enterprise is deemed to *be born* (created), to *have died* (i.e., become permanently inactive or defunct) and possibly replaced by the birth of a new enterprise, or to *be continuing* but in some new form, or under new ownership. In order to be practically applicable, the rules have to take into account the ways in which changes can be detected. This is best illustrated though an example.

Suppose Legal Unit A has a business, which is represented by Enterprise X in the SBR. Suppose Legal Unit A sells its business to Legal Unit B, which continues to conduct the business just as before – no change of trading name, production activities, employees, location, and customers. Ideally, this would be considered to be an example of the *continuation* of an enterprise, i.e., after the sale Enterprise X would continue to exist in the SBR, with no change at all in attributes, except the link to Legal Unit has changed from A to B. This is illustrated in Figure 5.2.

However, in practice, the optimum choice of continuity rule depends upon the way in which the change is detected and how maintenance of the enterprise is managed.

In summary, some form of grouping for maintenance purposes is desirable. The optimum choice depends upon the particular circumstances in the country and NSO.

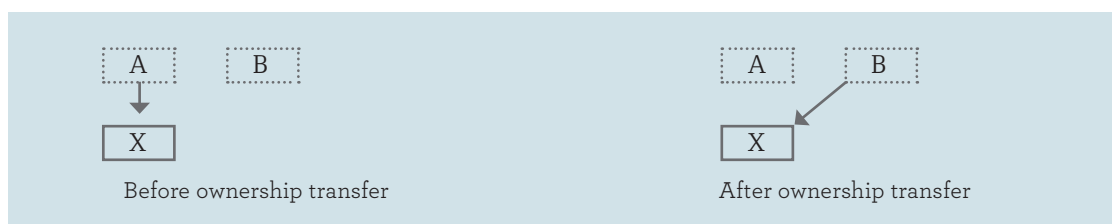
Birth, death, and continuity rules

An essential component of a maintenance strategy is a set of rules that specify how to recognize and manage the births, deaths, and continuations

Typically, the change of ownership will present itself via the death of an administrative unit (say Admin Unit A*) belonging to Legal Unit A and the birth of the same sort of administrative unit (say Admin Unit B*) belonging to Legal Unit B.

If Enterprise X is sufficiently large to be subject to profiling, then the death of Admin Unit A* (belonging to Legal Unit A and linked to Enterprise

FIGURE 5.2: TRANSFER OF OWNERSHIP OF ENTERPRISE X FROM LEGAL UNIT A TO LEGAL UNIT B (SHOWING CONTINUATION OF ENTERPRISE)



X) will be interpreted as signaling the need for the reprofiling of Enterprise X. Through such reprofiling, the exact nature of the change will be established. Enterprise X will be unlinked to Admin Unit A* and linked to Admin Unit B*. No other changes will be made to Enterprise X. This is illustrated in Figure 5.3, which highlights the roles played by administrative data and profiling in a large enterprise.

On the other hand, if Enterprise X is small and is subject to automated update by administrative data, then the death of Admin Unit A* will result in the death of Enterprise X. The birth of Admin Unit B* will result in the birth of a new Enterprise, say Y. This is illustrated in Figure 5.4, which shows the role played by administrative data without profiling, in the case of a small enterprise.

In summary, a comprehensive set of continuity rules is needed to control SBR updating. The rules have to cover every possible type of birth, death, or continuation of units that can occur. They will

likely vary according to the size of the statistical units involved.

Change and resistance rules

In addition to continuity rules governing births and deaths of statistical units, rules are needed to govern the updates that are made to continuing statistical units in order to represent changes in the economic world, for example businesses expanding or contracting, changing their economic production activities, or locations, etc. In defining these rules, account has to be taken of the fact that some changes in the economic world may be readily detected through SBR sources, while others are more difficult to detect. Some changes may be permanent, some seasonal, some temporary and not connected to the seasons. Some changes may have a significant impact on published statistics, others have very little or no impact. The following examples illustrate the sorts of situations that need to be taken into account.

FIGURE 5.3: TRANSFER OF OWNERSHIP OF ENTERPRISE X FROM LEGAL UNIT A TO LEGAL UNIT B AFTER DEATH OF ADMIN UNIT A* (SHOWING ROLES PLAYED BY ADMINISTRATIVE DATA AND PROFILING)

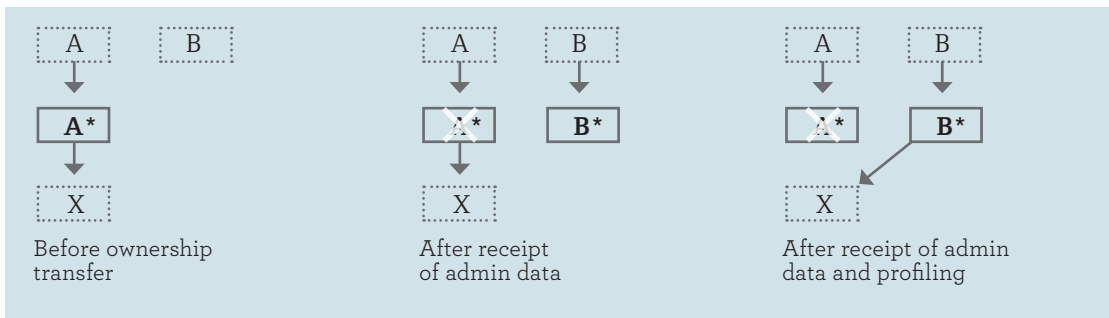
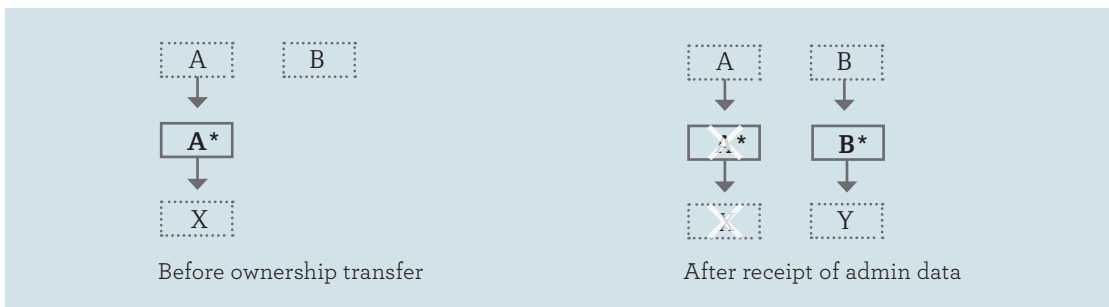


FIGURE 5.4: TRANSFER OF OWNERSHIP OF ENTERPRISE X FROM LEGAL UNIT A TO LEGAL UNIT B AFTER DEATH OF ADMIN UNIT A* (SHOWING ROLE PLAYED BY ADMINISTRATIVE DATA WITHOUT PROFILING)



Example 1

Suppose that, based on its VAT contributions, Enterprise X is classified as a large enterprise and is hence in the certainty stratum for the annual production survey. Suppose further that it is the main contributor to the data for a particular industry I. Now suppose that, because of a change in VAT accounts, or a backlog in VAT data processing, the recorded VAT contributions temporarily drop to a half of their former value, and that the enterprise's size code in the SBR is correspondingly changed so that the enterprise is no longer in the certainty stratum for the survey. Further suppose that the enterprise happens not to be selected in the survey sample for the following year. The result would be a significant reduction in the published statistics for industry I due to the loss of Enterprise X from the sample, even though there had been no real change in production.

This unwanted effect could be avoided in several ways, one of which would be through the use of a *resistance rule* in changing enterprise size codes in the SBR. In essence, a resistance rule requires that an SBR value not be changed for some reasonable period after the corresponding change is first detected, just to be sure that change is permanent before it is implemented.

Example 2

Suppose that an enterprise has economic activities of roughly comparable size in two industries I and J, but it cannot report all the components of value added separately for the two industries and hence submits only one report. Suppose that, based on the data obtained from the annual survey, the enterprise has more activity in industry I and hence has an economic activity code of I. Then suppose that, for just one year, the economic activity associated with J becomes a little larger. If the corresponding SBR industry codes are switched, then the published statistics will indicate a transfer from I to J of the whole of the enterprise's production, which will be much more of a change than has actually taken place. Again, this unwanted effect can be avoided through the use of a resistance rule that prevents a change of economic activity code based on a one-year change.

In summary, a comprehensive set of change rules is needed in order to control SBR updating of the attributes of enterprises and other statistical units. The rules have to cover every possible type of change that can occur. They are likely to vary according to the attributes involved. They are likely to include resistance rules that inhibit short-term changes.



PART II
SBR DESIGN

INTRODUCTION TO PART II

Part II of the Guidelines builds on the conceptual and methodological framework described in Part I, in particular the basic SBR objectives and components outlined in Chapter 5. Part II is divided into three parts as follows:

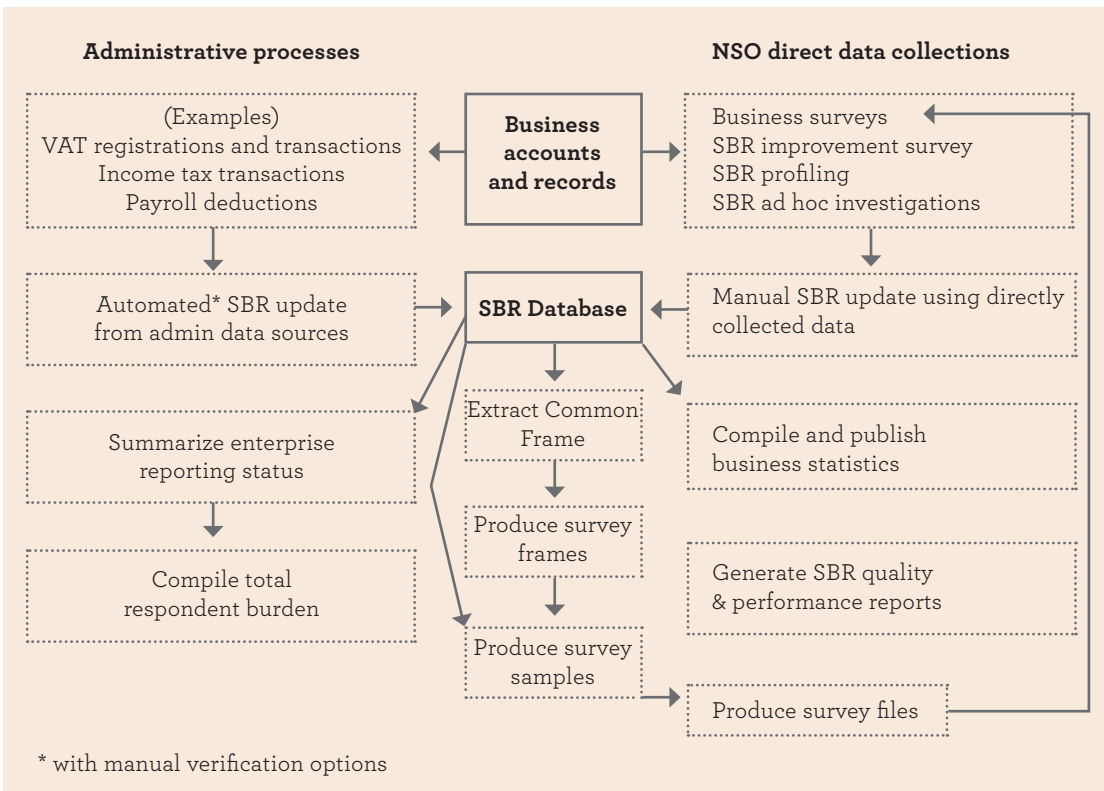
- Part II-A concerns SBR coverage, content, and inputs;
- Part II-B concerns SBR outputs and output functions; and
- Part II-C concerns SBR organization, systems, and quality management.

In combination they present a prescriptive design framework summarized in Figure II-A as the basis for the development, construction, and implementation of an SBR, as discussed in Part III.

Within this framework, an NSO needs to formulate its own design, taking into account its own particular circumstances. For example, an NSO with limited resources in a country with a small economy may decide not to profile large businesses, or not to produce business statistics direct from the SBR. General factors to be taken into account in the design include the following:

- the number and type of surveys for which the SBR will provide frames – affecting the choice of economic units model, the coverage and content of the SBR, and the overall scale of the SBR in terms of human resources and systems;
- the number of enterprises in the SBR – affecting the overall scale of the SBR;
- the number, distribution, and impact of large complex enterprises – determining the proportion of SBR resources allocated to profiling;
- the human (statistical, methodological, clerical, IT) resources available – affecting the overall scale and complexity of the SBR;
- the computing resources (network, databases) available – affecting the overall scale and complexity of the SBR; and
- the scope/for and/or need to develop the SBR as a combination of regional registers – affecting the data acquisition procedures and storage and transmission requirements.

FIGURE II-A: PRIMARY SBR INPUT AND OUTPUT FUNCTIONS





PART II-A

**SBR DESIGN – COVERAGE,
CONTENT, AND INPUTS**

6 • SPECIFICATION OF SBR UNITS

6.1 INTRODUCTORY REMARKS

This chapter deals with specification of the economic units model on which the SBR is based and decisions regarding the statistical coverage of the SBR.

As discussed in Section 3.2, the SBR economic units model includes definitions of the unit types of relevance to the SBR and their interrelationships, and of the populations and various sub-populations of these units that are used during the conduct of a survey. In addition to the standard statistical units (SSUs), the model includes the real economic world units (legal, organizational, and administrative units) associated with businesses, and the sampling and observation units associated with survey design. The model is a core element of SBR design. In developing the model, the aim is to include all relevant unit types and no superfluous ones.

6.2 SPECIFICATION OF STANDARD STATISTICAL UNITS

General approach

The core of the economic units model is the statistical units model comprising the set of standard statistical units (SSUs). The reason for having more than one standard statistical unit is to be able to subdivide data from large complex enterprises by economic activity and by region.

As noted in Section 3.2, there is no universally adopted international SSUs model. An NSO needs to define its own SSUs, or adopt those defined by another NSO. The optimum choice of SSUs depends upon the particular situation in the country – the surveys being conducted, the sophistication of national accounts' compilation, the number and significance of large complex enterprises, the capacity of the NSO, and, to a minor extent, the choice of administrative sources.

An important step in selecting an appropriate model is to review the SSUs defined and used by other NSOs. The review should cover (at least) two groups of NSOs:

- well-developed NSOs like Statistics Canada and the Australian Bureau of Statistics – the aim of the review being to get an idea of what sort of model is needed in a complex economy, and how it can be implemented given considerable resources; and
- NSOs in countries that have a similar economic situation and level of resources and that have developed a model of their own – the aim being to get an idea of what is practical given the resources available, but not necessarily optimal.

The key principle in choosing an SSUs model is that it should be as simple as possible whilst providing detail sufficient to meet user needs. There are three reasons for simplicity:

1. The high cost of defining the smaller producing units into which enterprises are to be partitioned;
2. The high cost of building, partitioning and maintaining an SBR database that is capable of supporting the data associated with a complex model;
3. The possibility that enterprises may not maintain the records needed to provide data for smaller producing units.

The simplest model of all is to define a single standard statistical unit – an enterprise – without any partitioning at all. Then, when collecting data from a large complex enterprise, to ask it to report data broken down by kind of economic activity and location. In effect, this is asking the enterprise to make its own breakdown of its activities

without providing guidance on how to do this. It does not generally work well, as enterprises cannot be expected to understand the breakdown that is required. On the other hand, for an NSO that is developing its SBR for the first time in a country that does not have many large complex businesses, this may be the most appropriate approach.

Recommended SSUs model

In the absence of strong reasons to the contrary, a good choice for the SSUs model is one loosely based on the EC regulation, comprising just three hierarchically organized standard statistical units, as illustrated in Figure 6.1.

- *Enterprise Group*: comprising one or more enterprises; required to handle the sort of complex inter-corporate ownership and control situations found in countries with modern developed economies. This unit is not currently needed for most African countries at their current stages of development but is included in the model to ensure that the model can cope with a future situation in which the economy has become more complex.
- *Enterprise*: the core standard statistical unit defined as legal or natural person engaged in economic production, in accordance with SNA 2008. (In certain circumstances it may be appropriate to refine the definition of enterprise to that of the smallest combination of legal units that is an organizational unit producing goods or services, which benefits from a certain degree of autonomy in decision-making, especially for the allocation of its current resources, but this is not recommended in these Guidelines.)

- *Establishment* – the breakdown of an enterprise by economic activity and/or location as required; only required for large complex enterprises.

It should be emphasized that in almost every country, whatever model is chosen, the number of enterprises that are sufficiently large and complex to require partitioning into smaller statistical units and/or grouping into enterprise groups, is likely to be quite small. In other words, for the vast majority of enterprises, the enterprise comprises a single establishment and is the only member of the enterprise group to which it belongs. However, although small in number, large, complex enterprises may jointly account for a significant proportion of overall economic activity and employment, and this justifies their partitioning.

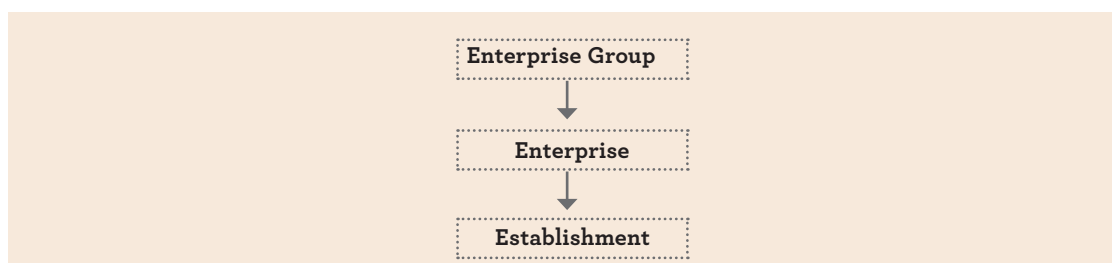
6.3 SPECIFICATION OF SBR ECONOMIC UNITS MODEL

General approach

Given the choice and definition of the SSUs, the first step in completing the economic units model is identification and definition of the real economic world units (legal, operating and administrative units) on the basis of which the SSUs will be identified as well as the inter-relationships with one another and with the SSUs. The goal is to determine how the SSUs relate to, and can be created from, the legal, operating, and administrative units.

The second step is to specify how the SSUs will be used in defining survey target populations, in creating survey frames, in sampling, and in creating the survey observation units.

FIGURE 6.1: RECOMMENDED STATISTICAL UNITS MODEL



The ultimate goal is a comprehensive economic units model containing all the types of units relevant to the creation and use of survey frames.

Whilst it is not possible to specify in detail a model that would be entirely appropriate for all countries, Figure 6.2 and the following text provide the model recommended in these Guidelines and a framework to guide model formulation by NSOs.

Recommended economic units model

The economic units model recommended in these Guidelines is based on models developed by Statistics South Africa and the Ethiopian Central Statistical Office. The elements of the model and some of the interrelationships between various types of units are shown in Figure 6.2.

The units are organized in three groups:

- *organizational (legal and operational) units* – comprising legal units and groups of legal units that own and control businesses and operational units that businesses create for their own purposes, independently

of administrative regulations and statistical requirements;

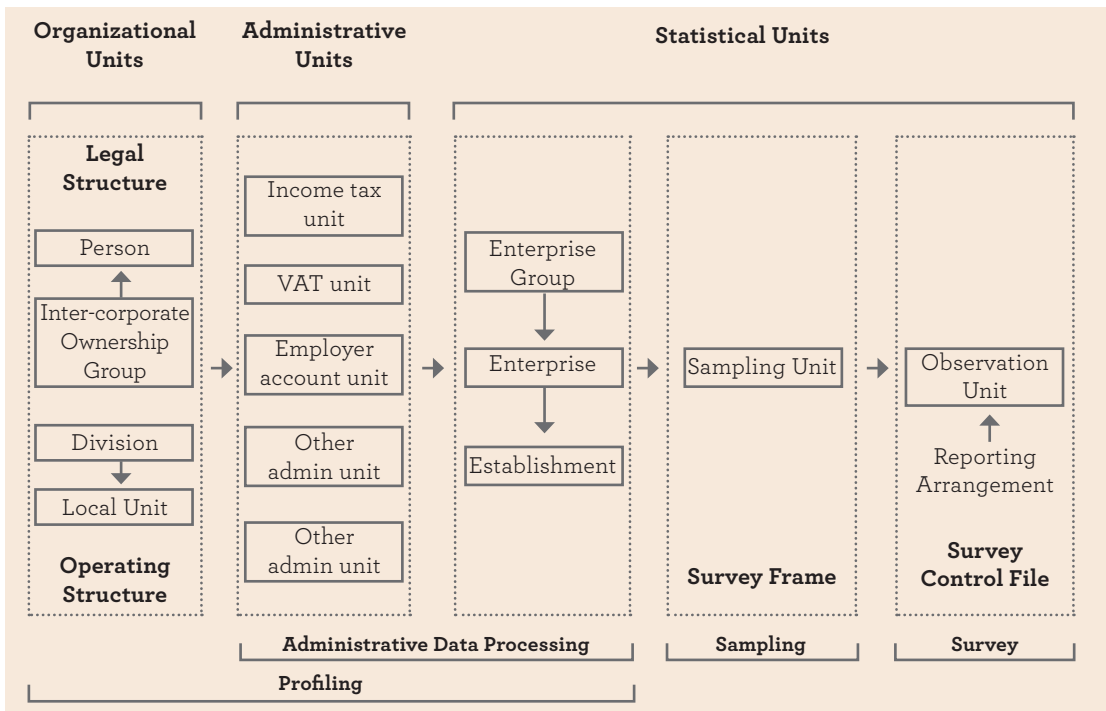
- *administrative units* – comprising the types of units that businesses create in response to administrative regulations in order to comply with those regulations; and
- *statistical units* – the SSUs created by the NSO itself for the purpose of collecting data from businesses.

Data about the organizational and administrative units associated with businesses form the basis for identifying the SSUs. It is therefore vital that these units and their relationships to one another be well defined.

6.4 LEGAL UNITS

In the recommended model, the basic building-block is the legal unit. A legal unit is a *legal (or juridical) person* or a *natural person*. A *legal person* is a unit whose existence is recognized by law independently of the individuals or institutions that may own it, or are members of it.

FIGURE 6.2: RECOMMENDED MODEL FOR ORGANIZATIONAL, ADMINISTRATIVE, AND STATISTICAL UNITS



Thus defined, a legal unit is equivalent to the SNA 2008 notion of *institutional unit*, except that the latter includes households containing natural persons rather than individual natural persons.

It is also close to the ESS Units Regulation, which defines a legal unit as a *legal person or a natural person who is engaged in an economic activity in their own right*. This ESS definition makes explicit that the only natural persons of interest are those with economic production.

In the recommended model, a slightly different view is taken, namely that, from the perspective of economic production and the SBR, the legal units of interest – termed *active* legal units – are those that:

- are conducting economic production activities; or
- have indicated an intention to conduct economic production activities; or
- have recently conducted economic production activities.

Legal units are the core concept in the model in the sense that they:

- create the operational units by which they manage themselves;
- register administrative units in response to administrative requirements; and
- have production activities that are modeled in terms of standard statistical units in the SBR.

A *business* is defined as a legal unit engaged in commercial economic production. The focus of

the SBR is typically businesses, but it may include other legal units, for example general government units.

6.5 RELATIONSHIP OF LEGAL UNITS TO ENTERPRISES

In the Guidelines model, legal units and enterprises are defined to be in one-to-one correspondence, in the sense that there is one and only one legal unit per enterprise. This is simple and easy to operationalize. It is also consistent with the SNA, which defines an institutional unit as an economic entity that is capable, in its own right, of owning assets, incurring liabilities and engaging in economic activities and in transactions with other entities.

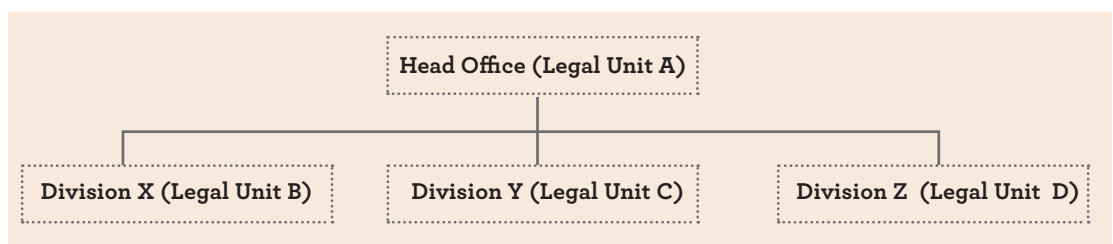
It is different from ESS Statistical Units Regulation, which defines an enterprise as the smallest combination of legal units that is an organizational unit producing goods or services which benefits from a certain degree of autonomy in decision-making, especially for the allocation of its current resources.

The ESS Units Regulation definition is aimed at dealing with more complex ownership and control situations. The following examples illustrate how the ESS model and the Guidelines model deal with two such situations.

Example 1

Legal unit A has bought the assets of and controls legal units B, C, and D and it operates them as divisions X, Y, and Z of its business, each of which produces a particular range of goods or services sold on the market. Units B, C, and D do not have sufficient autonomy to be capable of separately reporting their assets and liabilities, however they have retained their separate legal identities and file tax returns indicating nominal assets (say \$1)

FIGURE 6.3: BUSINESS OWNERSHIP EXAMPLE 1



and no income. This sort of situation, which is common in South Africa (where it is referred to as *divisionalization*), is illustrated in Figure 6.3.

- According to the *ESS model*, there is only one enterprise and it comprises four legal units (A, B, C, and D in combination) and has four establishments (corresponding to the head office and the three divisions).
- In the *Guidelines model*, there are four enterprises. The enterprise corresponding to legal unit A is active and has four establishments. The enterprises corresponding to units B, C, and D are treated as inactive.

Example 2

Figure 6.4 illustrates another example where legal unit A owns and controls three legal units B, C, and D. In this case, legal unit B provides computing services to the other units and has no market production; legal unit C provides labor for the legal units B and D and has no market production; and legal unit D has market production, buying computing services from legal unit B and employment services from legal unit C. Legal units B, C, and D do not have sufficient autonomy to be capable of separately reporting their assets and liabilities.

- According to the *ESS model*, there is only one enterprise and it comprises four legal units (A, B, C, and D in combination) and has two establishments (corresponding to the head office and the production unit) and two ancillary units.
- In the *Guidelines model*, there are four enterprises. The enterprises corresponding to legal unit A is active and has two establishments (corresponding to the head office and the production unit). The enterprises

corresponding to units B, C, and D are treated as inactive.

Example 3

Figure 6.5 shows an example where legal units C and D operate autonomously. They are owned by legal unit B, which is a holding company with no productive activities and which is owned by legal unit A. Legal unit A has production activities of its own.

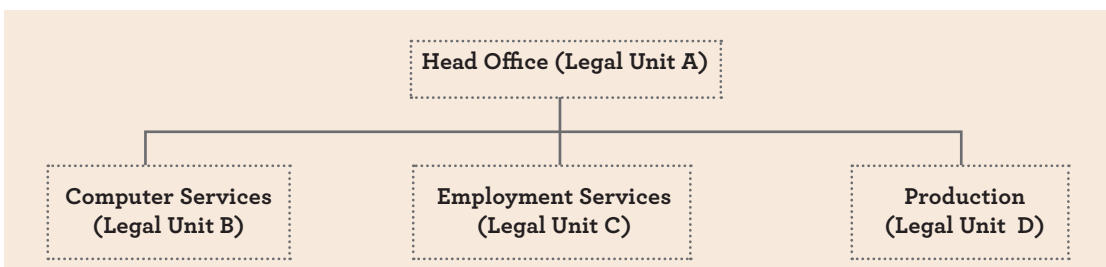
- According to the *ESS model*, there are three enterprises, one corresponding to legal unit C, one to legal unit D, and one to legal units A and B in combination.
- In the *Guidelines model*, there are four enterprises, one for each legal unit, but the enterprise corresponding to legal unit B is inactive.

Each NSO has to make its own decision regarding the appropriate relationship between legal units and enterprises, but in the absence of compelling reasons to the contrary, the simplicity of defining legal units and enterprises to be in one-to-one correspondence is recommended.

6.6 ADMINISTRATIVE UNITS

Whilst the legal unit is the core unit type in the model, and whilst there are lists of corporations and registered partnerships, there is never any readily available and complete list of active legal units that can be used as a source for the SBR. Rather there are lists of operational and administrative units. Administrative units are used as surrogates for legal units in constructing SBR enterprises, while organizational units are the basis for subdividing large, complex enterprises into establishments.

FIGURE 6.4: BUSINESS OWNERSHIP EXAMPLE 2



Administrative units may be in one-to-one correspondence with legal units, or there may be more than one administrative unit associated with a legal unit, depending upon the particular administrative source.

- For example, in the case that the source is income tax, the corresponding tax regulation typically requires each legal unit to submit one and only one tax return for each reference period. Thus the income tax unit and the legal unit are in one-to-one correspondence.
- On the other hand, in the case of a payroll deduction (pay as you earn) source, the regulation may well allow a business person to divide the employees for whom it is making deductions into several different groups, each of which has a separate *payroll deduction unit*. In this case there may be more than one payroll deduction unit per legal unit and hence per enterprise.

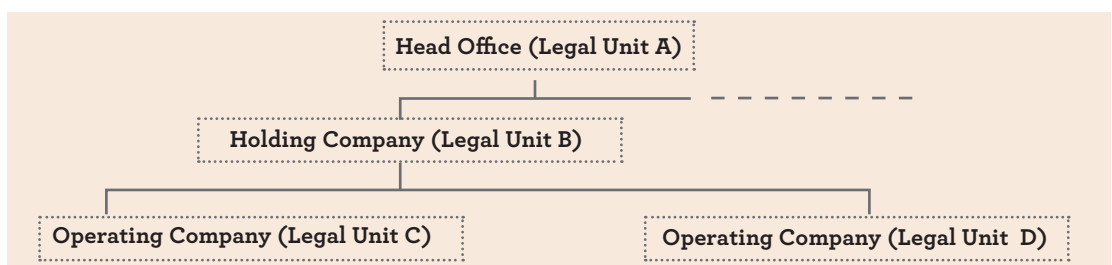
There are very few situations in which an administrative unit corresponds to more than one legal unit. The reason is the government organization responsible for administering the regulation needs to know unambiguously which legal unit is responsible for fulfilling the requirements of the regulation. A rare exception occurs in countries where a consolidated income tax return from a conglomerate of companies is permitted.

The model developed by **Statistics South Africa** (see Figure 3.2) shows the administrative sources from which data may be drawn to update the SBR. The primary administrative source is VAT, which is used in automatic updating of coverage and content. Income tax is also a source for automated update of SBR content, but is not used to expand coverage. Data from four other administrative sources may be reviewed manually as required but not used for automated updating of the SBR.

In **Ethiopia**, there is a single administrative process for registering tax payers for all tax streams. This means that when the Central Statistical Office develops its SBR, it will be able to use all types of tax data in combination to create and maintain SBR coverage and content. In addition there is a licensing regulation (the Commercial Registration Proclamation for business persons and branch offices) which also uses the tax identification system and hence constitutes another administrative source that can be exploited for coverage and content.

In order to be as practical as possible, an assumption is made in the Guidelines model (Figure 6.2) that three particular types of administrative sources are available, namely income tax, value added tax (or equivalently goods and service tax), and some form of employer-based administrative source, which could be payroll deduction (often called pay-as-you-earn) or unemployment insurance. In adapting the model to the particular circumstances of a country, the types of administrative source that do not exist, or that exist but

FIGURE 6.5: BUSINESS OWNERSHIP EXAMPLE 3



are not used in the SBR, should be removed, and other administrative sources should be added, as appropriate.

6.7 ORGANIZATIONAL UNITS

Organizational units are the units into which, and by means of which, businesses and other economic producers organize themselves. In essence there are two types of organizational units:

- *legal units and groups of legal units* linked by ownership and control; and
- *operational units*, which, for the purpose of the model, are classified into two types – divisions and local units.

Divisions are typically created for different types of production, for example a manufacturing

division and a wholesaling division. Local units are individual workplaces at a single location, such as a farm, mine, quarry, factory, plant, shop, store, construction site, transport depot, airport, garage, bank, office, or clinic.

These organizational units are the basis for grouping enterprises into enterprise groups and partitioning enterprises into establishments.

6.8 DEFINITIONS OF UNITS IN RECOMMENDED MODEL

Figure 6.6 contains definitions and descriptions of all units in the model recommended in these Guidelines. (The Glossary in Annex B contains definitions of all the terms used in the Guidelines.)

FIGURE 6.6: DEFINITIONS AND DESCRIPTIONS OF ALL UNITS IN RECOMMENDED GUIDELINES MODEL

LEGAL UNIT	
Definition	<i>A legal unit</i> is an entity with legal personality, i.e., with the right to ownership, to dispose of assets, engage in activities, enter into contracts, and institute legal proceedings. <i>A legal person</i> is a unit whose existence is recognized by law independently of the individuals or institutions that may own it, or are members of it.
Unit type	Legal.
Identification Scheme	Legal and natural persons usually have completely separate identification systems. The identification schemes vary by country. There are typically different identification schemes for different types of legal person. For example, corporations, non-profit organizations, and government departments and agencies may have different identification schemes.
Enumeration	A country may or may not contain a national register of all natural persons. Even where a register exists, it is not usually particularly informative for SBR purposes as it is unlikely to identify the natural persons that conduct businesses.

Enumeration (cont.)	Partial lists of selected legal and natural persons are maintained for a variety of administrative purposes and are available from the corresponding administrative sources.
Remarks	<p>A legal unit is equivalent to the SNA1993 notion of <i>institutional unit</i>, except that the latter includes <i>households containing natural persons</i> rather than individual natural persons.</p> <p>The definition is close to that of the ESS Units Regulation, which defines a legal unit as a legal person or a natural person who is engaged in an economic activity in their own right.</p> <p>The legal units of interest are active legal units defined as those:</p> <ul style="list-style-type: none"> • that are conducting economic production activities; or • that have indicated an intention to conduct economic production activities – for example by registering as an employer; or • that have recently conducted economic production activities.

INTER-CORPORATE OWNERSHIP GROUP

Definition	<i>Inter-corporate ownership group</i> is a collection of legal persons hierarchically linked to one another by ownership and/or control.
Unit type	Legal.
Identification Scheme	There is typically no identification scheme.
Enumeration	Through profiling.
Remarks	<p>Typically some of the legal persons in an inter-corporate ownership group are <i>holding companies</i> that have no productive activities of their own but that own active companies.</p> <p>Inter-corporate ownership groups are of enormous significance in developed countries. However, there are few (possibly no) such groups presently in many African countries. The inclusion of an inter-corporate ownership group in the Guidelines units model anticipates that, as an economy expands and ownership structures become more complex, such groups will come into existence and play a significant role.</p>

DIVISION

Definition	A <i>division</i> is an operational unit defined by a legal unit for the purpose of managing its production activities by partitioning them.
Unit type	Operational.
Identification scheme	Individual to each legal unit.
Enumeration	Divisions are identified through profiling, but only for large, complex enterprises.
Remarks	<p>A division is an operational unit defined by the business itself for its own purposes, not in response to administrative requirements.</p> <p>A division typically has a certain degree of autonomy in the way it conducts its activities.</p> <p>Typically, different divisions are engaged in different economic activities. For example, an enterprise might have a manufacturing division and transportation division.</p> <p>Two or more divisions are an indication of two or more establishments.</p>

LOCAL UNIT

Definition	A <i>local unit</i> is the smallest type of unit that an enterprise identifies for the purpose of managing its activities geographically.
Unit type	Business operational.
Identification Scheme	Individual to each legal unit.
Enumeration	Local units are identified through profiling, but only for large, complex enterprises.
Remarks	<p>In the Guidelines model, a local unit is not a standard statistical unit type. It is a unit defined by a legal unit.</p> <p>A local unit may be a head office, branch office, plant, sales outlet, service point, etc. It may be at a single physical location (set of premises) or several close locations.</p> <p>Local units that help in defining appropriate reporting units can be identified for surveys. Listing the local units of a large enterprise is a starting point for ensuring that all productive activities of the enterprise are included within the establishments that are defined.</p> <p>A branch and local unit may be coincident. Having branches and local units as separate unit types enables branch data to be retained in the SBR when investigations identify local units that are not branches.</p>

INCOME TAX UNIT

Definition	An <i>income tax unit</i> is an administrative unit created by a legal unit and maintained by the National Tax Office, reflecting the obligation of an active legal unit to pay income tax.
Unit type	Administrative.
Identification Scheme	The income tax unit identification number is assigned by the National Tax Office. The National Tax Office may or may not maintain a general purpose taxpayer identification number. If it does so, the income tax number will likely be linked to it.
Enumeration	The list of income tax units is maintained by the National Tax Office.
Remarks	In most countries a legal unit has one and only one income tax account. In some countries an income tax account can be shared by two or more business persons, i.e., a consolidated tax return is permitted. All business persons can be assumed to have income tax obligations, thus income tax units likely provide broader coverage of business persons than VAT account units. However, VAT account units may include active legal units that are not business persons. Income tax transaction data provide size measures that are useful in the absence of more current VAT account based size measures.

VAT UNIT

Definition	A <i>VAT unit</i> is an administrative unit belonging to a legal unit and registered under VAT legislation with the National Tax Office.
Unit type	Administrative.
Identification Scheme	Identification is assigned by the National Tax Office during the course of VAT registration process. The National Tax Office may or may not maintain a general purpose taxpayer identification number. If it does so, the VAT account number will likely be linked to it.
Enumeration	The list of VAT units is maintained by the National Tax Office.
Remarks	<p>A VAT account refers to a legal unit that has registered to pay VAT. Typically, a legal unit may have more than one VAT account; and a VAT account belongs to a single legal unit and cannot be shared by two or more legal units.</p> <p>Having a recent VAT transaction is evidence that a legal unit is active.</p> <p>The set of legal units with VAT accounts is typically smaller than the set of legal units paying income tax. Thus VAT account units do not provide much additional coverage of active legal units to that provided by income tax units. However, VAT transaction data are a better source of current activity status and size.</p>

EMPLOYER ACCOUNT UNIT

Definition	An <i>employer account unit</i> is an administrative unit of an employing legal unit that is required to make deductions or remittances on behalf of employees.
Unit type	Administrative.
Identification Scheme	Depends upon the administrative agency.
Enumeration	The list of employer account units is maintained by the corresponding administrative agency, as noted in the paragraph below.
Remarks	There are two important and quite different types of employer account unit. The first is an employer payroll deduction (also called pay-as-you-earn) unit, which is required to make deductions from employees' income for income tax purposes and to remit the deductions to the National Tax Office. The second is an employer unemployment insurance unit, which is required to make deductions and to contribute to unemployment insurance payments, and to remit to the government agency responsible for unemployment insurance.

OTHER ADMINISTRATIVE UNIT

Definition	Not a specific unit, rather a place holder for any other administrative unit of significance to a NSO.
Unit type	Administrative.
Enumeration	The list of administrative units is maintained by the corresponding administrative source.
Identification Scheme	Depends upon the administrative source.
Remarks	In application of the model to be replaced by an actual administrative source.

ENTERPRISE

Definition	An enterprise is a unit created by the SBR to represent a legal unit in its role as actual or potential economic producer.
Unit type	Statistical.
Identification Scheme	Decided by the SBR.
Enumeration	By the SBR using data from the administrative source(s) and from direct collection, i.e., profiling, SBR improvement survey, business survey feedback, and other investigation.
Remarks	<p>By definition and construction an active legal unit can have only one enterprise, and an enterprise can belong to at most one active legal unit.</p> <p>The primary focus of the SBR is enterprises belonging to legal units that are businesses. However, the SBR may contain enterprises belonging to legal units that are not businesses, for example government departments. The inclusion of enterprises for legal units that are not active, only potentially active, or that have ceased activity is a deviation from the SNA. (The SNA requires an institutional unit to have economic production in order to be an enterprise.) The deviation is required in order to take into account legal units that (1) have indicated an intention to be active, for example by registering an administrative unit, or (2) have ceased activity but have not given up legal status and still have active administrative units. The activity statuses of the enterprises corresponding to such legal units are defined to be “not yet active” and “inactive” respectively.</p>

ENTERPRISE GROUP

Definition	An <i>enterprise group</i> is the set of enterprises for which the corresponding legal units belong to a single inter-corporate ownership group.
Unit type	Statistical.
Identification Scheme	Decided by the SBR.
Enumeration	Through profiling.
Remark	As for inter-corporate ownership group, the inclusion of enterprise group in the Guidelines units model is for possible future use as the economy expands and ownership structures become more complex.

ESTABLISHMENT

Definition	An <i>establishment</i> is the whole or part of an enterprise engaged in a single type of economic activity at one or more locations.
Unit type	Statistical.
Identification scheme	Decided by the SBR.
Enumeration	Through profiling.
Remarks	<p>In practical terms, an establishment is a unit created by the SBR to represent the economic production of an enterprise in a particular industry for which production data can separately reported, as established through profiling. The vast majority of enterprises have just one type of economic activity at a single location that, by definition, is the head office. Each such enterprise is defined to have a single establishment. A few enterprises have more than one activity for which they can report production data. Additional establishments are created only through profiling. The initial triggers for profiling are:</p> <ul style="list-style-type: none"> • an indication from an administrative source or survey that the legal unit is very large; and/or • the presence of several administrative units of the same type belonging to the legal unit. <p>Typically, but not necessarily, separate establishments of an enterprise correspond to separate divisions and/or are at separate local units.</p> <p>An enterprise can have different establishments engaged in the same type of activity at different local units. This enables production to be apportioned more precisely by region.</p>

SAMPLING UNIT

Definition	A <i>sampling unit</i> is a member of a sampled population for a survey.
Unit type	Statistical.
Identification scheme	Decided by the SBR.
Enumeration	In accordance with a survey frame specification, the appropriate set of sampling units for any given survey is extracted from the Common Enterprise Frame, which is itself extracted from the set of enterprises in the SBR.
Remarks	A sampling unit is not a distinct unit type. It refers to a standard statistical unit in its role in a sampling frame. The sampled population of a survey comprises the set of sampling units from which the survey sample is selected. Usually the sampling unit is the same type as the target unit for the survey. Occasionally the target unit may be the enterprise but the sampling unit is the establishment. In early use of the SBR at least, the only type of sampling unit recommended is the enterprise.

OBSERVATION UNIT

Definition	An <i>observation unit</i> is a unit about which data are collected during the course of a survey.
Unit type	Statistical.
Identification scheme	Decided by the SBR in conjunction with the survey management.
Enumeration	The sample (of sampling units) is selected in accordance with the survey sampling specification. Based on this sample, the set of observation units is derived, by extracting additional identification and contact data from the SBR, taking into account the choice of target unit and the reporting arrangements.
Remarks	<p>An observation unit is not a distinct unit type. It refers to the target standard statistical unit about which data are collected.</p> <p>Usually an observation unit is a survey target unit. Occasionally, target units are combined or split for data collection purposes.</p> <p>Reporting arrangements indicate how and from whom data about an observation unit are to be collected, for example from an accountant nominated by the observation unit.</p>

7 • SPECIFICATION OF SBR STATISTICAL COVERAGE AND CONTENT

7.1 INTRODUCTORY REMARKS

Chapters 6, 7, and 8 are interrelated in the sense that the choice of units model (Chapter 6) and the choice of administrative sources (Chapter 8) both play a major role in determining the statistical coverage provided by the SBR whilst, conversely, decisions regarding coverage influence the choice of units model and of administrative sources. Thus, all three chapters should be read in combination.

Except where otherwise specified, coverage and content are described with reference to the primary standard statistical unit, that is, the *enterprise*.

7.2 SPECIFYING THE STATISTICAL COVERAGE OF THE SBR

Given the limitations on coverage inherent in the use of an administrative source, or sources, to create and maintain the SBR, it is prudent to limit the statistical coverage of the SBR to what can be realistically achieved. For example, European Commission Regulation CR 2186/93 restricts the scope of the SBR for EU member countries by identifying the enterprises that should be excluded on account of their small size. The excluded groups are:

- household unincorporated enterprises producing for their own final use, including households that are employers of domestic staff; and
- households owning property and earning rental income from it.

The Regulation also states that, optionally, enterprises engaged in agriculture, hunting and forestry and/or fishing, and/or public administration may be excluded, excepting those that have significant activity in another division. Certainly enterprises in these divisions, and in finance, need

special treatment as the sources of data for them are quite different than for enterprises in other divisions. Hospitals and schools also pose a particular problem as they can be both private and public.

These Guidelines recommend that the most effective and practical approach is to define SBR coverage as the coverage that can be provided by the administrative source(s) on which it is based (as discussed in the next chapter).

- Household non-agricultural market enterprises that are not included in the SBR because they do not register with the administrative sources on which the SBR is based are defined to constitute the *informal sector*. In other words, by definition, the informal sector is out of scope for enterprise surveys based on the SBR.
- The SBR is not expected to contribute to the measurement of illegal or underground activities, as these are precisely the sorts of activities that escape the administrative registration processes on which the SBR is based.
- The SBR is not expected to cover small-scale agricultural production.

Figure 7.1 illustrates SBR coverage by showing the general structure of a plausible minimal program for acquiring production data about *all* enterprises as input to the compilation of the production account in the national accounts. As can be seen, the role of the SBR is simply to provide frames for *surveys of formal sector enterprises*, with the exception of general government and financial enterprises that are more effectively covered by administrative collections.

Whilst from this figure the coverage of SBR-based surveys appears to be very limited, in fact

SBR-based enterprise surveys account for a significant portion of economic production, and this proportion tends to increase with the development of the economy within a country.

In addition to supporting production surveys, the SBR is capable of providing frames for other surveys by collecting, for example, data on employment, wage costs, environmental and innovation for formal sector enterprises.

General government

Data for general government units can often be obtained from central government sources rather than requiring a direct survey of individual government ministries, departments, and agencies.

So two questions arise, namely: (i) whether general government needs to be represented in the SBR, and (ii) if so, how the corresponding enterprises should be identified.

The argument in favor of identifying and including enterprises in the SBR to cover general government activities is that it means a single system can provide frames for all surveys. Appropriate reporting arrangements can be defined to ensure that data are collected from a single central source rather than from individual government units, where this is appropriate. Where no single source can provide the data required, for example, data on innovation or research and development, such data can be obtained by direct survey of government units.

FIGURE 7.1: PLAUSIBLE MINIMAL PROGRAM FOR ACQUIRING PRODUCTION DATA

Sector/ Activity Type*	Enterprise Type	Recommended Method for Acquiring Production Data
Formal	General government	Administrative collection (government data about itself)
	Financial corporations and quasi-financial corporations	Administrative collection
	Non-financial corporations and quasi corporations	SBR-based enterprise survey, or administrative collection where data available (for example education, health)
	Not for Profit Institutions Registered household enterprises	
Informal	Non-registered non-agricultural household market enterprises	Area-based household-enterprise survey, or estimation where value is small
Informal Agriculture	Non-registered agricultural household market enterprises	Area-based agricultural survey
Own-use Production	Non-registered household non-market enterprises	Area-based agricultural survey, or estimation where value is small
Illegal*	Corporations and household enterprises	Ignore, or use experimental estimation within national accounts
Underground*	Corporations and household enterprises	Estimation within national accounts

*Note: Illegal and underground activities can occur in any of the sectors listed above.

Statistics South Africa does not include general government units in its SBR. For the survey of employment and labor costs, such units have to be appended to the survey sample after it has been selected from the frame derived from the SBR. This is a slightly more laborious and error-prone process than if the units were included in the SBR.

As regards identifying general government enterprises, the same principles can be used as for profiling other large complex enterprises, as further discussed in Chapter 9.

7.3 SPECIFYING THE STATISTICAL CONTENT OF THE SBR

To complement the *coverage* provided by the SBR in the form of lists of enterprises, the SBR must also provide corresponding *statistical content*, meaning the attributes of those enterprises that are required in generating survey frames and in contacting survey samples. In particular, for each survey, frame data are needed to enable identification of the relevant population, stratification and selection of the sample, and contact of the sampled units. As noted in Section 5.6, these *frame data items* may be divided into four categories, as discussed below.

Identification and contact data

These are required in order to define the observation unit and reporting arrangements and to enable the survey to contact the enterprise, or its representative, in order to obtain data. At a minimum the SBR should include for every enterprise:

- names, including legal and trading names;
- SBR identification code – with no embedded information, other than (possibly) tombstone data, i.e., data that can never change;
- physical and mailing addresses;
- website and e-mail addresses;
- telephone and fax numbers; and
- contact person(s).

Descriptive data

Descriptive data are required for sampling purposes and for analysis purposes. They should include the following items, which are further elaborated in Section 7.4:

- activity status;
- legal form;
- institutional sector;
- economic activity;
- size measures; and
- region(s) of operation.

Demographic data

Demographic data are useful in the event of difficulty in contacting an enterprise and are the basis for the preparation of demographic statistics. They include:

- date when the enterprise started operations;
- date of incorporation of enterprise as a legal person (if applicable);
- date of creation of enterprise in SBR; and
- dates of recent change of activity status or economic activity, or structure (e.g., change of position within enterprise group resulting from change of operational structure, or merger, or amalgamation).

Linkage data

Linkage data refer to links from the enterprise to related units. These links are essential in conducting a profile of an enterprise and in bringing together data for the enterprise across databases. They may also be useful in the event of difficulty in contacting the enterprise or an observation unit belonging to it. They include:

- links to establishments belonging to the enterprise;

- links to the enterprise group to which the enterprise belongs, and hence to other enterprises in the group;
- a link to the legal unit that conducts the enterprise;
- links to the administrative units associated with legal unit and hence with the enterprise; and
- links to data about the same enterprise in other databases.
- *temporarily inactive* – not currently in production for reasons other than seasonal, but expected to resume production. For example, workers are on long term strike, or the legal unit has filed for bankruptcy protection;
- *permanently inactive* – not currently in production and not expected to ever resume production. For example, the corresponding legal unit is bankrupt or has wound up operations permanently; and
- *no longer exists* – the legal unit that conducted the enterprise no longer exists or, in the case of a natural person, has permanently ceased conducting a business.

Random number for sampling

In addition to the statistical data associated with an enterprise as described above, it is good practice for a random number, typically in the range [0,1), to be assigned permanently to an enterprise at the time it is created. Such a number is useful in sampling to control the overlap between survey samples as further discussed in Chapter 11.

7.4 CLASSIFICATIONS USED FOR DESCRIPTIVE DATA

This section presents guidelines for the development and application of the classifications that are used as a basis for recording the values or classes of descriptive data items.

Classification by activity status

As there is no international standard, a national standard for classifying the activity status of an enterprise should be defined and used. In this context, classifications developed by other NSOs may be informative.

These Guidelines recommend the use of the following set of activity states for an enterprise:

- *in formation* – there is evidence of an intention to be economically active but the enterprise has not yet started production (sometimes called *birth*);
- *active* – in production;
- *seasonally inactive* – not currently in production because production activities are seasonal;
- it includes all ISIC sections, divisions;
- it includes all ISIC groups and classes, except that:
 - if it excludes a certain class, then it excludes all classes within the same group;
 - if it excludes a certain group, then it excludes all groups within the same division;
- it might include additional breakdowns of some classes needed for local purposes.

A similar classification can be used to categorize the activity status of an establishment.

Classification of economic activity

The NSO must define an economic activity classification for use in the country. This may be done by an organizational unit with overall responsibility for developing and ensuring implementation of national classifications. In the absence of such a unit, it is generally the responsibility of the area conducting production surveys and producing production statistics.

The national classification should be fully compatible with the international standard ISIC, (preferably Version 3.1) as outlined in Chapter 2. *Fully compatible* means that:

- This does not imply that statistics have to be published for all classes. It implies that data are not published for combinations of classes other than

groups, nor for combinations of groups other than divisions, nor for combinations of divisions other than sectors.

The SBR should include an economic activity classification value/code for every statistical unit. The code should be to the finest level of detail required:

- *for sample selection*, in the case of production surveys that collect data enabling determination of economic activity to the level of detail required for publication; and
- *for publication*, in the case of surveys (e.g., employment, labor costs, innovation, research and development) that do not collect data enabling determination of economic activity to the level of detail required for publication.

Classification of geography

The NSO must use a national standard geographic classification. Often the development of such a national standard classification is the responsibility of another government department or agency. However, there may be no such classification or there may be more than one. In either case, the NSO will have to develop and/ or select the classification standard to be used. Typically this is done by an organizational unit with overall responsibility for developing and ensuring implementation of national classifications. In the absence of such a unit, it is often the responsibility of the area that develops software for publication by geography.

There is no single international standard for geographical classification on which to base a national standard. However, the ESS nomenclature of the statistical territorial units (NUTS) is an example of a framework within which regional classification can be formulated. Classifications developed by other NSOs may also be informative.

The classification should be hierarchical, but it may also include alternative breakdowns. The factors to be taken into account in selecting or designing this national standard are:

- user needs for geographic breakdown;
- the area boundaries of most use for sample stratification and data collection; and

- administrative boundaries – in addition to the fact that users may require data for administrative areas, it is cheaper for the NSO if an administrative organization is responsible for defining and maintaining the classification.

The SBR should include a geographic classification value/code for every statistical unit. It should be determined in accordance with classification guidelines.

Classification of size

Classification of enterprises by size is vital for data collection purposes, and useful for analysis and sometimes publication. As there is no international standard size classification, the NSO has to define its own. Usually this is done by the SBR itself in discussion with the key survey areas and taking into consideration size classifications used by other NSOs.

Attributes such as sales, income, assets, and employment individually or in combination may be used as the basis for a standard size classification. It may be appropriate to define more than one size classification, for example an income-based classification for production surveys and an employment-based classification for a labor costs survey.

A classification containing four size categories is appropriate for sampling purposes. Fewer categories tend to result in inefficient sampling, while additional categories tend to result in classification errors and, again, inefficient sampling.

Using the standard size classification(s), the SBR should assign a classification size code (or codes, as appropriate) for every enterprise and establishment.

Classification of legal form / type of ownership

Legal form and type of ownership are attributes of an enterprise, not of an establishment or enterprise group. The corresponding value domains may be determined in terms of a single classification or two separate classifications. There are no appropriate international standard classifications as the options for establishing legal persons, and for ownership, vary from country to country.

Classifications developed by other NSOs may be informative, but in view of the differences in legal forms and ownership types between countries, the NSO has to define and use a national standard(s) appropriate for the particular circumstances of the country.

Classification development may be undertaken by an organizational unit with overall responsibility for developing and ensuring implementation of national classifications. In the absence of such a unit, it is generally the responsibility of the SBR in conjunction with the national accounts area.

Using the standard classification, the SBR should assign a legal form/type of ownership classification value(s)/code(s) for every statistical unit.

Classification of institutional sector

The SNA classification of institutional sector (as described in Chapter 2) is required for national accounts purposes. This should be adopted without change.

The SBR should include an institutional sector classification value/code for every statistical unit. It should be determined in accordance with rules provided by the national accounts area. Typically, these rules will involve the use of economic activity code and legal form/ type of ownership code.

7.5 STATISTICAL CONTENT – ENTERPRISE GROUPS AND ESTABLISHMENTS

The previous sections refer to enterprises. The two other standard statistical units in the recommended Guidelines model are *enterprise group (EG)* and *establishment*. The enterprise is the primary statistical unit as there is no enterprise group or establishment without an enterprise. Furthermore, the numbers of enterprise groups and of establishments that are not in one-to-one relationships with enterprises are very small.

Enterprise groups

EGs result from profiling and are required only for profiling. As they are not directly for sampling or data collection purposes, they do not have as many descriptive attributes as enterprises. They are to a large extent identified by the top

operating enterprise in the EG and thus can adopt some of the attributes of this enterprise.

Identification and contact data should include:

- name (often as for the top operating enterprise);
- SBR identification code – with no embedded information, other than (possibly) tombstone data, i.e., data that can never change;
- physical and mailing addresses (usually as for the top operating enterprise);
- e-mail addresses (usually as for the top operating enterprise);
- telephone and fax numbers (usually as for the top operating enterprise); and
- contact person(s) (usually as for the top operating enterprise).

Profiling data should include:

- date of creation of EG in SBR;
- lists of legal units constituting the EG;
- links to the enterprises representing the EG;
- names, addresses, activity descriptions, and size measures of divisions belonging to EG;
- names, addresses, activity descriptions, and size measures of local units belonging to EG; and
- organization charts indicating relationships between legal units, divisions, local units, enterprises, establishments, and observational units associated with the EG.

Establishments

Establishment data are used in sample selection and in data collection for large enterprises where a breakdown of activity by industry and/or by geography is required. They are identified by means of profiling. They can inherit some, or even all, of the properties of the enterprises to which they belong.

Identification and contact data should include for every establishment:

- names, including trading names;
- SBR identification code – with no embedded information, other than (possibly) tombstone data, i.e., data that can never change;
- physical and mailing addresses;
- e-mail addresses;
- telephone and fax numbers; and
- contact person(s).

Descriptive data should include:

- activity status;
- economic activity;
- size measures; and
- region of operation.

Demographic data should include:

- date establishment started operations;
- date of creation of establishment in SBR; and
- dates of recent change of activity status or economic activity.

Linkage data should include:

- link to the enterprise to which the establishment belongs; and
- links to the administrative units directly associated with the establishment (if any).

8 • SPECIFICATION OF SBR ADMINISTRATIVE DATA INPUT PROCESSES

8.1 INTRODUCTORY REMARKS

As previously noted, the recommended approach for constructing an SBR is to base it on one or more administrative sources. This chapter deals with the specification of the procedures for acquiring and processing administrative data. It includes identifying the primary and other administrative sources and specifying how the data they provide are to be processed and interpreted in the form of births, deaths, and changes to statistical units. The chapter also discusses establishing relationships with the administrative organizations. Such relationships are greatly dependent upon whether the NSO has the right of access to government administrative information under its Statistics Act.

8.2 REVIEW AND SELECTION OF ADMINISTRATIVE SOURCES

Every administrative source relating to businesses is potentially useful in creating and maintaining the SBR. The first step in deciding what administrative data to use is to identify and review the potential sources. Each country has its own particular legislation. Typical candidate sources are VAT (equivalently Goods and Service Tax), corporate and individual business income tax, commercial registration requirements, employee payroll deduction data, unemployment insurance fund, and hospital insurance funds.

In Mauritius, the Business Register is based on licenses from municipalities and district councils; registrations from National Transport Authority (covering public transportation), Ministry of Education and Human Resources (covering private schools), Judicial Department (covering lawyers), Professional Councils (covering medical practitioners, dentists, and architects), Board of Investment (covering freeport companies), Financial Services Commission (covering offshore companies), Police Department (covering driving schools), Tourism Authority, and Beach Authority; and data from the Revenue Authority (Income Tax, VAT, Customs), and Ministry of Social Security (National Pension Unit).

Use of all these sources in combination is facilitated by the Business Registration Act 2006, which provides an important tool for the coordination, link, control and harmonization of economic activities. The Business Registration Number (BRN), which is assigned to operators at registration time, uniquely identifies the operator and is used by most organizations.

For each potential source, the review should cover:

- the legislation and regulations governing the source, and their implications for data coverage and content and access by the NSO;
- the administrative operations and actual quality of the data as regards coverage and content;

- the right of access accorded to the NSO and the extent of the possible need for new legislation/regulations to ensure better access;
- the relationship between the administrative organization and the NSO and the need for a formal agreement in the form of a memorandum of understanding (MoU) or a service level agreement; and
- the technical options for access and transmission of data to the NSO.

The end result should be decisions regarding the primary source, the additional sources to be used on a regular basis, and the issues that need to be addressed before implementation.

8.3 SELECT PRIMARY ADMINISTRATIVE SOURCE

The source most appropriate for the role of primary source has to be selected based on its coverage and content, i.e., the businesses to which it refers and the details about them that it contains. Access, coverage, and content are the most important factors in the sense that they are largely determined by legislation, which cannot readily be changed. Other factors, such as quality of data and relationship with the administrative organization, are less important in the sense that they can be improved.

In essence, the best primary source will be the one that provides the broadest coverage of active legal units coupled with sufficient information on activity status, economic activity, and size for sampling purposes, in addition to sufficient contact information.

Examples of Primary Administrative Sources

Statistics Canada uses as its primary source the register of taxpayers with business income, which is maintained by the Revenue Canada.

The Australian Bureau of Statistics uses the Goods & Services Tax (GST) register maintained by the Australian Tax Office.

Statistics South Africa uses the register of VAT account holders from the South African Revenue Service.

8.4 SELECT ADDITIONAL ADMINISTRATIVE SOURCE(S)

Using data from other administrative sources is an option for improving coverage and/or content provided by the primary source. As previously noted, this means ensuring that there is no resulting duplication of the legal units responsible for the administrative units and hence of enterprises. In reality, this restricts consideration to administrative sources that fulfill at least one of the following criteria:

- *They share a common unit and identification scheme with the primary source.* The common identification number allows records relating to the same legal unit in each of the sources to be brought together, to avoid duplication of the enterprises generated from the two sources.
- *They contain very small numbers of units.* This means that they can be checked and any duplication removed by manual investigation.
- *They refer to a set of legal units that does not overlap with that of the primary source.* For example, if the primary source is income taxpayers, then a source listing government ministries, departments and agencies (which are not income taxpayers) provides mutually exclusive coverage.

In Ethiopia, businesses in the Register of Commercial Businesses carry their taxpayer identification numbers, thus the taxpayer registration data and commercial registration data can be used in combination.

Statistics Canada improved the quality of economic activity codes assigned by Revenue Canada to income tax filers, by assigning its own staff to carry out coding of tax filers during the processing of income tax returns by Revenue Canada.

8.5 ESTABLISH COMMUNICATION ARRANGEMENTS WITH ADMINISTRATIVE ORGANIZATIONS

Having identified the primary and additional sources on which the SBR is to be based, the next steps are to establish the legal basis for administrative data access, to develop good relationships with the administrative organizations, and to set up appropriate data access and transmission procedures.

Establish legal basis for access

The statistical legislation should justify access to administrative data. If not, changes in legislation should be initiated.

Develop relationships

A memorandum of understanding (MoU) or service level agreement (SLA) should be put in place with each administrative organization. The MoU/SLA should:

- acknowledge the right of the NSO to have access to the data;
- specify the units for which data are required, the required attributes of those units, the quality of the data, and the frequency with which they are to be transmitted to, or accessed by, the SBR; and
- indicate how quality issues will be addressed and establish a process and timeframe for the regular review of procedures and quality.

In the event of quality problems, it is much better for the NSO to invest resources in helping the administrative organization to produce good-quality data than to spend the same resources (or more) in trying to correct/or supplement poor-quality data received.

With a similar goal in mind, the **Australian Bureau of Statistics** provided the Australian Taxation Office with a semi-automated economic activity coding system.

Establish data access/transmission procedures

The procedures for accessing/transmitting data from each administrative organization to the SBR need to be formulated and put in place. Reliability, frequency, mode and security of transmission are important issues to discuss. Assuming that data are to be supplied on a fairly frequent (e.g., monthly) basis, a decision also has to be made as to whether each transmission should (i) include all the administrative data or (ii) just births, deaths and changes since the previous data transmission.

The benefit of the first option is that the administrative data held in the SBR can never become out of step with the data at source. The disadvantage is that much more data have to be transmitted.

A third option is a mixture of the other two, to transmit births, deaths and changes for say five months, then in the sixth month to transfer the complete data set.

In all such cases, births, deaths, and changes have to be identified. The only question is whether this should be done by the administrative organization before transmission, or by the NSO on receipt of the complete data set.

8.6 DEFINE SBR ADMINISTRATIVE DATA-PROCESSING PROCEDURES

The final step is to define, develop, and implement the processes that will receive and store the administrative data from each source and that will use these data in updating SBR enterprises.

These processes should be automated. The outputs from processing each source are threefold:

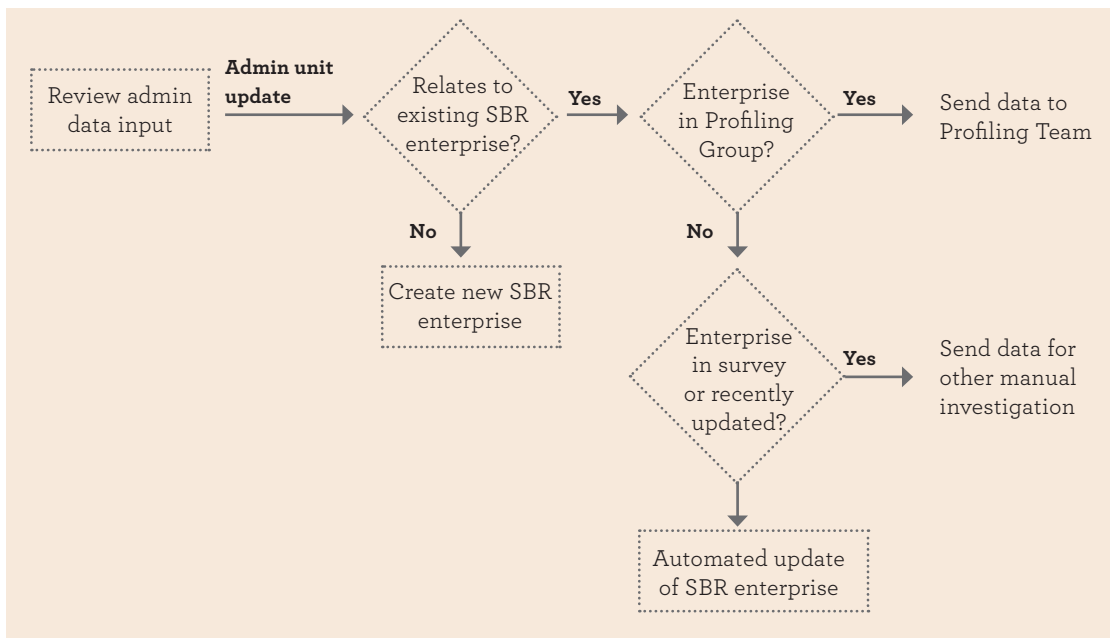
- an updated exact copy in the SBR of the data about the administrative units from the source;
- (automated) births, deaths, and changes to SBR enterprises; and
- lists of enterprises and administrative units that need manual investigation because of apparent anomalies, errors, omissions, or uncertainties in the data received.

The investigation lists are input to the direct data collection and manual intervention processes discussed in the next chapter. The rules for creating and updating enterprises and establishments based on administrative data are discussed in Chapter 10. In essence, each new administrative unit will generate a new enterprise. Each change in data for an existing administrative unit will cause a change in data for the corresponding enterprise.

Other outputs include processing summaries and performance and quality indicators, as further discussed in Chapter 15.

A simplified view of the process is presented in Figure 8.1.

FIGURE 8.1: PROCESSING ADMINISTRATIVE DATA



9 • SPECIFICATION OF SBR DIRECT DATA COLLECTION PROCESSES

9.1 INTRODUCTORY REMARKS

As previously noted, administrative data alone are not sufficient to create and maintain the sets of statistical units satisfactorily. The SBR has to complement administrative data with data that are directly collected by SBR staff or that are obtained as feedback from economic surveys. This chapter discusses how such data are collected by profiling large complex enterprises, by conducting SBR surveys, by making use of survey feedback, and by undertaking ad hoc investigations.

9.2 LARGE BUSINESS PROFILING

Objectives and subject of profiling

As discussed in Chapter 8, administrative sources provide lists of administrative units belonging to legal units, on the basis of which SBR enterprises are constructed and updated. However, administrative data do not provide sufficient information to partition the enterprises into establishments nor to link them together into enterprise groups. This has to be done by SBR staff using profiling.

The objectives of profiling are twofold:

- to partition large complex enterprises into establishments; and
- to determine enterprise groups based on inter-corporate ownership and control.

The subject of a profiling operation is an *enterprise group (EG)*. An EG comprises an enterprise that has been classified as large and complex, plus any other enterprises that it controls. If the enterprise is itself owned and controlled by another active enterprise, then that enterprise is included in the EG. The EG is known by the name of the top active enterprise in the inter-corporate ownership group.

Results of profiling

The core result of this operation is a profile of the EG with details of all the enterprises that it contains and their relationships. This includes:

- a list of the legal units comprising the EG, including their types (e.g., head office, subsidiary, holding company) and their inter-relationships in the form of a hierarchical ownership and control chart;
- the operational structure of the EG in the form of lists of divisions and local units with links to the corresponding legal units; and
- a list of the enterprises representing the EG.

And for each enterprise:

- the link to the corresponding legal unit and the administrative units;
- the enterprise data items, including activity status indicator, economic activity code, size measure, name, contact details, etc.;
- the establishments belonging to the enterprise, each establishment being linked to the divisions and/or local units on which it is based and including establishment data items; and
- the observation units for every survey in which the enterprise is participating or likely to participate in the foreseeable future.

Establishing a profiling function

This involves:

- defining how the enterprises to be profiled are to be identified;

- defining the profiling procedures; and
- defining how the resulting information is to be used in updating the organizational and statistical data held in the SBR.

Identifying enterprises subject to profiling

Profiling should be restricted to *large, complex* enterprises, plus any other enterprises that they own and control. There are two reasons for this. First, profiling is both expensive and resource-intensive and cannot possibly be applied to all enterprises. Second, it is rarely worth profiling medium-size or small enterprises, even if they are engaged in a variety of activities, because:

- they may not be able to report data for subdivisions of themselves; and
- the gain in information by subdividing the enterprises is not likely to be statistically significant.

Determining the enterprises to be subject to profiling is, thus, a matter of defining the criteria for assessing whether they are *large* and *complex*, and of identifying the enterprises that satisfy these criteria.

The criteria for *large* may be one of the following:

- the enterprise is one of, say, the 200 largest enterprises in the country; or
- it makes a significant contribution to the estimates in its particular industry; or
- it is identified by one or more survey areas as being of particular importance or sufficiently large to be in the certainty stratum for the survey.

The criteria for *complex* relate to the legal unit conducting the enterprise and may include one of the following:

- the legal unit has several divisions, or
- it has local units in several different areas, or

- it has several administrative units of the same type, or
- it is the top operating legal unit within an inter-corporate ownership group, or
- it is particularly difficult to survey.

The set of enterprises subject to profiling, plus the enterprises they own and control, is hereafter referred to as the *Profiling Maintenance Group* of enterprises.

Identifying enterprises to be profiled in the upcoming year

The aim is to profile the enterprises in the Profiling Maintenance Group regularly to ensure that all changes are quickly detected. However, there are usually too many enterprises for them all to be profiled or reprofiled each year. It is therefore advisable to develop criteria for determining which enterprises in the Profiling Maintenance Group should be profiled in the upcoming year. Possible criteria include:

- the enterprise has been identified by one or more survey areas as being of particular importance and difficult to collect data from; or
- the enterprise has not been reprofiled for several years.

In addition, administrative data may be a starting point, in the sense of providing signals of a need for profiling or reprofiling. In particular, administrative data may indicate that an enterprise not presently in the Profiling Maintenance Group is large and complex and should be profiled, or that an enterprise in the Group has changed and needs reprofiling.

Defining and establishing profiling processes

There are essentially two distinct profiling processes: (i) conducting a profile and (ii) establishing and managing the profiling program, as detailed below.

1. *Conducting a profile* involves SBR staff in the following sequence of operations, each of which has to be specified in detail:

- Gathering all available information about the enterprise and the EG to which it belongs, including the results of the previous profile (if any);
- In discussions with survey areas, determining the particular reasons for the profile and the questions to be answered;
- Setting up the arrangements for the profiling interview with the comptroller/ secretary/ other senior manager of the legal unit that conducts the enterprise that is at the top of the enterprise group;
- Conducting the profiling interview, explaining the issues, and collecting the required information;
- Following up the interview by summarizing the information obtained and sending it for verification to the legal unit, and by conducting further interviews if needed;
- Discussing the implications of the information obtained with the survey areas that collect data from any of the enterprises involved; and
- Incorporating all the information obtained in a revised profile for the profile group in the SBR.

2. *Establishing and managing the profiling program* involves: assembling and training SBR staff in profiling; ensuring profiling procedures are fully documented; establishing a profiling plan for the year; and monitoring its execution.

9.3 SBR IMPROVEMENT SURVEY PROGRAM

As noted in Section 5.5, deficiencies in frame data for those enterprises not included in the Profiling Maintenance Group are typically addressed through an *SBR Improvement Survey Program*. The survey is conducted by SBR staff on a continuous basis. The survey design – in particular the frequency with which enterprises are contacted, the number of enterprises contacted, and the data collected – depend upon the quality of the data from the administrative sources, the capacity of the NSO, and the frequency with which changes in enterprises occur. An SBR Improvement Survey

may be assembled from a suite of survey modules, each collecting a different set of data. For example, one module may focus on identifying whether or not an enterprise is active and its contact data; another may deal exclusively with the economic activity of the enterprise.

Objectives of an SBR Improvement Survey

The basic goals of an SBR Improvement Survey are to verify existing data item values and/or to obtain the values of missing data items, for a selected set of enterprises.

The survey may enable the resolution of two conflicting pieces of information from two different sources, for example two different economic activity codes for the same enterprise.

The survey may result in the confirmation of a new enterprise but is never the source of a new enterprise. New enterprises are created only as a result of administrative processes or profiling.

The survey results are used to update the attributes of individual enterprises in the SBR. They are aggregated only to produce quality indicators to inform SBR and NSO management.

Survey design

The survey should be designed and conducted in much the same way as other sub-annual business surveys except that, for the most part, the sample is purposively selected and there is very limited or no focus on estimation.

The survey should be conducted on a continuous basis, with selection of a new sample each month, quarter, or year.

Total annual sample size

The total sample size for a year should be determined by taking into account:

- the frequency with which changes occur in the economic world;
- the quality of data received from the administrative sources;
- the quality of data in the SBR; and

- the resources available.

Sample selection

Enterprises should be prioritized according to their significance and those with the most significant problems selected in the sample. High priority should be given to enterprises that are:

- large but lacking an economic activity classification;
- likely to be selected in a survey sample in the near future; and
- specified by survey areas as needing verification, for example because of non-response to a survey questionnaire.

Data collection

Ideally, but depending upon circumstances of the NSO, the SBR should be multimodal, including web-based data collection where possible.

Data processing and updating the SBR

The survey results are used to update the values of enterprise attributes. To the extent possible, the update process should be automated.

9.4 ECONOMIC SURVEY FEEDBACK

Feedback of frame data obtained from previously conducted economic surveys is another vital source of information about enterprises and (depending upon the survey) establishments.

By design, the first few questions asked by any business survey should constitute a check of the data items in the survey frame, such as name, address, contact information, and activity status. Subsequent questions may collect updated versions of economic activity and size measures. All these data should be fed back to the SBR to supplement, correct, or update the information there.

Potential for bias using survey feedback

There are no technical problems with using data for enterprises that have been sampled with certainty – typically the large ones. However, for medium-size and small enterprises that are

sampled with probability less than one in repeating surveys, there is a potential for causing bias in future survey samples. In this situation, updates have to be very carefully applied.

For example, suppose that when a particular quarterly survey is first conducted, the sample is found to contain 30% dead enterprises (this is not an improbable figure). Furthermore, suppose that, based on this sample information, the dead enterprises are removed from the SBR, and that the survey sample for the next quarter comprises the 70% live units from the previous sample plus a replacement of the 30% drawn afresh from the SBR. This new sample will contain about 9% (30% of 30%) dead units. Thus, it will no longer be representative of the population of dead enterprises on the SBR, which is still nearly 30%, assuming that the survey sample is a relatively small proportion of the population. There are proportionally too many live enterprises in the sample. If the weighting procedures do not take this into account (by making allowance for the dead enterprises that were found in the sample), the result will be an upward bias in the estimates. Furthermore, the bias will increasingly worsen with each survey repetition.

Recommended updating procedure

The conclusion is that feedback from repeating surveys about attributes used for sampling for enterprises that were not selected with certainty, should *not* be used to update the corresponding enterprise attribute values in the SBR. Instead, the information should be held elsewhere in the SBR so that it can be applied to the survey observation units in the survey control file for the next repetition of the survey.

This is best illustrated by an example. Suppose Enterprise X has been selected with probability of 1/40 in the sample for the January cycle of quarterly survey. Suppose that during the course of data collection, it is found that X is no longer active, in fact is dead. This information is *not* used to update the activity status of the corresponding enterprise record in the SBR, but is stored for reference in association with the enterprise. Assuming a sampling scheme that ensures maximum sample overlap between quarters, X will be selected in the sample for the next (April) cycle. However, when the sample control file of observation units is created for April,

the information that X is dead will be applied and the corresponding observation unit will be marked *dead, do not attempt to collect data*. In this way there will be no bias in the estimates as X will continue to represent other enterprises that have died, whilst at the same time no time will be wasted in trying to collect data from it.

Survey transition to use of SBR

Survey feedback should also be used at the time of initial creation of an SBR. In using a survey frame derived from a new SBR for the first time, it is vital to match this new frame with the previous survey frame and survey data. This will:

- enable the likely impact of the change of frame on survey estimates to be determined; and
- provide a starting point for identifying large complex enterprises that should be subject to profiling.

9.5 OTHER AD HOC INVESTIGATIONS

There must be provision for SBR staff to conduct ad hoc investigations to resolve anomalies, errors, omissions, and other problems that need to be addressed quickly, or can be addressed easily.

Investigation methods may include a review of telephone and business directories, business pages of newspapers, and annual accounts of public corporations.

10 • SPECIFICATION OF SBR MAINTENANCE STRATEGY AND PROCEDURES

10.1 INTRODUCTORY REMARKS

As previously noted, a country's economy is constantly evolving – businesses are created, their activities change, they may merge, be sold, go into receivership, or become defunct. This produces a need for *SBR maintenance*, meaning constant update of the SBR in terms of both coverage and content.

SBR maintenance resources are limited and it is vital to make use of them effectively. This suggests maintenance mechanisms of different degrees of complexity for enterprises according to their size and economic significance.

Updating requires care. Updates of most statistical units have to be deduced from observed changes to administrative units. Sometimes changes are temporary and will reverse. Sometimes the updating of sources presents conflicting information. This indicates a need for a comprehensive system of updating rules, including:

- *unit continuity rules* – distinguishing births and deaths of enterprises from changes in ownership, organizational structure, and administrative reporting arrangements;
- *attribute change and resistance rules* – preventing enterprises (especially large ones) from oscillating between sampling strata and hence in and out of sample; and
- *screening of incoming information* – selection of the appropriate action in the event of conflicting information. For example, where survey feedback indicates that an enterprise is defunct but according to the primary administrative source it is still active.

10.2 MANAGING THE DYNAMICS OF LEGAL, ADMINISTRATIVE, AND STATISTICAL UNITS

Dynamics of legal units

Legal units can be born, i.e., come into existence, for example a corporation receives a charter. They can die, i.e., go out of existence, for example a corporation relinquishes its charter. They can also change name, address, or ownership. They can be involved in mergers, amalgamations, spin-offs, etc.

As regards their operational and production activities, legal units can:

- create new production units, acquire production units from other legal units, or sell production units;
- create, change, or eliminate groupings of operational units such as divisions;
- create, change, or eliminate physical operational units such as plants, outlets, and warehouses;
- change economic activity, introduce new economic activities, or cease existing ones; and
- change activity status, for example, from *in formation* to *active*, or from *active* to *temporarily inactive*.

All possible types of change to legal units that could have any impact on the productive capacities of the corresponding enterprises should be listed and described, including details of how each type of change can be detected and what impact it might have.

Dynamics of administrative units

Administrative units can be born, i.e., a unit is registered by the corresponding administrative office. Alternatively, they can die, i.e., the unit is canceled by the administrative organization. The unit attributes can change, for example changes in registered name, address, or economic activity. Transaction data resulting from implementation of the administrative regulations can vary in volume. The legislation or regulations according to which the unit is registered can change.

All possible types of changes to administrative units that could reflect a change in the productive capacities of the corresponding legal units should be listed and described, including the type(s) of productive changes reflected.

Dynamics of enterprises and other statistical units

All possible types of changes to enterprises, establishments, and enterprise groups, and to their attributes, that are needed to represent changes to the productive capacities of the corresponding legal units should be listed, and the possible means by which they can be detected should be described.

In this context, the focus should be on enterprises. Changes to the other statistical units are subordinate to changes to enterprises.

10.3 SBR MAINTENANCE STRATEGY

A maintenance strategy should be articulated and implemented to ensure resources are used effectively. The amount of maintenance effort devoted to an enterprise should be in accordance with its size and potential impact upon published statistics, and should take into account its propensity to change and the sources of updating information. Thus, enterprises should be partitioned by size and potential impact into maintenance groups, each of which is subject to a particular set of updating procedures. Figure 10.1 illustrates a strategy based on four SBR maintenance groups. The SBR staff should define a strategy along similar lines.

10.4 SBR UPDATING PROCEDURES

Legal and operational units

Whilst administrative sources, business surveys, and ad hoc investigations may provide signals indicating the need for profiling or reprofiling, the only definitive information about legal and operational units is obtained through profiling.

FIGURE 10.1: SBR MAINTENANCE STRATEGY

Sector (Administrative Registration)	Size/ complexity/ significance	Use of updating mechanism				
		Admin Source	SBR Survey	Business Survey Feedback	Profiling	Ad hoc investi- gation
Formal (Registered and hence included in SBR)	Large & complex or influential	Use as signal	No	Use as signal	Yes	Use as signal
	Other large	Yes	Yes	Yes	No	Yes
	Medium	Yes	Yes	Yes	No	Yes
	Small	Yes	No	Yes	No	No
Informal (Not registered)	Small/ very small	Not included in SBR				

When a profile has been completed, it is transferred from the profiler's laptop, or wherever else it is stored, to the SBR. In the case of a new profile, this means creating a new set of legal and organizational units. In the case of a reprofiling, this means updating an existing set of legal and organizational units and their attributes.

As there are no sources of legal and operational unit information other than profiling, there is no question of conflicting information and the updating process is straightforward. The only checks that need to be made as the updates take place are that the new units and attribute values are valid and consistent. The sources of the information, the name of the person responsible for the profile, and the date of the update should also be recorded.

Data about legal and operational units are not of much intrinsic interest in their own right. They serve primarily to create or update statistical units.

Administrative units

As information about administrative units is obtained only from the corresponding administrative sources, the updating process is straightforward.

- In the case of a new administrative unit appearing in the incoming administrative data, a corresponding new administrative unit must be created in the SBR (copy of the) administrative data.
- In the case of changes in attribute values of administrative units appearing in the incoming administrative data, the values in the corresponding administrative units in the SBR (copy of the) administrative data must be updated.
- In the case of an administrative unit being marked as canceled, or simply not appearing in the incoming administrative data, the activity status of corresponding administrative unit in the SBR (copy of the) administrative data must be updated accordingly, for example changed to *dead*.

Data about administrative units are not of intrinsic interest in their own right. They serve primarily to create or update statistical units.

Statistical units

Specification of the updating procedures for SBR statistical units is more complicated as it depends on defining the relationships associating legal, operational, and administrative unit changes with statistical unit updates. Legal, operational, and administrative changes are regarded as *real-world signals* of change, and the corresponding statistical unit updates are the *statistical world reactions to these signals*, reflecting the changes to statistical units required to represent the actual real world changes.

Specification is best approached through the development of a matrix with:

- one axis containing all possible types of legal and administrative signals that can be detected;
- the second axis containing the various types of statistical unit change; and
- the cell entries defining the rules regarding how each signal is to be reflected in appropriate updates to the statistical units, taking into account continuity rules, resistance rules, and methods for dealing with conflicting information, as outlined in the following paragraphs.

Statistical unit birth, death, and continuity rules

Updating procedures must incorporate rules identifying the types of legal and administrative signals that result in the birth, death, or continuation of an enterprise (or establishment). As discussed in Section 5.5, there should almost certainly be differences in treatment according to the signal source and the maintenance group to which the enterprise belongs.

For example, consider the death of a unit in an administrative source on which the coverage of the SBR is based.

- If the corresponding enterprise is not in the Profiling Maintenance Group and is not

currently in any survey sample, then the enterprise activity status should be set to *inactive* and, after a further period, to *dead*.

- If the enterprise is in the Profiling Maintenance Group, then the signal should be sent to the SBR Profiling Team for ad hoc investigation. It may ultimately trigger a reprofile. If the unit is large, it is unlikely that the end result will be setting the enterprise activity status to *inactive*. It is more likely that the signal will be simply a change in administrative arrangements that either has no impact on its statistical representation or that results in the death of an establishment.
- If the enterprise is not in the Profiling Maintenance Group but is currently in a survey sample, then the signal should be sent to the SBR investigation staff. In conjunction with the affected survey area, the SBR staff should further investigate the enterprise to determine whether or not it is active and, if so, why the administrative unit is dead. The end result may or may not be setting the enterprise activity status to *inactive*.

Attribute change resistance rules

As discussed in Section 5.5, it is essential that changes to the enterprise attributes used for sampling are subject to *resistance rules*, which

ensure the change is permanent before an update is made. The aim is to prevent the enterprise from unnecessary oscillations across sampling strata and hence in and out of survey samples.

Dealing with conflicting information

In order to deal with conflicting information from different sources, the sources must be prioritized according to their reliability. For example, information from an administrative source is considered less reliable than conflicting information from profiling or an SBR survey or business survey, unless the latter information is not current. Figure 8.1 illustrates how potential updates based on administrative data can be overruled by profiling or other manual investigation.

Observation units and reporting arrangements

The default presumption is that the observation units for a survey are identical to the enterprises selected in the sample and so the reporting arrangements involve simply contacting the enterprise. Modifications to observation units and reporting arrangements are made only when direct contact with enterprises through profiling, improvement surveys, or survey feedback indicates the need for making changes (as further discussed in Chapter 11).



PART II-B

SBR DESIGN – OUTPUTS AND OUTPUT FUNCTIONS

11 • PRODUCING SURVEY FRAMES AND SAMPLE FILES

11.1 INTRODUCTORY REMARKS

This chapter deals with the procedures for generating survey frames, samples, control files and shell databases, along the lines discussed in Chapter 5. In essence, the recommended approach is to use a common frame as an intermediary step in the creation of survey frames. More specifically, it entails regular derivation of a snapshot of enterprises in the SBR, from which active, classified enterprises are extracted to form the *Common Enterprise Frame*. This is then used as the basis for creating survey frames from which survey samples are selected and survey control files and shell databases are generated.

The approach is in line with current practice at Statistics South Africa and the Australian Bureau of Statistics. An alternative approach (as used for example by Statistics Canada) is to extract a frame for each survey independently from the SBR as required. The advantage of this latter approach is that the survey frames are likely to be more up to date, i.e., less subject to time lag between their content and the survey reference period. However, the common frame approach is preferred because it produces more harmonized survey frames and enables more comprehensive quality control.

Sample selection and survey file creation are typically regarded as survey functions rather than SBR functions. However, in these Guidelines they are considered part of the *SBR complex of service functions* because (i) they are closely related to, and must be harmonized with, frame creation and (ii) the SBR is the primary source of the observation units that constitute the survey control file and survey shell database.

In selecting survey samples, it is vital to spread the respondent burden imposed by the survey samples as equitably as possible. Samples can be controlled so that no small business receives

questionnaires from more than, say, one survey per year. Several control methods are available and the Guidelines recommend the assignment of a random number to an enterprise at the time it is created, for later use in a selection of samples.

Process sequence

The recommended sequence of processes in the creation of survey frames, sample control files, and shell survey databases is as follows:

1. Create an *Enterprise Snapshot*
2. Create a *Common Enterprise Frame*

And then, for each survey for which a frame is required:

3. Create the *survey frame*
4. Select the *survey sample*
5. Generate the *survey control file* and *shell survey database*.

Ideally, the first two steps should take place quarterly and the remaining steps should take place quarterly for monthly and quarterly surveys and as needed for annual and occasional surveys. During the initial introduction of an SBR, there may be a good case for annual frame creation and sample selection until all the systems and procedures have been well tried and tested.

Statistics South Africa produces quarterly snapshots and common frames and annual survey frames and has no immediate plan to move to the production of quarterly frames and samples.

11.2 CREATION OF AN ENTERPRISE SNAPSHOT

The first step is to create an *Enterprise Snapshot*, which is a flat file extracted from the SBR at a given point in time. It should contain every enterprise in the SBR together with all the data items needed for survey sample selection. These include:

- *identification data* – enterprise name, identification code;
- *descriptive data* – legal form, institutional sector, economic activity, size, region, activity status; and
- *demographic data* – date of creation, incorporation as a legal person (if applicable), change of structure or activity; activity status indicating whether the unit is active, dormant, defunct, etc.

The reason for extracting the Enterprise Snapshot is to obtain a frozen view of the SBR that can be analyzed in depth and that can form the basis for the Common Enterprise Frame, while the SBR continues to be updated.

On a quarterly basis, snapshot counts of enterprises by subregion and by economic activity sector should be compared with counts for the previous snapshot. Significant differences, if any, should be investigated to find their origins. If substantial errors are found in the underlying data, corrections should be made to the corresponding enterprises in the SBR, and the Enterprise Snapshot recreated.

11.3 CREATION OF A COMMON ENTERPRISE FRAME

The next step is to create a *Common Enterprise Frame* from the Enterprise Snapshot by eliminating enterprises that are not active and/or that do not have a sufficiently detailed economic activity code for frame definition purposes.

On a quarterly basis, Common Enterprise Frame counts should be checked by SBR staff against counts for the previous quarter. Significant differences, if any, should be investigated to find their origins. If substantial errors are found in the underlying data, corrections should be made

to the SBR, and the Snapshot and Common Enterprise Frame recreated.

11.4 CREATION OF SURVEY FRAMES

For each individual survey, the *survey frame* should be extracted from the Common Enterprise Frame by including just those enterprises that are in scope for the survey according to the *survey frame specification* submitted by the survey team. The frame specification should define the reference period to which the frame refers, the population of sampling units to be included, and the data items that are required for sample selection.

In the early days of the SBR, the sampling unit for all SBR-based surveys should be the *enterprise*. Even with a mature SBR, a very strong case has to be made for using any unit other than the enterprise as the sampling unit.

The survey frame counts should be checked by SBR and survey staff against values for the previous survey cycle (if there was one) and significant differences investigated. In addition, checks should be made for unexpected changes of activity status, size, or economic activity of enterprises known to make significant contributions to the survey estimates. If substantial errors are found in the frame data, corrections should be made to the SBR Database, and then the Enterprise Snapshot, Common Enterprise Frame and survey frame should all be recreated.

11.5 SELECTION OF SURVEY SAMPLES

For each individual survey, the *survey sample* should be selected from the survey frame in accordance with the *sampling specification* provided by the survey sampling specialist. A sampling specification defines:

- the stratification;
- the method of sample allocation;
- the overall sample size and/or the target coefficients of variation (or equivalent) for key data item(s) and strata; and
- the sampling method.

The process will take place in a sequence of three stages.

1. Production of the strata
2. Sample size determination and allocation
3. Sample selection

Typically, these stages are performed using off-the-shelf sample selection programs. At the end of each stage, the results should be analyzed by the survey sampling expert. The end result is a selected sample of enterprises.

Sample overlap control

Large businesses, by the very fact of their size and influence on the estimates, are likely to be selected with certainty by surveys for which they are in scope. Their burden can be mitigated by good questionnaire design and multimodal data collection options, but not by withdrawing them from the sample. This situation is different for small businesses, which are typically selected with quite low probability. In their case, the samples can be controlled so that no small business receives questionnaires from more than, say, one survey per year. Thus, survey sample overlap control is a vital part of sample selection.

Several control methods are available. The Guidelines recommend that a permanent random number be assigned to each enterprise at the time of its birth. Non-overlapping survey samples can be obtained by selecting the enterprises with random numbers in non-overlapping intervals. The required sample size can be obtained by using the appropriate width of the interval, and sample rotation can be obtained and controlled by appropriately shifting the interval.

11.6 GENERATION OF SURVEY CONTROL FILES AND SHELL DATABASES

For each individual survey, the *survey control* file should be created from the selected sample of enterprises in accordance with the survey control specification provided by the survey operations specialist. The specification defines how the set of observation units is to be derived and what data items are to accompany them.

Often, but not always, the set of observation units is exactly the same as the set of sampled enterprises. However, in the case of a survey of production, such as the annual manufacturing survey, the sampling units may be enterprises whilst the observation units are the establishments belonging to these enterprises.

The survey control file should contain the observation units for the survey and the identification and contact data items required in order to collect data about them, plus any special reporting arrangements. These data items are not in the Common Enterprise Frame (as it is designed for frame creation and sampling). They are extracted from the SBR at the time the survey control file is created, in order to be as up to date as possible.

The survey shell database should be created in accordance with the *survey shell database specification*. In principle, the main database table lists the set of observation units in rows, while the columns contain data item values carried over from the survey control file or they may be empty awaiting data from the survey. In practice, the database may have the same content but with a quite different structure.

11.7 PROVISION OF SURVEY FRAMES TO OTHER ORGANIZATIONS

The NSO will no doubt receive requests for survey frames from other government agencies, private organizations, and researchers who wish to conduct surveys. The requirements associated with each such request should be analyzed. As discussed in Chapter 5, the response will depend primarily upon confidentiality considerations. The statistical act and/or regulations in most countries do, or should, guarantee the confidentiality of statistical information collected by the NSO. This limits the data about individual enterprises that can be included in a survey frame for another organization, especially a non-government one.

In accordance with the Statistical Act No.6 of 1999, **Statistics South Africa** does not release lists of businesses to any other organizations.

Statistics Mauritius releases lists of businesses on request but without size measures.

As an alternative to providing a survey frame, an NSO can offer to undertake the survey itself on a cost-recovery basis and to provide the resulting data, in anonymized form, to the requesting organization.

12 • OTHER SBR OUTPUT SERVICES

12.1 INTRODUCTORY REMARKS

These Guidelines recommend that, in addition to its primary function of providing survey frames (with associated selection of survey samples and generation of survey control files and shell databases), the SBR should provide two other important sets of services. The first is the identification of the reporting obligations of individual enterprises, the statuses of their responses, and the measurement of overall respondent burden. The second is the production of business statistics, including possibly business demographics, directly from the SBR.

In addition, the SBR can assist in the linkage of business data from a variety of sources.

12.2 RESPONDENT MONITORING

Identification of respondent reporting obligations

The SBR should include functionality for determining the set of surveys to which any given enterprise will have (or will have had) to respond in a particular year, together with the status of each of those responses. In the case where the survey observation unit is an establishment and the enterprise has multiple establishments, the functionality should determine the response status for each establishment.

The necessary information can be drawn from the survey control files and databases. (This is one of the reasons why the production of these files is included in the SBR Complex.) For each survey in turn, the first step is to determine whether the enterprise is in the sample. If the enterprise is in sample, the next step is to determine the response status. Collectively, the set of surveys for which the enterprise is in sample defines the reporting obligations of the enterprise,

and the status of the responses indicates the extent to which these obligations have been met.

Respondent burden considerations

Low response rates can be a source of error in survey estimates. One of the factors affecting the response rate for a survey is the respondent burden imposed by the survey. The more that can be done to reduce the burden, the greater the likelihood of a response. However, in order to manage respondent burden, it is necessary to measure it. Given its role in generating survey control files, the SBR is a good place to assemble information on respondent burden.

The respondent burden imposed on each enterprise by each survey, and for all surveys, should also be calculated, as further discussed in the following paragraphs.

Calculation of respondent burden

For each survey (or survey repetition in the case of a repeating survey), the *notional respondent burden* in hours imposed on enterprises should be computed as the number of observation units in the sample multiplied by the estimated average respondent-hours per response.

The *actual respondent burden* in hours should be computed as the number of observation units responding to the survey multiplied by the estimated average respondent-hours per response.

Estimating average respondent-hours per response

In the case of a personal interview, the “respondent-hours per response” is defined as the length of the interview, regardless of how many persons from the enterprise participate in the interview. The length of the interview should always be recorded.

In the case of a self-completed questionnaire, the respondent-hours per response refers to the hours *actually spent by the respondent in answering the questions*, not to the total elapsed time from the time of receipt of the request to the completion of the response. For every annual survey, and at least once per year for sub-annual surveys, the last question of the questionnaire should ask the respondent to report the number of hours and minutes spent in completing the questionnaire. Alternatively, average respondent-hours per response can be much more roughly estimated by desktop analysis or through focus group discussions involving potential respondents.

The *average respondent-hours for a survey* should be estimated as the average over all completed interviews/questionnaires for the survey, i.e., without weighting.

Overall annual respondent burden imposed by the NSO

The overall annual respondent burden should be computed as the sum of the respondent burdens for all the surveys conducted during the year. In the case of sub-annual surveys, this includes each survey repetition separately.

12.3 PRODUCTION OF BUSINESS STATISTICS

The Guidelines recommend that the SBR be regarded as a source of publishable data in just the same way as any business survey database. Business statistics staff and SBR staff should jointly review user requirements, compare these with the enterprise data items available from the SBR, and determine the data to be published, taking quality concerns into account.

The outputs considered will likely include counts and quarterly growth rates of enterprises by sector/division and/or by region. Consideration should also be given to producing enterprise demographics – births, deaths, and changes over time. Furthermore, if profiling includes collection of ownership and control data, then counts of large businesses by domestic/foreign ownership can be prepared.

The main quality concerns are likely to arise from the fact that most of the data in the SBR are derived from administrative sources, and these data are liable to reflect the deficiencies in, and the periodic changes to, administrative processes. In particular, administrative sources are well known for retaining administrative units long after the corresponding legal units have ceased to engage in economic production. In this case, the corresponding enterprises may well carry an active status on the SBR when they are in fact inactive. Poor economic activity coding is another frequent cause for concern. All such reservations regarding quality should be examined, taken into account in deciding what data to publish, and conveyed to data users.

12.4 LINKAGE OF BUSINESS DATA

Through its unique enterprise identification number, the SBR should provide a mechanism for linking enterprise micro-data across survey databases. This is the first step in the direction of creating an output data warehouse containing all business data.



PART II-C

SBR DESIGN –
ORGANIZATION, SYSTEMS,
AND QUALITY MANAGEMENT

13 • SPECIFICATION OF SBR ORGANIZATION AND OPERATIONS

13.1 INTRODUCTORY REMARKS

Regarding the organizational structure of the SBR, there is no international standard, or even commonly used practice, amongst NSOs. Therefore, each NSO has to determine its own particular SBR structure and its place within the economic statistics infrastructure and program as a whole.

Factors to consider in determining the structure are:

- numbers of staff in the NSO and economic statistics program – evidently the SBR cannot expect to have more than its fair share of the human resources;
- current numbers and skill levels of SBR staff;
- number of surveys that the SBR is servicing, or will service;
- degree of centralization/regionalization of the NSO and scope/need for regional business registers; and
- sophistication of computer systems supporting SBR operations.

13.2 SBR UNIT STRUCTURE

Many alternative groupings of the functions are possible. This section presents a *feasible organizational structure involving four SBR organizational work units* (or *components* or *sections*) suitable for an SBR of, say, 10–25 staff. It should be expanded, contracted, or modified as required to take account of the particular circumstances of the NSO and the functions that the SBR performs.

General operations and quality assurance unit

This work unit is responsible for ensuring that the updating of the SBR from administrative sources takes place as planned. This involves establishing and monitoring memoranda of understanding (MoUs) with the administrative organizations, and verifying that the data are transmitted and received on schedule, that the SBR automated updating procedures run satisfactorily, and that missing or inconsistent data are detected and automatically corrected or are output for subsequent investigation.

The work unit is also responsible for overall SBR planning and management, for defining SBR quality and performance indicators, and for ensuring that quality and performance data are collected, analyzed, and used for developing and implementing quality improvements.

SBR profiling, special investigations, and improvement survey unit

This work unit is responsible for investigating problems arising from missing or inconsistent administrative data updates, or from SBR system integrity checks, or from discrepancies between administrative data and data observed during the course of survey taking. Problem resolution for all enterprises other than those that are large and complex is via an SBR improvement survey or ad hoc investigation. The unit is also responsible for identifying and profiling large complex businesses and ensuring that the profiling results (regarding divisions, local units, and establishments and their attributes) are recorded in the SBR.

The combination of profiling, special investigations, and improvement survey within a single work unit is made on the assumption that there are not likely to be many large complex

enterprises in the economies of most African countries. If there are a number of such enterprises, as for example in South Africa, then the profiling unit should be separate. In any case, as an economy grows, there will be increasing pressure to create separate work units.

Consideration should be given to an arrangement whereby the work unit responsible for profiling large complex businesses is also responsible for collecting data from these enterprises for all surveys for which they are in scope. The advantage of this approach is that staff become very familiar with the enterprises concerned and establish strong relationships with them. This approach has been used in Statistics Canada and by the Australian Bureau of Statistics.

Frame production and sample selection unit

This work unit is responsible for the regular production of the Enterprise Snapshot and the Common Enterprise Frame, preferably on a quarterly basis. It is also responsible for production of the frame, sample, survey control file and (possibly) shell database for each occasion of each individual survey, in accordance with survey specifications.

Respondent relations and business statistics production unit

This work unit is responsible for ensuring that every business survey questionnaire contains an initial module in which the survey frame data items are checked and corrections/updates are recorded. The work unit is also responsible for ensuring that these corrections/updates are fed back to the SBR and used to update it in accordance with the agreed procedures.

The work unit is also responsible for ensuring that the reporting status of every enterprise in every survey is recorded and that, based on these data, the reporting burden on any particular enterprise can be determined. It is also responsible for ensuring that the overall annual respondent burden imposed by all business surveys is calculated and discussed by senior management. In addition, the work unit has the remit to determine the content, format, and frequency of business statistics published directly from the SBR and for compiling these publications. It also

assists in linking business data across separate survey databases and in promoting an output warehouse in which business micro-data and aggregates are brought together.

Alternative arrangements

There are many other possible arrangements. In particular, the quality and performance functions can be taken on by any of the work units or can be the responsibility of a fifth work unit.

With a smaller number of staff, the above work units can be regarded as defining groups of tasks that can be assigned to individual staff or pairs of staff.

At **Statistics South Africa**, the Business Register is divided into three organizational units:

- *Profiling Unit* – responsible for all aspects of profiling;
- *Operations and Maintenance Unit* – responsible for administrative data processing and BR survey; and
- *Quality Improvement Unit* – responsible for frame production and all aspects of quality and performance measurement.

13.3 STAFF IN REGIONAL OFFICES

Depending upon the degree of centralization or regionalization of the NSO, and the scope or need for regional business registers, all SBR staff may work in Head Office, or there may be regional staff working on regional registers that are combined to form the national SBR. The latter arrangement is more difficult to manage and should be implemented only if there is a government imperative to maintain staff in regional offices.

13.4 SBR OPERATIONAL SCHEDULE

The processing of administrative data should be on a regular, preferably monthly, schedule that is matched to the schedules for receipt of data from administrative sources.

The schedule for the production of the Enterprise Snapshot and Enterprise Common Frame should be quarterly.

The schedule for the production of monthly, quarterly, and annual survey frames should be annual. If there is a demand from survey areas, consideration should be given to the quarterly production of frames for monthly and quarterly surveys.

The SBR improvement survey, profiling and other investigations should take place on a continuous basis.

Production of statistics should be on a quarterly or annual basis as determined by the publication schedule, which itself should be published in advance.

Production of quality and performance indicators should be on a monthly basis for administrative data processing, quality improvement survey and profiling, and on a quarterly basis for outputs.

13.5 SBR TRAINING

The SBR management should make a periodic assessment of the skills required by SBR staff to perform their functions and by survey and other NSO staff to make use of SBR outputs. It should then make comparisons with the skills actually available in the SBR, survey and other areas. This leads to the identification of SBR-related training needs, expressed in the form of specific groups of staff needing training, and the training specifically required for each group.

SBR staff should also set aside time for development of training material and courses (including e-learning), as it is unlikely that courses relevant to the SBR will be available from the market. This could well involve obtaining advice from other NSOs, international organizations, and consultants.

13.6 SBR COMMUNICATIONS

In addition to effective internal communications, SBR staff should establish good relationships and communications arrangements with:

- the organizations responsible for the supply of administrative data;
- the survey managers and methodology staff responsible for frame, sample and survey control file specifications;
- the staff responsible for data collection and respondent relations; and
- the staff responsible for the production of business statistics.

Means of achieving good relationships include regular staff meetings, quarterly meetings with stakeholders (including both administrative data suppliers and survey managers), and establishment of an SBR Steering Committee to ensure senior management are kept informed and are consulted about major issues and decisions.

14 • SPECIFICATION OF AN SBR SYSTEM

14.1 INTRODUCTORY REMARKS

In this chapter, the term *SBR system* means the *SBR database and the application programs* that enable all functions within the SBR complex to be carried out.

Evidently, the SBR system has to support and automate, to the fullest extent possible, the functions of the SBR, i.e., the processing of administrative data, profiling, maintenance of smaller enterprises, production of survey frames, samples and control files, respondent burden monitoring, and production of business statistics as illustrated in Figure IIA. This chapter presents a plausible set of system modules, which can be expanded, contracted, or modified by an NSO as required, to take account of the particular circumstances of the IT environment and the actual functions of the SBR.

As is the case with SBR organizational structure, there is no international standard or even commonly used practice amongst NSOs regarding the *design* of SBR systems. Each NSO has to design its own systems within the IT environment of the NSO as a whole.

International ICT standards and guidelines, such as The Open Group Architecture Framework (TOGAF) and Solutions Integrated Development (SID) should be used in the *development* of an SBR system.

14.2 SBR SYSTEM MODULES

Administrative data-processing module

- Processing bulk input from administrative sources;
- Updating SBR copies of administrative data;
- Updating statistical data;

- Producing processing summary statistics and diagnostics; and
- Producing lists of update queries for manual investigation.

Statistical and administrative unit viewing and updating module

- Viewing and printing of data for individual enterprises, establishments, and enterprise groups;
- Viewing and printing of data for individual administrative units; and
- Manual updating of data for statistical units based on information from SBR surveys, business surveys, and other ad hoc investigations. (There is no update facility for administrative data as these are driven only from administrative sources and not updated by SBR staff.)

Profiled unit viewing and updating module

- Recording, viewing, and printing of data for individual legal units, divisions, and local units obtained by profiling;
- Viewing, updating, and printing of data for individual enterprises, establishments, and enterprise groups.

Frame extraction module

- Producing SBR Enterprise Snapshot extracted from the SBR Database, including summary counts and counts of changes from the previous version;
- Producing a Common Enterprise Frame selected from the Enterprise Snapshot,

- including summary counts and counts of changes from previous version; and
- Producing frames for individual surveys in accordance with survey specifications, including comparisons with previous sample and summary counts and counts of changes from previous version.

Sample selection module

- Producing samples for individual surveys in accordance with survey sampling specifications, including comparisons with previous sample and summary counts and counts of changes from previous sample;
- Typically, the sample selection software will have been developed in house by the IT department for the sampling statisticians, or purchased from private vendors (such as SAS or STATA) or acquired from other NSOs. Thus the SBR sample selection module will not itself perform stratification, sample size determination and allocation, or sample selection. Instead it will make service calls to existing programs within the NSO environment that perform these functions.

Survey control file and shell database creation module

- Producing survey control files and shell databases for individual surveys;
- Likely comprising a standardized version of programs that already exist for individual surveys.

Respondent management module

- Producing the list of surveys to which any specified enterprise is, has been, or will be obliged to respond and the statuses of the responses to each survey;
- Interrogating the survey control files and databases for all business surveys conducted, and extracting the sample size and the number of respondents for each;
- Storing average respondent-hour estimates for each survey;

- Computing the total respondent burden on a notional and actual basis for each survey; and
- Aggregating the totals over all surveys to produce a summary of overall respondent burden across all business surveys for any specified annual period.

Business statistics production module

- Producing data tables for specified populations and data items; and
- Using standard data table production programs that already exist to tabulate survey data.

Quality and performance statistics module

- Producing quality and performance indicators for all SBR functions, for use by SBR management.

14.3 DATA STORAGE

SBR data should be stored in a purpose-built database that can support all the types of units in the economic units model, and their interrelationships and attributes, and which has appropriate confidentiality and access provisions.

There should be provision in the database, or within an associated controlled environment, for storing and accessing data generated by all SBR functions, including Enterprise Snapshots, Common Enterprise Frames, survey frames, survey control files, survey databases, respondent reporting obligations and statuses, and respondent burden.

Access and update control

There should be access and update controls that enable the database administrator to assign the appropriate access and update rights to SBR staff and other users within NSO Head Office and regional offices. At a minimum, the following classes of access and update rights should be allowed for:

- No access;
- Viewer of individual data;
- Creator of aggregate tables;
- Updater of data for simple enterprises;
- Updater of data for complex enterprises and associated units; and
- Database administrator – capable of correcting or modifying any data items (subject to satisfying integrity checks).

Integrity maintenance

Data creation and updating should be subject to appropriate integrity checks, to be conducted automatically in association with updating, or at the request of the database administrator.

14.4 IDENTIFICATION NUMBERING SYSTEMS

Every legal, operational, administrative, and statistical unit in the SBR should be assigned a unique identification number. The number should contain no embedded information, other than (possibly) tombstone data, i.e., data that can never change. In particular, no attempt should be made to use the numbering system to indicate relationships between different types of units, for example between establishments and enterprises, the reason being that these relationships can change

14.5 OTHER DESIGN CONSIDERATIONS

Consultation with other NSOs

Whilst there are no standard practices amongst NSOs regarding the design of an SBR system, discussions with NSOs having well-established and functioning systems are invaluable in making design choices. In all likelihood this will lead to the choice of a relational database and service-oriented architecture.

When **Statistics Canada** redesigned its Business Register system over the period 2007–08, it built a Microsoft Windows application installed on a client PC using a service-oriented architecture. There are five major components comprising the system:

- VB.Net is the programming language for the Windows Forms User Interface, the business layer and the data layer;
- SQL Server 2005 is the underlying database that both stores and manipulates the data;
- SAS is used to crunch and manipulate input data from external sources;
- The system is message based and uses BIZTALK for routing the messages; and
- Web services are used to manage both security and access to the data.

All users access the business register by means of the same common interface with a privilege administration tool as the control mechanism to manage this access. The Business Register includes information on legal and operating units and their structural relationships. It maintains a journal/log of all updates applied to these units as well as to stratification variables and information on reporting arrangements.

Seven modules within the Business Register manage different aspects of this information. They are: browser module; update module; structure manager module; collection entity (meaning reporting arrangements) module; workload module; survey interface module; and response burden module. They are complemented by reporting and analysis tools.

(For more details see Annex D1.)

Build, buy, or acquire

Given the general shortage of ICT resources required for SBR system development, consideration should be given to the possibility that part or most of an SBR database, including the functionality required for data input, output, and storage, can be purchased or acquired elsewhere and adapted to meet NSO needs. For example, Statistics South Africa (SSA) purchased a business register system from Statistics New Zealand, and modified and extended it to fit the SSA environment. Similarly, five Portuguese-speaking NSOs use a common SBR system developed under the auspices of the Portuguese NSO.

In this context, the AfDB is developing a generic SBR system and will assist in its installation in NSOs that express an interest.

Effective and actual update dates

There is a case to be made for distinguishing between the date a change took place in the country's economic situation and the date the corresponding update is made to the SBR.

Managing history

The SBR is constantly being updated, which raises the question as to how historical information should be stored, and at what intervals. One approach is always to add data, never to replace data, and to record the date and time each item of data is created and, if it is subsequently updated, the date and time of the update. With this approach, it is possible to create a view of how the SBR looked at any past date and time.

The alternative, significantly simpler approach is to take periodic snapshots of the database and keep these for as long as seems necessary.

Managing mistakes

Correcting mistakes should be considered separately from making updates. An *update* is where a change that has taken place in the economic situation of the country is reflected in the SBR by altering the corresponding unit(s) and attribute(s) appropriately. *Correcting a mistake* is where the data in the SBR do not correctly represent the economic situation and the corresponding unit(s) and attribute(s) are altered so that they do represent the economic situation. In other words, an update represents a real world change, whereas a mistake has nothing to do with a real world change.

Contractor characteristics

Especially if the SBR systems are developed from scratch, the developing contractor should have proven experience in building statistical systems for NSOs. Previous experience in building an SBR would be an even greater asset.

15 • SPECIFICATION OF SBR QUALITY AND PERFORMANCE MANAGEMENT

15.1 INTRODUCTORY REMARKS

This chapter discusses quality and performance management, in particular *quality and performance indicators (QPIs)*. Whilst there are no international standards for SBR quality per se, there are many standards and guidelines for survey quality assurance and measurement, which can be adapted to the particular circumstances of the SBR. Also, guidance can be obtained from NSOs that have well-developed quality systems.

15.2 QUALITY DESIGN CONSIDERATIONS

SBR quality management policies should be formulated within the context of the general NSO quality management framework, in so far as it exists. It is entirely possible that the NSO has a definition of output data quality in terms of dimensions such as relevance, accuracy, timeliness, accessibility, interpretability, and coherence. If so, these same dimensions should be used in considering SBR quality issues and measurements.

It is also possible that the NSO has adopted general Total Quality Management (TQM) principles and, if so, these should be taken into account.

15.3 QUALITY INDICATORS

Quality indicators should include the following:

- number of enterprises lacking a valid and complete economic activity class;
- number of enterprises for which the activity status is unknown;
- estimates of under-coverage:

– due to inherent limitations in the coverage provided by the administrative sources

– due to time lag in receiving and processing data about new businesses from the primary administrative source;

- estimates of the proportion of enterprises that have an active status but which are actually inactive or dead;
- estimates of duplication of enterprises;
- estimates of misclassification by economic activity, by geography, and by size; and
- estimates of the incidence of incorrect contact data.

15.4 PERFORMANCE INDICATORS

Performance indicators should include the following:

- number and proportion of business surveys for which the SBR provides frames;
- adherence to the processing schedule;
- number of unfilled SBR positions;
- training administered;
- staff costs; and
- computing costs.

15.5 QUALITY AND PERFORMANCE TARGETS

Jointly with NSO senior management, the SBR staff should identify a few key indicators and set annual targets expressed in terms of these indicators. Possible targets might include:

- number of enterprises lacking a valid and complete economic activity class to be reduced by 25%;
- number of surveys using the SBR as source of frame to be increased by two;
- average time to complete an enterprise profile to be reduced to three months.

15.6 QUALITY AND PERFORMANCE DASHBOARD

A *Quality and Performance Dashboard* containing an overview of the key QPIs, in particular those for which specific objectives have been set, should be maintained for use by SBR managers and NSO senior managers.

15.7 SBR EVALUATION

There should be a periodic and independent SBR evaluation against quality objectives and performance targets, with identification of problems and of potential quality and performance improvements.

An Example from Statistics South Africa (SSA)

At Statistics South Africa (SSA), the Business Register Quality Management Framework (BRQMF) provides the basis for a regular suite of quality and performance indicators (QPIs) for the SSA Business Register. The QPIs are reported for six sources/functions:

Section A – Administrative sources;

Section B – BR: Large Business Unit (LBU);

Section C – BR: Quality Improvement Unit;

Section D – BR: Operations and Maintenance component;

Section E – Frame creation;

Section F – Subnational Statistics.

Selected indicators for the first two sections follow. More details are provided in Annex D2.

Section A – Administrative sources

QPIs include:

- counts of enterprises, and quarter-to-quarter and year-to-year changes
 - by turnover size range by sector;
 - active with no SIC classification;
 - active with at least sector classification; and
 - total active.

- proportion of enterprises with missing size indicators (VAT or IT turnover);
- counts of administrative units and their statuses by month.

Section B – Large Business Unit (LBU)

Indicators for the last three quarters, including:

- enterprises flagged as belonging to LBU;
- enterprises updated and quality-checked by LBU;
- geographic units (GEOs) updated and quality-checked by LBU;
- average time to profile an enterprise group (EG) from initiation to completion;
- employees per enterprise group;
- new enterprise group profiles completed;
- existing enterprise group profiles completed;
- counts of incorrect SIC codes detected by LBU;
- counts of incorrect turnover detected by LBU;
- counts of duplicate enterprises detected by LBU.



PART III
SBR IMPLEMENTATION
AND ENHANCEMENT

16 • FIRST-TIME SBR DESIGN, DEVELOPMENT, AND IMPLEMENTATION

16.1 INTRODUCTORY REMARKS

The aim of this chapter is to provide guidance on how an NSO that does not currently have an SBR should go about designing, developing, and loading an SBR to use as the source of survey frames for all business surveys.

16.2 DEVELOP A BUSINESS CASE AND ESTABLISH AN SBR PROJECT

The first step is the development of a business case and establishment of an SBR Project.

Situation review

In preparing the business case, it is essential to identify and review:

- existing and proposed businesses surveys and their frame needs;
- existing sources of survey frames;
- possible administrative sources of data;
- organizational structure of an NSO – centralized/decentralized national statistical system, centralized/decentralized geographically;
- human resources available – numbers and skills;
- computing capacity available – network, databases; and
- financial resources available – for the purchase of consultancy services, software, and hardware.

Discussions should take place with:

- *SBR users* – i.e., survey managers, and business statisticians responsible for production of statistics – on the impact of introducing a new SBR;
- *administrative data suppliers* – i.e., the organizations responsible for the provision of the data – on data requirements and provision arrangements;
- *(future) SBR staff* – on the implications and impact of introducing a new SBR;
- *methodology and ICT staff providing services to SBR* – on the implications and impact of introducing a new SBR;
- *development sponsors* – i.e., senior managers and partner/donor organizations – on the costs, timeframe, and impact of introducing the new BR.

SBR business case

The business case is the basis for securing approval and funding for an SBR project. It should specify the envisaged SBR inputs, functions, and outputs. Not all the functions described in the Guidelines should necessarily be included. For example, in the case of an NSO with limited resources in a country with few large complex enterprises, there may be no business case for enterprise groups, establishments or profiling, at least in the initial implementation. Likewise, the production of SBR-based statistics might be viewed as a function to be considered at a later stage, as might the measurement of respondent burden.

SBR Project

An SBR Project proposal should be prepared following detailed discussions with the survey areas. Potential donors should also be involved.

An SBR Project Team should be nominated, led by a senior manager. A Steering Committee should be established, chaired by the NSO Director-General, with the Project Team Leader as Secretary.

An initial detailed hierarchical breakdown of the Project into phases, activity groups, activities, and tasks should be prepared. For each task there should be a preliminary estimate of cost, NSO person-days required, consultant person-days required, and time frame.

The following paragraphs outline a plausible structure based on a project of five phases conducted over three years.

A – Project Management;

B – SBR Design Phase;

C – SBR Build and Test Phase;

D – SBR Initialize and Operate Phase;

E – Economic Survey Program Review and Revision Phase.

More details are provided in the indicative *SBR Design, Development, and Implementation Work Plan* appended as Annex F, which should be read along with the following text.

16.3 SBR DESIGN PHASE

During the *SBR Design Phase*, all SBR functions and systems requirements are elaborated by the SBR Project Team, discussed with survey staff, senior management and key users, and agreed.

For the most part, this phase takes place during the first year of the project.

16.4 SBR BUILD AND TEST PHASE

During the *SBR Build and Test Phase*, the operating procedures are developed by the SBR

Project Team and the SBR system (database and supporting system module) is acquired and/or developed by an IT contractor. The procedures and system are then jointly tested.

For the most part, this phase takes place during the second year of the project.

16.5 SBR INITIALIZE AND OPERATE PHASE

During the SBR Initialize and Operate Phase, the SBR is loaded with data and the supporting systems are brought into production. The three main aspects of the Phase will be:

- SBR loading from administrative sources;
- full-scale testing of all SBR procedures and systems in operational mode; and
- initiating transition from the present arrangements to the use of survey frames generated from the SBR.

For the most part, this phase will take place during the third year of the project.

16.6 ECONOMIC SURVEY PROGRAM REVIEW AND REVISION PHASE

During this phase, the potential impact of SBR on the economic statistics program, in particular on the collection of business statistics from the formal sector, should be considered in detail. In part, this will have been done at the time the SBR business case is prepared, but it will need to be elaborated. The ultimate goal will be a more harmonized and integrated survey program. This could well involve the introduction of new surveys, such as an annual economy-wide survey measuring production in the formal sector and a periodic household-based enterprise survey to cover the informal sector. It will also involve redesign or replacement of existing business surveys to take full advantage of the SBR.

This phase can take place concurrently with the SBR Build and Test Phase and the Initialize and Operate Phase over the second and third years of the Project.

16.7 PROJECT TERMINATION

The SBR Project will end when all SBR functionality and systems have been developed and tested, the SBR is loaded with data and is being maintained, and the SBR is being used exclusively for at least one business survey. At this stage any further development and operations of the

SBR will be handed over to the unit responsible for SBR operations. This transition may be more of a matter of formally closing the Project than an actual handover because many of the persons that are members of the SBR Project Team may continue in their roles but as members of the SBR Unit.

17 • SBR REENGINEERING AND ENHANCEMENTS

17.1 INTRODUCTORY REMARKS

This chapter is aimed at NSOs that have an SBR and want to improve it. Improvements can be on a large or small scale:

- *reengineering* means totally redesigning and rebuilding SBR procedures and systems;
- *enhancement* means improving the existing SBR procedures and systems.

Enhancements themselves can be classified into two groups:

- *major enhancements* that require additional resources; and
- *minor enhancements* that can be accomplished by SBR staff with existing resources.

17.2 REENGINEERING

Reengineering should follow essentially the same steps as described in Chapter 16 for the introduction of a new SBR. The main difference is that the initial situation review includes documentation of the existing SBR, its uses, and the problems that initiated the reengineering proposal.

17.3 MAJOR ENHANCEMENTS

A major enhancement would involve a scaled-down version of a reengineering proposal. Depending on the rationale for its introduction, an enhancement should include reaffirmation or re-development of:

- the economic units model;
- the primary and additional administrative sources;
- the profiling program;
- the continuity, resistance, and conflict resolution rules for updating;
- the production of survey frames, samples, control files, and shell databases;
- the production of respondent reporting obligation summaries and individual enterprise and total respondent burden estimates; and
- the production of statistics direct from the SBR.

17.4 MINOR ENHANCEMENTS

Minor enhancements can, and should, be carried out by the SBR Unit with a minimum of formality. However, detailed consideration should be given to the potential impact on surveys currently drawing frames from the SBR. In the event of significant impact, there should be extensive discussions with survey managers on how it can best be handled.

ANNEXES

- Annex A: Reference Documentation
- Annex B: SBR Glossary
- Annex C: Extracts from International and European Standards and Guidelines
- Annex D: Examples from National Statistical Offices
- Annex E: Description of Non-Observed Economy
- Annex F: Indicative SBR Design, Development, and Implementation Work Plan

ANNEX A • REFERENCE DOCUMENTATION

A1. DOCUMENTS SPECIFIC TO STATISTICAL BUSINESS REGISTERS

ESS Business Registers Recommendations Manual

ESS Regulation on business registers

Règlement N°01/CM/AFRISTAT/2009

International Guidelines on Statistical Business Registers

- in development by a task force administered by the UNECE and reporting to the European Conference of Statisticians

International Roundtable on Business Survey Frames (Wiesbaden Group on Business Registers)

- International Roundtable Meetings, Roundtable papers

Meetings on Business Registers (UNECE, OECD, Eurostat)

- 11th Meeting on Business Registers was held at Eurostat in Luxembourg, October 6–7, 2009.
- 12th Meeting on Business Registers was held at the OECD in Paris, September 14–15, 2011.

Business Register Manuals and Documentation by National Statistical Offices

- Statistics South Africa (SSA) – BR Operations Manual (internal document); BR Quality Improvement Survey

- Australian Bureau of Statistics (ABS) – Business Frames Maintenance Strategy (internal document)

Books

Chapter 2, “Frames and Business Registers: An Overview” by Michael J. Colledge. In: *Business Survey Methods*, ed. B. G. Cox et al. (1995), New York: John Wiley & Sons, Inc.

African National Statistical Offices presentations (from Expert Group Meeting, May 2012)

- Statistical Business Register – Botswana
- Kenya’s Experience with its Central Business Register
- Malawi Business Information Register
- Development of the Business Register in Mauritius
- Statistical Business Register – Mozambique
- Overview of Seychelles Business Register
- Ugandan Business Register Presentation
- Brief Presentation on Business Register – Zambia

A2. DOCUMENTS RELEVANT TO STATISTICAL BUSINESS REGISTERS

System of National Accounts 2008 (SNA 2008)

- The SNA 2008 is the internationally agreed standard set of recommendations on how to compile measures of economic activity in accordance with strict accounting conventions based on economic principles. The recommendations are expressed in terms of a set of concepts, definitions, classifications, and accounting rules that comprise the internationally agreed standard for measuring such items as gross domestic product (GDP), the most frequently quoted indicator of economic performance.

System of National Accounts 1993 (SNA 1993)

- SNA 1993 is the previous version of the national accounts manual and still relevant, first because, as regards concepts relevant to the SBR, it is not greatly different from SNA 2008, and, second, many countries have not yet adopted SNA 2008.

International Standard Industrial Classification of All Economic Activities (ISIC) Revision 4

- ISIC Rev. 4 is the international reference classification of productive activities. Its main purpose is to provide a set of activity categories that can be utilized for the collection and reporting of statistics according to such activities.

International Standard Industrial Classification of All Economic Activities (ISIC) Revision 3

- ISIC Rev. 3 is the previous version of the classification and still relevant as many countries have not adopted ISIC Rev 4.

Generic Statistical Business Process Model (GSBPM)

- Joint UNECE/Eurostat/OECD Work Session on Statistical Metadata (METIS) Version 4.0 – April 2009. Prepared by the UNECE Secretariat.

ESS Documents

- Statistical themes: <http://epp.eurostat.ec.europa.eu/portal/page/portal/statistics/themes>

World Bank Virtual Statistical System

- Accessible through the Internet, this system aims to cover all aspects of statistical processes.
- It is still developing and has material on business registers.

ANNEX B • SBR GLOSSARY

EXPLANATORY NOTES

To the extent possible, the definitions are based on international standards.

Abbreviations for sources are:

- SNA 2008 - System of National Accounts 2008
- OECD NOE Handbook – *The Non Observed Economy: A Handbook*, 2002.
- ICLS93 – International Conference of Labor Statisticians, 1993.
- MCV – Metadata Common Vocabulary – Annex 4 of SDMX Content Oriented Guidelines.

Unless otherwise indicated in the column entitled “Source,” the definition has been developed specifically for the purposes of this document, drawing on a glossary developed by the Ethiopian Central Statistical Office for its SBR.

Where the same term is defined twice, with the two definitions being distinguished by the qualifiers in parentheses, one instance refers to a general definition, the other to the more specific definition used in the context of the SBR.

Terms in italics are defined elsewhere in the Glossary.

Term	Definition/Notes	Source
Activity status/ code (of enterprise)	Reflecting the state of activity of an <i>enterprise</i> , for example: in formation and not yet started production; active; temporarily or seasonally inactive; ceased activities.	
Administrative business register	An <i>administrative register</i> in which the units are <i>businesses</i> .	
Administrative collection	The acquisition and processing of data from an <i>administrative source</i> and use of these data to produce statistics.	
Administrative register	A list of units with attributes developed in response to an administrative regulation, identifying the units subject to the regulation.	
Administrative source	An <i>administrative register</i> and/or <i>administrative transaction data</i> .	
Administrative transaction data	Data created during the course of administering a regulation, for example VAT payments made in accordance with the VAT regulation.	
Ancillary activity	An activity incidental to the main activity of an <i>enterprise</i> . It facilitates the efficient running of the enterprise but does not normally result in goods and services that can be marketed.	SNA 2008
Area frame-based survey	Multistage cluster survey in which the initial (first stage) <i>sampling units</i> are a set of geographical areas within which (final stage) sampling units can be listed and samples selected.	
Business	A commercial <i>enterprise</i> , as distinct from a <i>non-profit organization</i> or <i>government MDA</i> .	
Business person	An active <i>legal unit</i> engaged in <i>economic production</i> , or indicating the intention and having the capacity to engage in economic production.	
Business register	A list of businesses with attributes developed in response to an administrative or statistical regulation, identifying the units subject to the regulation. Can be an <i>administrative business register</i> or a <i>statistical business register (SBR)</i> .	
Business survey	A <i>survey</i> of <i>businesses</i> .	
Census	A <i>survey</i> in which all units in the <i>sampled population</i> are selected.	

Term	Definition/Notes	Source
Cluster sampling	A sampling method in which the population is divided into groups, called clusters, which are the subject for (the first stage of) sampling. The selected clusters may be further subsampled in a subsequent sampling stage or stages.	
Common Enterprise Frame	A flat file of enterprises with their sampling attributes created from an <i>Enterprise Snapshot</i> by eliminating enterprises that are not active and/or that do not have an economic activity code.	
Complex enterprise	An <i>enterprise</i> that has more than one <i>establishment</i> or is linked to a <i>business person</i> with more than one <i>division</i> or which is part of an <i>inter-corporate ownership group</i> .	
Content	The set of <i>data items</i> of interest.	SNA 2008
Corporation	A legal <i>entity/unit</i> created for the purpose of producing goods or services for the market that may be a source of profit or gain to its owner. It is collectively owned by the shareholders who have the authority to appoint directors responsible for its general management.	
Coverage	The type of <i>statistical unit</i> (for example <i>enterprise</i>) and the particular population of these units that constitute the survey frame (for example <i>large and medium-size manufacturing enterprises</i>).	
Coverage Survey	Same as <i>SBR Survey</i> .	
Data item	Attribute of an <i>observation unit</i> , or count or other item derived from such attributes. Also called a <i>variable</i> or an <i>indicator</i> . Survey methodologists tend to prefer the term <i>variable</i> , economists tend to prefer <i>indicator</i> and survey staff and IT specialists tend to prefer <i>data item</i> .	
Division	An operational unit defined by a <i>business person</i> for the purpose managing its production activities by partitioning them.	
Divisionalization	Refers to the situation where a legal unit owns and controls other legal units and operates them as divisions. These units do not have sufficient autonomy to be capable of separately reporting their assets and liabilities, however they have separate legal identities and typically file tax returns indicating nominal assets (say \$1) and no income.	

Term	Definition/Notes	Source
Economic production	The subset of <i>general economic production</i> obtained by excluding all household activities that produce domestic or personal services for final consumption within the same household, except housing services provided by owner-occupiers to themselves and services produced by paid domestic staff.	SNA 2008
Economic survey	Same as <i>enterprise survey</i> used in a broad sense.	
Economic units model	All the unit types that are relevant in collecting economic data, including <i>legal unit</i> , enterprise operational units (<i>division</i> , branch, plant, outlet, etc.) and administrative units (<i>VAT unit</i> , employer unit), as well as the <i>target unit</i> , <i>sampling unit</i> and <i>observational unit</i> that are used in data collection.	
Employer account unit	An administrative unit of an employing <i>legal unit</i> that makes deductions or remittances on behalf of employees.	SNA 2008
Enterprise (SNA 2008)	An <i>institutional unit</i> engaged in economic production.	
Enterprise (SBR)	An enterprise is the statistical representation of <i>business person</i> in their capacity as a producer of goods and/or services.	
Enterprise Group	A set of <i>enterprises</i> for which the corresponding <i>legal units</i> belong to a single <i>inter-corporate ownership group</i> .	
Enterprise Snapshot	A flat file extracted from the SBR at a given point in time containing every <i>enterprise</i> in the SBR together with the <i>data items</i> needed for survey sample selection.	
Enterprise survey	(Precisely defined) a <i>survey</i> in which the <i>observation units</i> are <i>enterprises</i> . (More broadly defined) a <i>survey</i> in which the <i>target units</i> or <i>sampled units</i> or <i>observation units</i> are <i>enterprises</i> .	
Establishment (SNA 2008)	An <i>enterprise</i> or part of an <i>enterprise</i> at a single location, engaged in essentially a single activity, and capable, in principle, of providing the data required for the production and generation of income accounts.	SNA 2008
Establishment (SBR)	The whole or part of an <i>enterprise</i> engaged in a single type of economic activity at one or more locations.	
Frame	Same as <i>survey frame</i> .	

Term	Definition/Notes	Source
Frame data (items)	The attributes of units of which the frame is composed, enabling the relevant <i>population</i> for the survey to be identified and stratified for sampling purposes, the sample to be selected, and the <i>observation units</i> to be identified and contacted for data.	
General economic production	An activity carried out under the control and responsibility of an <i>institutional unit</i> that uses inputs of labor, capital, and goods and services to produce outputs of goods and service.	SNA 2008
Government MDA	A ministry, department or agency of government. MDAs comprise the Government sector as defined in the SNA 2008.	
Household survey	A <i>survey</i> in which the (final stage) <i>sampling unit</i> is the household. It is typically area-based. For example, a labor force survey is commonly a household survey.	SNA 2008
Household unincorporated enterprise	<i>Unincorporated enterprise</i> conducted by a household. Comprised of two groups: household unincorporated market enterprises producing goods or services for sale or barter; and household unincorporated enterprises producing (primarily) for their own final use.	
Illegal production	Any of the following types of production: production and distribution of illegal goods; production of illegal services; production activities that are usually legal but which become illegal when carried out by unauthorized producers; production and sale of counterfeited products; smuggling; bribery and money laundering.	OECD NOE Handbook
Income tax unit	Administrative unit created by a <i>legal unit</i> that submits an income tax return indicating business income to the national Tax Office.	
Indicator	Same as <i>data item</i> and <i>variable</i> . Survey methodologists tend to prefer the term <i>variable</i> , economists tend to prefer <i>indicator</i> and survey staff and IT specialists tend to prefer <i>data item</i> .	
Individual data	Same as <i>micro data</i> .	
Informal Sector (general definition)	Broadly characterized as consisting of units engaged in the production of goods or services with the primary objective of generating employment and incomes to the persons concerned. These units typically operate at a low level of organization, with little or no division between labor and capital as factors of production and on a small scale. Labor relations – where they exist – are based mostly on casual employment, kinship or personal and social relations rather than contractual arrangements with formal guarantees.	ICLS93: 5(1)

Term	Definition/Notes	Source
Informal Sector (SBR)	The set of non-agricultural household enterprises that have market production but that are not registered with the administrative sources on which the SBR is based.	
Institutional unit	An <i>economic unit</i> that is capable, in its own right, of owning assets, incurring liabilities, and engaging in economic activities and in transaction with other entities. There are two main types of units in the real world that may qualify as institutional units, namely persons or groups of persons in the form of households; and legal or social entities whose existence is recognized by law or society independently of the persons, or other entities that may own, or control them.	SNA 2008
Inter-corporate Ownership Group	A collection of <i>legal persons</i> hierarchically linked to one another by ownership and/or control.	
Juridical person	Same as <i>legal person</i> .	
Kind of activity unit	Partitioning an <i>enterprise</i> by reference to its economic activities results in one or more kind of activity units that collectively represent the enterprise as a whole.	
Legal entity	Same as <i>legal unit</i> .	
Legal form	The type of legislation giving a business organization its legal personality.	
Legal person	A <i>legal unit</i> that is not a <i>natural person</i> .	
Legal unit	An entity with legal personality, meaning the right to ownership, to dispose of assets, to engage in activities, to enter into contracts and to institute legal proceedings. A legal unit may be either a <i>legal person</i> or a <i>natural person</i> . The notion of legal unit coincides with the SNA notion of <i>institutional unit</i> , except that the latter refers to households (containing natural persons) rather than natural persons individually.	
List (frame) based survey	A <i>survey</i> in which the sample is selected from a pre-existing list of units.	
Local unit (SNA)	Partitioning an enterprise by reference to its various locations results in one or more local units being created.	SNA 2008
Local unit (SBR)	Smallest type of unit that a <i>business</i> identifies for the purpose of managing its activities geographically.	

Term	Definition/Notes	Source
Macro data	Data formed by aggregating <i>micro data</i> .	
Micro data	Data from individual respondents. Also called <i>unit record data</i> and <i>individual data</i> .	
Natural person	A human being, in the context of the SBR, with actual or potential economic production.	
Nature of business survey	Same as <i>SBR Survey</i> .	
Non-observed economy	Activities that are missing from the basic data used to compile the national accounts because they are <i>underground, illegal, informal</i> , household production for own final use, or due to deficiencies in the basic data collection system.	OECD NOE Handbook
Non-profit institution	Legal or social entity created for the purpose of producing goods and services whose status does not permit it to be a source of income, profit, or other financial gain for the units that establish, control, or finance it.	SNA 2008
Observation unit	Unit about which data are collected through the undertaking of a <i>survey</i> . Also sometimes called a reporting unit.	
Performance indicator	Measure of process performance, for example, cost of survey, respondent burden.	
Person	<i>A legal person or natural person.</i>	
Population	In the context of a survey, the <i>target population</i> or the <i>sampled population</i> .	
Principal activity	The activity of an enterprise of which the outputs are, or could be, delivered to other institutional units and whose value added exceeds that of any secondary activities carried out by the enterprise.	SNA 2008
Profile group	Group of <i>enterprises</i> that need to be profiled as a group rather than individually because of ownership and control.	
Profiling	Identification of appropriate <i>statistical</i> and <i>observation units</i> for a <i>business person</i> or group of business persons. This includes the <i>enterprise</i> that represents the business person in their economic production role. Based on information about the enterprise collected from business person themselves, and, in the case of corporations, from publicly available annual reports.	

Term	Definition/Notes	Source
Profiling Maintenance Group	The set of enterprises that are designated for maintenance by profiling. Comprise large, complex enterprises and other enterprises linked to them through profile groups.	
Proving Survey	Same as <i>SBR Survey</i> .	
Quality indicator	A measure of data or process quality, for example, standard error, response rate, interval between reference period and publication date	
Quasi-corporation	An <i>unincorporated enterprise</i> that operates as if it were a corporation and thus must be treated as such. Typically, this includes enterprises owned by non-resident or government <i>institutional units</i> .	SNA 2008
Real-world (economic) units	Units such as <i>legal units, divisions, plants, outlets</i> that exist in the economy quite independently of the NSO, in contrast to <i>statistical units</i> , which are the NSO's abstraction and representation of real-world units.	
Repeating survey	A survey may be conducted once or repeated at regular or irregular intervals. Repetitions of a survey with essentially the same objectives and methodology are referred to as <i>survey repetitions</i> or <i>survey occasions</i> , and the term survey may be deemed to include the whole set of survey repetitions.	
Respondent	The <i>observation unit</i> that responds to a survey questionnaire. Every respondent belongs to an <i>enterprise</i> .	
Respondent burden	The burden, measured in hours, imposed on enterprises by the obligation to respond to surveys.	
Sampled population	The set of <i>sampling units</i> from which the survey sample is actually selected or, equivalently, the set of <i>observation units</i> about whom the data are collected. The sampled population defines the <i>coverage</i> of the survey.	
Sampling unit	A member of the <i>sampled population</i> for a survey.	
SBR –Statistical Business Register	A <i>business register</i> that is created and maintained for statistical purposes.	
SBR Project Team	Team put together to build or enhance an SBR.	
SBR Survey	Survey conducted by SBR staff on a continuous basis to verify the values of <i>frame data</i> items and to obtain the values of missing items for specific <i>enterprises</i> . Sometimes called a <i>Nature of Business Survey, Proving Survey, Coverage Survey, SBR Improvement Survey</i> or <i>SBR Quality Survey</i> .	

Term	Definition/Notes	Source
SBR unit	The organizational unit responsible for running the SBR.	
Scope	The <i>target population</i> of a survey.	
Snapshot	Same as <i>Enterprise Snapshot</i> .	
Sole business person	<i>Business person</i> that is a <i>natural person</i> . Corresponds to unincorporated household enterprise as defined in SNA 2008.	
Standard statistical unit	A type of unit that has been defined for the purpose of collecting a particular set of data. Used by the NSO in a statistical representation of actual (<i>real-world</i>) units in the country. The Guidelines recommend the use of <i>enterprise</i> , <i>enterprise group</i> , and <i>establishment</i> .	
Statistical unit	Any type of unit that is defined and used for statistical purposes. Can be a <i>target</i> , <i>sampled</i> or <i>observation unit</i> for a <i>survey</i> .	
Statistical units model	The set of <i>standard statistical units</i> defined by an NSO as the <i>target units</i> for collection of data.	
Survey	A collection of data for statistical purposes. Includes a <i>census</i> in which all units are selected as well as a sample survey in which only a sample of units is selected.	
Survey control file	Contains the <i>observation units</i> for a <i>survey</i> and the identification and contact data items required in order to collect data about them.	
Survey cycle	Same as <i>survey repetition</i> .	
Survey frame	The <i>sampled population</i> together with attributes of the <i>sampling units</i> needed for survey purposes.	
Survey occasion	Same as <i>survey repetition</i> .	
Survey repetition	A survey may be conducted once, or repeated at regular intervals or at irregular intervals. Repetitions of a survey with essentially the same objectives and methodology are referred to as survey repetitions, or survey occasions. The whole set of survey repetitions is deemed to constitute the <i>survey</i> .	
Survey shell database	The main table in the survey shell database comprises the set of <i>observation units</i> on the rows and the columns are the <i>frame data items</i> (with values carried over from the sample) plus the survey data items (for which the current values have yet to be collected).	

Term	Definition/Notes	Source
Target population	The set of units of interest for a <i>survey</i> .	
Target unit type	The type of unit of which a <i>target population</i> is composed.	
Underground economy	Activities that are productive in an economic sense and legal but deliberately concealed from public authorities for the following kinds of reasons: to avoid the payment of taxes or social security contributions; to avoid having to meet legal, safety or health standard; to avoid complying with certain administrative procedures, such as completing statistical questionnaires or other administrative forms.	OECD NOE Handbook
Unincorporated enterprise	An <i>enterprise</i> that is not a <i>corporation</i> , <i>quasi corporations</i> or <i>non-profit institution</i> . It may be conducted by a government or a household.	SNA 2008
Unit record data	Same as <i>micro data</i> .	
Units model	Set of units representing a <i>real-world</i> situation. Examples are <i>statistical units model</i> and <i>economic units model</i> .	
Variable	Same as <i>data item</i> and <i>indicator</i> . Survey methodologists tend to prefer the term variable, economists tend to prefer indicator and survey staff and IT specialists tend to prefer data item.	
VAT account	The account held by a <i>VAT unit</i> .	
VAT unit	An administrative unit belonging to a <i>legal unit</i> and registered under Value Added Tax (VAT) legislation by the National Tax Office.	

ANNEX C • EXTRACTS FROM INTERNATIONAL AND EUROPEAN STANDARDS AND GUIDELINES

C1: BUSINESS REGISTERS RECOMMENDATIONS MANUAL, EUROSTAT 2010

Chapter 1: Scope of the Recommendations

1A - The General Framework

1.1 The Member States of the European Union have undertaken a programme to harmonise and develop their national business registers for statistical purposes. This programme is coordinated by Eurostat, with priorities decided and progress reported at annual meetings of the Business Registers — Statistical Units Working Group. The main tool for assessing progress is the annual business register inquiry, administered by Eurostat. Regular contact is also maintained between Member States and Eurostat via less formal means such as e-mail and the BRnet website: <http://circa.europa.eu/Members/irc/dsis/brnet/info/data/home.htm>. Note — a username and password are needed to access this site. Persons working with statistical business registers may request these from Eurostat.

1.2 This programme is generally open to other European countries, particularly EFTA and candidate countries, most of whom take part in meetings and discussions. It is also closely coordinated with the United Nations Economic Commission for Europe (UNECE), with joint UNECE/Eurostat/OECD meetings being held on a regular basis every other year. The main tools supporting this work programme are:

- The BR Regulation: Regulation (EC) No 177/2008 of the European Parliament and of the Council of 20 February 2008 establishing a common framework for business registers for statistical purposes and repealing Coun-

cil Regulation (EEC) No 2186/93 (OJ L 61, 5.3.2008), which provides the legal basis.

- The BR Recommendations Manual: Article 7 of the BR Regulation states that “The Commission shall publish a business registers recommendations manual. The manual shall be updated in close cooperation with the Member States.” The purpose of this Manual is to provide guidelines on interpreting the Regulation, as well as guiding the further development of business registers.
- The EuroGroups register: Article 11 of the BR Regulation defines an exchange of individual data between the Commission (Eurostat) and Member States’ appropriate national authorities. This entails the creation of a central register of multinational enterprise groups at Eurostat and its integration with the national statistical registers.

The EuroGroups register will have a separate user guide, but the technical specifications for the data exchange will be included in this Manual.

1B — The BR Regulation

1.3 The BR Regulation was adopted by the European Parliament on 25 October 2007 and by the Council of Ministers of the European Union on 21 January 2008, coming into force on 25 March 2008. It replaces the previous Regulation (Council Regulation (EEC) No 2186/93 of 22 July 1993 on Community coordination in drawing up business registers for statistical purposes (OJ L 196, 5.8.93)), and is part of a series of regulations intended to harmonise the European business statistics infrastructure, including:

- Regulation (EC) No 1893/2006 of the European Parliament and the Council of Ministers of 20 December 2006, establish-

ing the statistical classification of economic activities (NACE Rev. 2) and amending Council Regulation (EEC) No 3037/90 as well as certain EC regulations on specific statistical domains, gives the legal basis to the NACE classification, introduces NACE Rev. 2 and replaces the previous versions of NACE.

- Council Regulation (EEC) No 696/93 of 15 March 1993 on the statistical units for the observation and analysis of the production system within the Community.

1.4 The original, repealed BR Regulation (2186/93) was a compromise between what was desirable and what could reasonably be achieved during the 1990s. The initial position regarding registers differed greatly from one country to another. Some countries had to develop their registers or, in some cases, even create one, whereas others needed only to adapt their existing register to meet the requirements of the original BR Regulation. The new BR Regulation can be seen as consolidating the harmonisation of business registers, as well as extending requirements to cover additional variables, notably at enterprise group level.

1C — Objectives of this Manual

a) To explain the Regulation

1.5 The BR Regulation sets out a common framework for the harmonisation of national registers, but the practical implications are not always clear, partly because the Regulation is the outcome of complex negotiations. This Manual aims to explain the reasoning behind the provisions of the Regulation. It aims to provide the extra information required for the correct and consistent interpretation of the Regulation in all countries.

b) To extend beyond the Regulation in order to shape future development

1.6 This Manual extends beyond the provisions of the BR Regulation for the following reasons:

- One of the main constraints in drawing up the Regulation was what was feasible within a certain timeframe for all Member States. Consequently, it reflects a compromise rather than the ideal situation. The Manual

can therefore be used as a tool to push on towards ideal solutions by identifying and recommending best practices.

- Implementing the provisions of the Regulation guarantees a certain level of harmonisation between the registers in the various Member States, but this is not sufficient to make these registers fully operational. In order to do so, the Member States must incorporate other elements to take account of national peculiarities, such as the administrative sources used and the requirements of various register users. The freedom to determine how to compile and maintain the register is consistent with the principle of subsidiarity, but makes it more important to have documented guidelines and information on the experiences of other countries.

1D — Structure of this Manual

1.7 The Manual is presented as a set of different parts, dealing with:

- (i) The basics: Objectives, units, contents and access (chapters 1–10)
- (ii) Unit demography: Changes and continuity (chapters 11–16, 21–22)
- (iii) Contents: Updates and development (chapters 17–20)
- (iv) Guidelines for specific domains (chapters 23–24)
- (v) Specifications for the data exchange between Eurostat and Member States (to be prepared)
- (vi) Glossary for business registers (separate but closely linked with the Manual)

1.8 The structure of the Manual is not rigid. New chapters may be added to reflect new developments and existing chapters can be revised when necessary.

1.9 The Manual is primarily designed for electronic dissemination via the Internet. The advantage of this is that readers can be sure that they always have the latest version. However, its design means that it can be printed on a chapter

by chapter basis if required. For this reason, each chapter must be capable of being read separately, whilst still forming part of a coherent set. It is therefore not always possible to achieve a full understanding of a certain topic without reading all of the various chapters concerned.

1.10 Each chapter is clearly marked with the date and current status, indicating whether it is a draft or agreed text. The finalised chapters are available from the Eurostat website's RAMON server, the consulted drafts are available on CIRCA, the BRnet interest group at the website given in paragraph 1.1.

1E — Scope of the Recommendations

1.11 All Member States of the European Union maintain business registers for statistical purposes. The BR Regulation establishes a common framework for these registers in Articles 1 and 3(1):

“Member States shall set up one or more harmonised registers for statistical purposes, as a tool for the preparation and coordination of surveys, as a source of information for the statistical analysis of the business population and its demography, for the use of administrative data, and for the identification and construction of statistical units.

The registers shall be compiled of:

- (a) all enterprises carrying on economic activities contributing to the gross domestic product (GDP), and their local units;
- (b) the legal units of which those enterprises consist;
- (c) truncated enterprise groups and multinational enterprise groups; and
- (d) all-resident enterprise groups.”

1.12 The scope and nature of national business registers are determined by country-specific factors. The primary factor concerns the purposes for which the register is used. A second major factor is that legal requirements determine, to a significant extent, both the information available to build and maintain business registers as well as the limits within which that inform-

ation may be stored and used. Thirdly, the information, which businesses need for their own purposes, or to fulfil administrative requirements, governs to a large extent the information a statistical institute may obtain for its register, since it is often difficult to persuade enterprises to supply information which they do not themselves need. Finally, business registers are very expensive to compile and maintain, with the resources devoted to them varying between Member States.

1.13 As long as the scope and nature of national business registers vary considerably, it is clear that they will not fully meet the needs for comparable statistics for the European Union as a whole. This is becoming more of an issue given the growing need for accurate and timely data for the purposes of administering the monetary union and the internal market.

1.14 The recommendations in this Manual for harmonising the principles and contents of business registers in Member States do not just represent those factors that are common to existing registers of Member States. They do, however, reflect current practices, which statisticians consider useful, improvements to registers that they consider possible and future needs as far as they can be predicted. The recommendations take into account the need for consistency in the units and classifications used in harmonised registers and, particularly, compatibility with NACE. They also consider the need for a balance between what is desirable and what is practical, bearing in mind the costs involved and the information which organisations can reasonably be expected to provide.

1.15 Full implementation of these recommendations will help to ensure that business registers are compiled and maintained on a consistent basis in all Member States. As a result, the statistical surveys based on them will improve in terms of comparability and, in many cases, in other quality factors. This will also help to develop other uses for the registers, such as a source of business demographic statistics.

1F — Relation to the BR Regulation

1.16 This chapter introduces the Recommendations Manual, as stipulated in Article 7 of the BR Regulation, its framework, objectives and scope

and, as such, it is not considered an interpretation of the Regulation.

**C2: UNITED NATIONS AND EUROSTAT:
WORKING PAPER ON STATISTICAL
BUSINESS REGISTERS**

(New York, June 2011)

Preface

A UNSD-Eurostat secondment program has been established to foster improved coordination and synergy between their statistical work programs through short-term staff exchanges, particularly in the area of the integration of economic statistics.

In this context, a three-week secondment in the area of statistical business registers took place in May/June 2011. A Eurostat official worked with

counterpart staff from the Economic Statistics Branch and Trade Statistics Branch of UNSD at the United Nations headquarters in New York in preparing a note on the support of statistical business registers in a framework of integrated economic statistics.

This note provides a first step in the process toward international recommendation for statistical business registers.

In preparing this note, use was made – among others – of the draft “UN Guidelines on Integrated Economic Statistics, International Recommendations for Industrial Statistics 2008” prepared by UNSD, the *Business Register Recommendation Manual 2010* prepared by Eurostat, and the common framework on statistical business registers adopted by the members of AFRISTAT 2009.

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ANNEX D • EXAMPLES FROM NATIONAL STATISTICAL OFFICES

D1. STATISTICS CANADA NEW BUSINESS REGISTER, 2008

When Statistics Canada redesigned its business register system over the period 2007-08, it built a Microsoft Windows application installed on a client PC using a service-oriented architecture. There are five major components comprising the system, namely:

- VB.Net is the programming language for the Windows Forms User Interface, the business layer and the data layer;
- SQL Server 2005 is the underlying database that both stores and manipulates the data;
- SAS is used to crunch and manipulate input data from external sources;
- The system is message based and uses BIZTALK for routing the messages; and
- Web services are used to manage both security and access to the data.

All users access the register by means of the same common interface with a privilege administration tool as the control mechanism to manage this access. The register includes information on legal and operating units and their structural relationships. It maintains a journal/log of all updates applied to these units as well as to stratification variables and information on reporting arrangements. Seven modules within the register manage different aspects of this information.

Browser Module

The Browser Module allows the user to browse and search for information on a given enterprise. It displays information such as the business structure, collection entities, the response

burden, and the history of updates contained in the Register (Journal and Log).

The Log contains all of the updates performed on a given variable. The Journal records significant events (e.g., amalgamation, dissolution) concerning a given business.

Update Module

This component serves to control and manage all updates, both manual and batch, that need to be applied to the database. The BR receives requests or signals for updates from various sources such as subject matter, collection and external administrative sources (e.g., Canada Revenue Agency). Although each follows a slightly different process, in general the request is vetted to determine if human intervention is required (the Interceptor and/or Workload) and if accepted, it is applied to the database. Whether a request is rejected or accepted, the systems will send out notification to ensure that the affected parties are aware of the status of the request.

Structure Manager Module

The Structure Manager Module is used to show complex structures on the Browser. It manages these enterprise structures and the links that exist between production entities. It manages and controls the parent-child links, propagates attributes within the structure, and checks the coherence of the structure once changes have been made.

Collection Entity Module

This module is responsible for generating and updating collection entities based on the information contained in a survey control file received from the survey's sampling process. It also manages the manual customization of collection

entities that is performed by survey managers based on pre-established business rules.

Workload Module

When an edit or change signal arrives at the BR and requires manual processing, the Update Module will generate a signal to the Workload area for purposes of review by an analyst/profiler. The Workload manages, prioritizes and assigns the signals to the analyst/profiler. After a manual review of the signal, the analyst/profiler either implements or cancels the change request.

Survey Interface Module

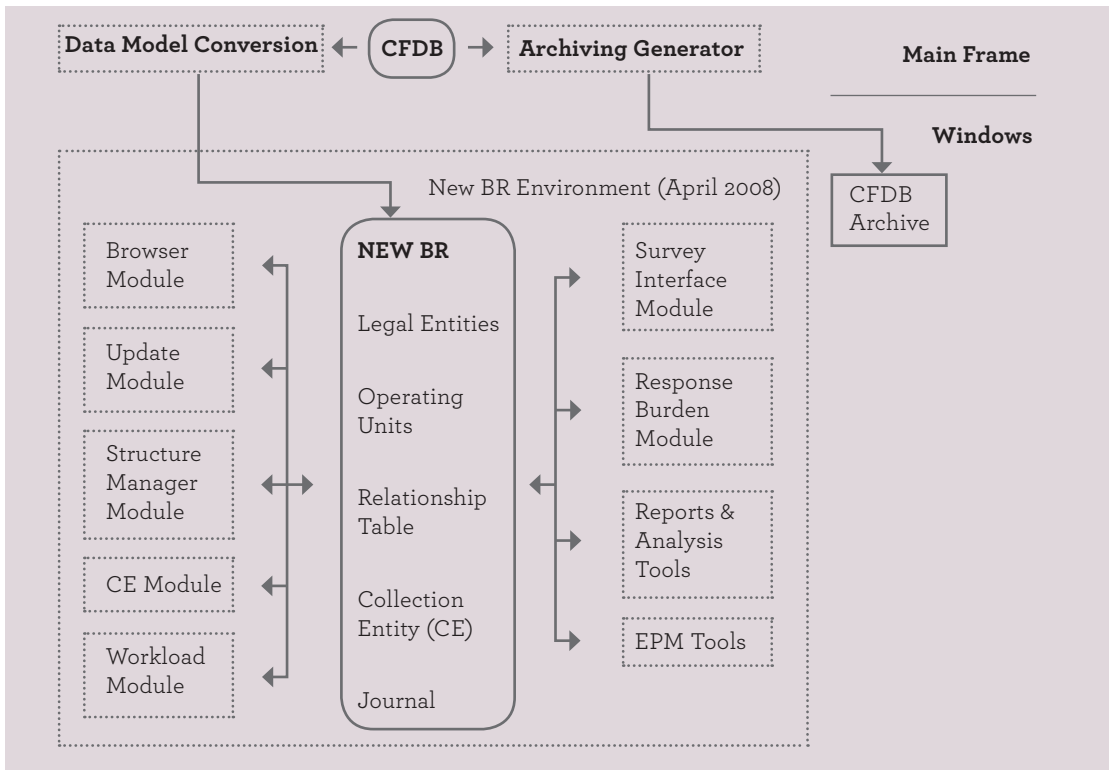
The function of this module is to produce two key Register products that are necessary to our partners in conducting their surveys: the Generic Survey Universe File (G-SUF) and the Generic Survey Interface File (G-SIF). The monthly standardized G-SUF is the result of extracting all units that comprise the total business population. It contains a list of all units of production with their tombstone information, the industrial classification, the detail geographical code, the

size variables (such as revenue and employees), and other information to satisfy sampling procedures. Survey methodologists use this file primarily for the generation of survey samples. It is also used by subject matter divisions as an input to their edit, imputation and estimation system. From the units selected for a given survey by survey methodologists, the BR provides the G-SIF to collection staff. This file contains the information required in order to carry out data collection, such as the contact name, address and telephone number.

Response Burden Module

This module presents all information relating to respondent burden for economic surveys conducted at Statistics Canada. It displays information on all contact that Statistics Canada has had with a given enterprise. The response burden tool displays this information by survey, enterprise, contact name, and questionnaire. Finally, it provides extractions concerning exclusion orders and cases that require specialized treatment. A central frame used by the entire economic survey program means a truly comprehensive view

BR MODEL



of response burden and thus facilitates its management.

Reports & Analysis Tools

These tools produce the reports needed to manage survey operations and analyze sub-populations. The Survey Frame Assessment (SFA) tool extracts and presents changes that have occurred in a survey's population between two reference points. It includes changes to NAICS code, births, deaths and size indicators such as revenue. The SFA tool can dynamically display all changes that occurred as of the previous day for selected characteristics by operating entity. This is of particular importance as changes can be reviewed immediately prior to the production of the monthly G-SUF. Other tools include the analysis of updates on the Register and demographic analysis of the business population.

D2. STATISTICS SOUTH AFRICA (SSA)

Business Register Quality Management Framework (BRQMF)

The BRQMF provides the basis for a regular suite of quality and performance indicators (QPIs) for the SSA Business Register. The QPIs cover the Integrated Business Register (IBR), in which all administrative data are stored, the Business Sampling Frame (BSF) which is the core of the business register complex and the Survey Management System (SMS) which holds the observation units. The QPIs are reported for six sources/functions:

- Section A – Administrative sources;
- Section B – BR: Large Business Unit;
- Section C – BR: Quality Improvement Unit;
- Section D – BR: Operations and Maintenance component;
- Section E – Frame creation; and
- Section F – Subnational Statistics.

Indicators for the first two sections follow.

Section A: Administrative sources

Indicators include:

Counts of enterprises, and quarter to quarter and year to year changes

- by sector
- by turnover size range by sector
- active enterprises with no SIC classification
- active enterprises with at least sector classification
- total active enterprises

Counts of enterprises

- by legal organization/ownership type
- by institutional sector

Proportion of enterprises with missing size indicators (VAT or IT turnover)

Counts of enterprises

Counts of administrative units and their statuses by month

Section B: BR: Large Business Unit (LBU)

Indicators by quarter for the last three quarters including:

- enterprises flagged as belonging to LBU
- enterprises updated and quality checked by LBU
- geographic units (GEOs) updated and quality checked by LBU
- average time to profile an enterprise group (EG) from initiation to completion
- employees per enterprise group
- new enterprise group profiles completed
- existing enterprise group profiles completed

- enterprise group profile requests received from survey area(s)
- Enterprise groups profiled following request by survey area(s)
- Enterprise group profile requests received as result of administrative data input
- Enterprise groups profiled following requests as result of administrative data input
- Enterprise group profiles scheduled by LBU as part of updating program
- Enterprise groups profiled that were scheduled by LBU
- Counts of incorrect SIC codes detected by LBU
- Counts of incorrect turnover detected by LBU
- Counts of duplicate enterprises detected by LBU
- Counts of survey area queries received by LBU after the snapshot
- Counts of survey area queries resolved by LBU after the snapshot
- Counts of survey area queries unresolved after the snapshot
- Counts of IT, VAT and/or PAYE links corrected by LBU
- Counts of active enterprises before profiling
- Counts of active enterprises after the profiling
- Counts of reactivated enterprises within the enterprise group
- Counts of deactivated enterprises within the enterprise group
- Counts of ceased enterprises within the enterprise group
- Counts of Kind of Activity Units (KAUs) created/birthed within an enterprise group
- Counts of GEOs birthed/created within the enterprise group
- Counts of active GEOs before the profile
- Counts of active GEOs after the profile
- Counts of deactivated GEOs within enterprise groups
- Counts of ceased GEOs within the enterprise groups
- Counts of changes to economic activity classification of active enterprises
- Counts of changes to economic activity classification of active KAUs
- Counts of changes to economic activity classification of active GEOs.

ANNEX E • THE NON-OBSERVED ECONOMY

1. INTRODUCTION

As noted in *Measuring the Non-Observed Economy: A Handbook* (OECD et al., 2002), complete coverage of economic production is a vital aspect of the quality of the national accounts. However, it is hard to achieve because of the difficulties in accounting for certain types of productive activities. Activities that are missing from the basic data used to compile the national accounts are said to comprise the *non-observed economy (NOE)*. Productive activities may be non-observed because they are informal, household production for own final use, illegal, underground, or due to deficiencies in the basic data collection system. Making estimates for them in the national accounts is referred to as *measurement of the NOE*.

It is important to have a clear idea of the role that an SBR can be expected to play or, more particularly, not to play in measuring the NOE. Thus, the following paragraphs define *informal*, *underground*, and *illegal* activities and indicate that, in all cases, they are outside the scope of surveys based on an SBR.

2. THE INFORMAL SECTOR

The major portion of the gap between the total economic production of households and what is readily measured by enterprise surveys and administrative sources is the *informal economy*, i.e., production by enterprises that are considered to be in the informal sector. Explicit identification of certain enterprises as *informal* is not required for national accounts compilation purposes. However, the informal sector represents an important part of the economy in countries such as Ethiopia, playing a major role in production, income generation, and employment creation. Thus, for its definition and measurement SNA 2008 (Para 25.36) recommends use of *Resolution*

II of the Fifteenth International Conference of Labour Statisticians 1993.

The Resolution (abbreviated ICLS93) describes the informal sector in broad terms. It provides the broad framework within which each country must formulate its own specific operational definition.

The informal sector may be broadly characterized as consisting of units engaged in the production of goods or services with the primary objective of generating employment and incomes to the persons concerned. These units typically operate at a low level of organization, with little or no division between labor and capital as factors of production and on a small scale. Labor relations – where they exist – are based mostly on casual employment, kinship, or personal and social relations rather than contractual arrangements with formal guarantees (ICLS93: 5(1)).

More specifically, the framework requires that the informal sector be defined as a subset of household unincorporated enterprises, comprising those enterprises that:

- produce at least some output for the market; and
- are less than a specified size in terms of the number of persons engaged, or of employees or of employees employed on a continuous basis; and/or
- are not registered under specific forms of national legislation, such as factories or commercial acts, tax or social security laws, professional groups' regulatory acts, or similar acts, laws or regulations established by national legislative bodies.

Enterprises that are involved in agricultural production may, optionally, be included or excluded.

These criteria provide a framework for a definition of the informal sector, but not a single, unambiguous definition. Thus, there are variations across countries in how the informal sector is actually defined.

The informal sector definition recommended in these Guidelines, is the set of non-agricultural household enterprises that have market production but that are not registered with the administrative source(s) on which the SBR is based. This definition is in accordance with the ICLS framework and makes a very visible formal/informal boundary. It means that:

- the suite of business surveys based on the SBR and on administrative data measure the formal sector; and
- household market enterprises not included in the SBR constitute the informal sector.

3. HOUSEHOLD PRODUCTION FOR OWN FINAL USE

Household production of goods for own final use is not part of the informal sector and is thus regarded as a separate element of the NOE. It includes production of crops, livestock, clothing and other goods for own use, construction of own dwelling, and other own-account fixed capital formation. Hence it covers subsistence farming. It also includes imputed rents of owner-occupiers, and services of paid domestic servants.

More specifically, the following types of production by households are included whether intended for own final consumption or not (SNA 2008: 6.32):

- a) The production of agricultural products and their subsequent storage; the gathering of berries or other uncultivated crops; forestry; wood-cutting and the collection of firewood; hunting and fishing;
- b) The production of other primary products such as mining salt, cutting peat, etc.;
- c) The processing of agricultural products; the production of grain by threshing; the production of flour by milling; the curing of skins and the production of leather; the pro-

duction and preservation of meat and fish products; the preservation of fruit by drying, bottling, etc.; the production of dairy products such as butter or cheese; the production of beer, wine, or spirits; the production of baskets or mats; etc.;

- d) Other kinds of processing such as weaving cloth; dress making and tailoring; the production of footwear; the production of pottery, utensils or durables; making furniture or furnishings; etc.;
- e) The supply of water is also considered a goods producing activity in this context. In principle, supplying water is a similar kind of activity to extracting and piping crude oil.

More generally, when the amount of a good produced within households is believed to be quantitatively important in relation to the total supply of that good in a country, its production should be recorded. Otherwise, it may not be worthwhile trying to estimate it in practice (SNA 2008: 6.33).

The production of housing services for their own final consumption by owner-occupiers has always been included within the production boundary in national accounts, although it constitutes an exception to the general exclusion of own-account service production. The ratio of owner-occupied to rented dwellings can vary significantly between countries, between regions of a country, and even over short periods of time within a single country or region, so that both international and inter-temporal comparisons of the production and consumption of housing services could be distorted if no imputation were made for the value of own-account housing services (SNA 2008: 6.34).

In summary, the SBR has no role to play in the measurement of household production for own final use as data about these productive activities are obtained from households not from registered businesses.

4. ILLEGAL PRODUCTION

Illegal production can take any of the following forms:

- production and distribution of illegal goods, such as banned drugs or pornographic material; production of illegal services, such as prostitution (in countries where this is illegal);
- production activities which are usually legal but which become illegal when carried out by unauthorized producers, such as unlicensed medical practices, unlicensed gambling activities, unlicensed production of alcohol, poaching (e.g., illegal fishing, hunting, tree cutting);
- production and sale of counterfeited products, such as watches and other products with false trade-marks and unauthorized copies of artistic originals (e.g., software, CDs and videos); and
- smuggling, in particular of tobacco, weapons, alcohol, food, people, both wholesale and retail; fencing (resale) of stolen goods; and bribery and money laundering.

SNA 2008 explicitly states that productive illegal activities should be included in national accounts. There are two major reasons for this. The first is overall consistency.

Illegal actions that fit the characteristics of transactions (notably the characteristic that there is mutual agreement between the parties) are treated the same way as legal actions. The production or consumption of certain goods or services, such as narcotics, may be illegal but market transactions in such goods and services have to be recorded in the accounts. If expenditures on illegal goods or services by households were to be ignored on the grounds of principle, household saving would be overestimated and households presumed to obtain assets that they do not in fact acquire. Clearly, the accounts as a whole are liable to be seriously distorted if monetary transactions that in fact take place are excluded. It may be difficult, or even impossible, to obtain data about illegal transactions, but in principle they should be included in the accounts if only to reduce error in other items, including balancing items. (SNA 2008: 3.96).

Second, comparability of national accounts figures between countries and over time is another major reason for inclusion. Some activities, for

example the production and distribution of alcohol, or prostitution, may be illegal in one country but legal in another. Exclusion of illegal production would thus distort international comparisons. Likewise, it would give rise to distortions over time if some activities switch from being illegal to be legal, or the converse. Production and distribution of alcohol during the prohibition period in the USA is an example.

However, although there seems to be more or less agreement on the correctness, in principle, of including illegal activities in the national accounts, very few countries explicitly do so at the present time and the methods available to measure illegal activities are still experimental.

In summary, in countries where the value of illegal productive activities is quantitatively insignificant, it is almost certainly a poor use of resources to try to measure it precisely. In any case, whether or not illegal activities are actually included, an SBR based on administrative registration data cannot be expected to assist in their measurement. If an enterprise undertaking illegal production is registered, it will be included in the SBR but the enterprise will disguise its illegal activities. If the enterprise is unregistered, it will be not be included in the SBR. In either case *the SBR plays no role*.

5. UNDERGROUND PRODUCTION

Certain activities may be both productive in an economic sense and also quite legal (provided certain standards or regulations are complied with) but deliberately concealed from public authorities to avoid the payment of income, value added or other taxes, or social security contributions, or to avoid having to meet certain legal standards such as minimum wages, maximum hours, safety or health standards, etc. This type of production is described as belonging to the *underground economy*.

As regards the borderline between underground and illegal production, the general rule is that underground activities are those not complying with administrative rules whereas illegal activities are associated with criminal behaviour. However, it is not necessary to try and fix the precise borderline between underground and illegal production, as both are included within the SNA production boundary.

In summary, much the same remarks as were made for illegal production in the previous section apply to underground production. Unless underground production is very widespread, it is almost certainly a poor use of resources to try to measure it precisely, and in any case, *the SBR has no role to play in its measurement.*

6. PRODUCTION MISSED DUE TO DEFICIENCIES IN THE BASIC DATA COLLECTION SYSTEM

Viewed from the production approach to compilation of the gross domestic product, the reasons why activities may be missed by the basic data collection system can be categorized as follows:

1. *Under-coverage of enterprises.* Enterprises, or parts of them, are excluded from the data collection program, though in principle they should have been included. This may occur, for example, because an enterprise is new and has not yet been included in the survey

frames, or it falls below the size cut-off for surveys, or it has been incorrectly classified by kind of activity or by region and thus improperly excluded from the survey frame.

2. *Non-response by enterprises.* Enterprises are included in the sample but no data are collected from them (for example, because the survey questionnaire was wrongly addressed or the enterprise, or part of it, did not return the questionnaire) and no imputation is made for the missing observations.

3. *Data are underreported.* Data are obtained from enterprises, but value added is under-reported; or correct data are received but are inappropriately edited or weighted by the NSO.

Deficiencies in the SBR may lead to under-coverage as referenced in the first item. The SBR plays no role in the second and third items.

ANNEX F • INDICATIVE SBR DESIGN, DEVELOPMENT, AND IMPLEMENTATION WORK PLAN

EXPLANATORY NOTES

Structure

This SBR Work Plan is indicative only.

It is presented in the form of a hierarchy of phases, groups, activities and tasks. There are five phases:

A: SBR Project Management;

B: SBR Design Phase;

C: SBR Build, Test, and Install Phase;

D: SBR Initialize and Operate Phase;

E: Business Survey Program Review and Revision Phase.

Responsible Areas

Responsible areas are abbreviated as follows:

- Business Statistics (Bus Stat);
- Senior Management (Sen Mgt);
- Statistical Business Register Development Team (SBR);
- Information Communication and Technology Department (ICT);
- SBR database and application systems contractor (ICT Con).
- HO = Head office; RO = Regional office.

Resource Estimates

The NSO staff days, consulting days, and costs are to be estimated by the responsible areas.

The major cost item will be the SBR database and application systems contractor.

The work plan

ID	Activity	Respon- sible Area	NSO staff days	Con- sulting days	Costs	Year 1	Year 2	Year 3
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A SBR PROJECT MANAGEMENT**A1 Initiate Project**

	Prepare SBR business case and project proposal	SBR				x												
	Obtain support from senior management	SBR				x												
	Prepare SBR project proposal	SBR					x											
	Obtain approval for project from senior management	SBR					x											
	Assign funding	Sen Mgt						x										
	Obtain donor funding	Sen Mgt						x	x	x	x							
	Appoint Steering Committee	Sen Mgt						x										
	Appoint SBR Project Team	Sen Mgt						x										
	Develop project work plan	SBR						x										

A2 Procure ICT Contractor

	Determine objectives of procurement	SBR						x										
	Develop terms of reference specifying activities and outputs	SBR						x										
	Secure funding for procure-ment consultant	Sen Mgt							x									
	Hire consultant to prepare procurement package	SBR							x									
	Prepare procurement package	SBR							x									
	Initiate procurement	SBR								x								
	Review tenders and select contractor	SBR									x							

A3 Manage Project

	Monitor Project	SBR						x	x	x	x	x	x	x	x	x	x	x
	Report to Steering Committee	SBR						x	x	x	x	x	x	x	x	x	x	x
	Terminate Project	SBR																x

ID	Activity	Respon- sible Area	NSO staff days	Con- sulting days	Costs	Year 1	Year 2	Year 3
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B1 Develop Overall High-Level Design

	Prepare draft high-level design document	SBR					X	
	Specify SBR units model	SBR					X	
	Specify SBR classifications	SBR					X	
	Specify other SBR data items	SBR					X	
	Determine general approach to SBR maintenance	SBR					X	
	Conduct workshops for staff and stakeholders to explain project	SBR					X	
	Finalize overall high-level design	SBR					X	

B2 Design SBR Administrative Data Update Processes

B2-1 Review and select administrative data sources

	List administrative source of potential use	SBR					X	
	For each source, document coverage, content, quality, and access conditions	SBR					X	
	Select administrative source that is to be the primary source	SBR					X	
	Select other administrative sources that are also to be used	SBR					X	

B2-2 Design process for access and use of primary administrative source

	Document in detail the underlying legislation and regulations	SBR					X	
	Obtain and analyze sample extract from database	SBR					X	
	Define coverage and content of data extract required on regular basis	SBR					X	
	Define access and transfer procedures and periodicity	SBR					X	
	Prepare data access and transfer MoU	SBR					X	
	Sign data access and transfer MoU	Sen Mgt					X	
	Define rules for updating corresponding SBR admin units	SBR					X	X
	Define rules for updating corresponding SBR statistical units	SBR					X	X

ID	Activity	Respon- sible Area	NSO staff days	Con- sulting days	Costs	Year 1	Year 2	Year 3
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B2 Design SBR Administrative Data Update Processes

B2-3 Design process for access and use of first additional administrative source

	Document in detail the underlying legislation and regulations	SBR					X											
	Obtain and analyze sample extract from database	SBR					X											
	Define coverage and content of data extract required on regular basis	SBR					X											
	Define access and transfer procedures and periodicity	SBR					X											
	Prepare data access and transfer MoU	SBR					X											
	Sign data access and transfer MoU	Sen Mgt					X											
	Define rules for updating corresponding SBR admin units	SBR					X	X										
	Define rules for updating corresponding SBR statistical units	SBR					X	X										

B2-4 Design process for access and use of second administrative source

	Document in detail the underlying legislation and regulations	SBR					X											
	Obtain and analyze sample extracts from database	SBR					X											
	Define coverage and content of data extract required on regular basis	SBR						X										
	Define access and transfer procedures and periodicity	SBR						X										
	Prepare data access and transfer MoU	SBR						X										
	Sign data access and transfer MoU	Sen Mgt						X										
	Define rules for updating corresponding SBR admin units	SBR						X										
	Define rules for updating corresponding SBR statistical units	SBR							X									

ID	Activity	Respon- sible Area	NSO staff days	Con- sulting days	Costs	Year 1	Year 2	Year 3
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B3 Design Manual Investigation and Updating Processes

B3-1 Design SBR Survey

	Elaborate SBR Survey objectives and general approach, including roles of Head Office (HO) and regional offices	SBR					x	
	Estimate monthly sample size based on analysis of admin sources	SBR					x	
	Identify and secure funding required, or modify sample size to match funding available	SBR					x	
	Design survey question modules and questionnaire	SBR					x	
	Define algorithm for selecting sample containing highest priority enterprises	SBR					x	
	Specify processes for data collection, capture and transmission to HO	SBR					x	
	Specify process for updating SBR statistical tables using survey data	SBR						x

B3-2 Design profiling program

	Elaborate profiling program objectives and general approach	SBR					x	
	Determine need for profiling and number of profiles per annum	SBR					x	
	Identify and secure funding required or modify profiling program to match funding available	SBR					x	
	Define algorithm for selecting highest priority enterprises to be profiled	SBR					x	
	Specify profiling procedures and system for conducting and recording profiles	SBR					x	
	Specify process for updating SBR statistical tables using profiling data	SBR						x

ID	Activity	Respon- sible Area	NSO staff days	Con- sulting days	Costs	Year 1	Year 2	Year 3
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B3 Design Manual Investigation and Updating Processes

B3-3 Design business survey feedback process

	Elaborate general approach for use of business surveys to help maintain SBR	SBR					X	
	Specify SBR maintenance module that will be first module of annual business survey	SBR					X	
	Specify SBR maintenance module that will be first module of sub-annual business survey	SBR					X X	
	Specify process for use of SBR maintenance module data to update SBR statistical tables	SBR					X	

B3-4 Identify need and make provision for ad hoc investigation and update

	Identify investigation needs not efficiently satisfied by SBR survey, profiling and business survey feedback	SBR					X	
	Identify and develop additional / ad hoc investigation procedures	SBR					X	
	Specify process for updating SBR statistical tables based on additional investigations	SBR					X	

B4 Design Frame, Sample, and Survey File Creation Processes

B4-1 Design Common Frame production process

	Determine and agree basic approach for production of survey frames	SBR					X	
	Specify Snapshot coverage and content	SBR					X	
	Design SBR Snapshot production process	SBR					X	
	Specify Common Frame coverage and content	SBR					X	
	Design Common Frame production process	SBR					X X	

B4-2 Design Survey Frame production process

	Design format for survey frame specification	SBR					X	
	Define process for production of survey frame based on frame specification	SBR					X	

ID	Activity	Respon- sible Area	NSO staff days	Con- sulting days	Costs	Year 1	Year 2	Year 3
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B4 Design Frame, Sample, and Survey File Creation Processes

B4-3 Design sample selection process

	Define format for selection of survey sample size determination and allocation procedure	SBR					x	
	Design process for accessing and using selected sample size determination and allocation procedure	SBR					x	
	Define format for specifying sample stratification	SBR					x	
	Design process for stratification using specified stratification	SBR					x	
	Define format for specifying sample selection procedure	SBR					x	
	Design process for accessing and using selected sample selection procedure	SBR					x	

B4-4 Design survey control file production process

	Specify standard survey control file contents and format	SBR					x	
	Design process for production of survey control file according to specification	SBR					x	

B4-5 Design process for production of survey input database shell

	Specify standard survey input database shell	ICS					x	
	Design process for production of survey shell database according to specification	ICS					x	

B5 Design Respondent Monitoring Processes

B5-1 Design individual enterprise status reporting process

	Design process for bringing together status data from an enterprise from all business surveys	SBR					x	
	Design process for displaying and reporting enterprise status data	SBR					x	

B5-2 Design respondent burden measurement process

	Define respondent burden	SBR					x	
	Design respondent measurement procedure for each business survey	SBR					x	
	Design procedure for aggregating, displaying & reporting total respondent burden for any given reference period	SBR					x	

ID	Activity	Respon- sible Area	NSO staff days	Con- sulting days	Costs	Year 1	Year 2	Year 3
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B6 Design Processes for Direct Use of Data from SBR

B6-1 Design business statistics publication based on SBR data

	Determine and analyze user demand for counts of enterprises by economic activity, region, size group, sector	SBR					X	
	Determine and analyze user demand for enterprise demographics – birth, deaths, changes over time	SBR					X	
	Design tables for business statistics publication based on SBR data	SBR					X X	

B6-2 Design data linkage using SBR

	Analyze potential for bringing together data from annual production surveys	SBR					X	
	Design business statistics output database	SBR					X	

C SBR BUILD, TEST, AND INSTALL

C1 Build, Test, and Install SBR Database

	Specify ICT operating environment for SBR Database and applications	ICT					X	
	Develop detailed statement of requirements for SBR Database	ICT Con					X	
	Develop detailed design of SBR Database	ICT Con					X X	
	Build SBR Database	ICT Con					X X	
	Test SBR Database from ICT perspective	ICT						X
	Test SBR Database from SBR perspective	SBR						X
	Install SBR Database	ICT Con						X
	Prepare and conduct SBR Database training for SBR staff	ICT Con						X

ID	Activity	Respon- sible Area	NSO staff days	Con- sulting days	Costs	Year 1	Year 2	Year 3
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C2 Build, Test, and Install SBR Administrative Data Update Processes

C2-1 Build, test, and install process for access and use of primary administrative data source

	Develop detailed statement of requirements for data access & update	ICT Con						x
	Develop detailed design for data access & update	ICT Con						x
	Build system for data access & update	ICT Con						x
	Test system for data access & update from ICT perspective	ICT						x
	Test system for data access & update from user perspective	SBR						x x
	Install system for data access & update	ICT Con						x
	Prepare and conduct data access & update training for SBR staff	ICT Con						x

C2-2 Build, test, and install processes for access and use of first additional data source

	Develop detailed statement of requirements for data access & update	ICT Con						x
	Develop detailed design for data access & update	ICT Con						x
	Build system for data access & update	ICT Con						x x
	Test system for data access & update from ICT perspective	ICT						x
	Test system for data access & update from user perspective	SBR						x
	Install system for data access & update	ICT Con						x
	Prepare and conduct data access & update training for SBR staff	ICT Con						x

C2-3 Build, test, and install process for access and use of second additional data source

	Develop detailed statement of requirements for data access & update	ICT Con						x
	Develop detailed design for data access & update	ICT Con						x
	Build for data access & update	ICT Con						x
	Test system for data access & update from ICT perspective	ICT						x
	Test system for data access & update from user perspective	SBR						x
	Install system for data access & update	ICT Con						x
	Prepare and conduct data access & update training for SBR staff	ICT Con						x

ID	Activity	Respon- sible Area	NSO staff days	Con- sulting days	Costs	Year 1	Year 2	Year 3
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C3 Build, Test, and Install Manual Investigation and Updating Processes

C3-1 Build, test, and install SBR Survey system

	Develop detailed statement of requirements for SBR Survey data collection system	ICT						X
	Build SBR Survey data collection system	ICT						X
	Develop SBR Survey procedures	SBR						X
	Test SBR Survey data collection procedures and system	SBR						X
	Install SBR Survey data collection system	ICT						X
	Prepare and conduct SBR Survey data collection training for Regional Office staff	SBR						X
	Develop detailed statement of requirements for SBR update based on SBR Survey data	ICT Con						X
	Build system for SBR update based on SBR Survey data	ICT Con						X
	Test system for SBR update based on SBR Survey data	SBR						X
	Install system for SBR update based on SBR Survey data	ICT Con						X
	Prepare and conduct training on update system for SBR staff	ICT Con						X

C3-2 Build, test, and install profile recording system

	Develop detailed statement of requirements for profile recording system	ICT Con						X
	Develop detailed design for profile recording system	ICT Con						X
	Build profile recording system	ICT Con						X
	Develop profiling procedures	SBR						X
	Test profile recording procedures and system	SBR						X
	Install profile recording system	ICT Con						X

ID	Activity	Respon- sible Area	NSO staff days	Con- sulting days	Costs	Year 1	Year 2	Year 3
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C3 Build, Test, and Install Manual Investigation and Updating Processes

C3-3 Build, test, and install business survey feedback process

	Develop detailed statement of requirements for SBR update based on business survey data	ICT Con						x
	Build system for SBR update based on business survey data	ICT Con						x
	Develop procedures SBR update based on business survey data	SBR						x
	Test system for SBR update based on business survey data	SBR						x
	Install system for SBR update based on business survey data	ICT Con						x
	Prepare and conduct training on update system for SBR staff	ICT Con						x

C3-4 Identify need and make provision for ad hoc investigation and update

	Develop detailed statement of requirements for ad hoc SBR update system	ICT Con						x
	Build system for ad hoc SBR update	ICT Con						x
	Develop procedures for ad hoc SBR update	SBR						x
	Test system for ad hoc SBR update	SBR						x
	Install system for ad hoc SBR update	ICT Con						x
	Prepare and conduct training on ad hoc SBR update for SBR staff	ICT Con						x

ID	Activity	Respon- sible Area	NSO staff days	Con- sulting days	Costs	Year 1	Year 2	Year 3
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C4 Build, Test, and Install Frame, Sample and Survey File Processes

C4-1 Build, test, and install Common Frame production process

	Develop detailed statement of requirements for Common Frame production process	ICT Con						X
	Build Snapshot and Common Frame production system	ICT Con						X
	Develop Snapshot and Common Frame production procedures	SBR						X
	Test Snapshot and Common Frame production procedures and system	SBR						X
	Install Snapshot and Common Frame production system	ICT Con						X
	Prepare and conduct Snapshot and Common Frame production system training for SBR staff	SBR						X

C4-2 Build, test, and install Survey Frame production process

	Develop detailed statement of requirements for Survey Frame production process	ICT Con						X
	Build Survey Frame production system	ICT Con						X
	Develop Survey Frame production procedures	SBR						X
	Test Survey Frame production procedures and system	SBR						X
	Install Survey Frame production system	ICT Con						X
	Prepare and conduct Survey Frame production system training for SBR staff	ICT Con						X

ID	Activity	Respon- sible Area	NSO staff days	Con- sulting days	Costs	Year 1	Year 2	Year 3
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C4 Build, Test, and Install Frame, Sample and Survey File Processes

C4-3 Build, test, and install sample selection processes

	Develop detailed statement of requirements of process for specifying and invoking sample size determination and allocation procedure	ICT Con						X
	Build system for specifying and invoking sample size determination and allocation procedure	ICT Con						X
	Develop procedure for specifying sample size determination and allocation procedure	SBR						X
	Test procedures and system for specifying and invoking sample size determination and allocation procedure	SBR						X
	Install system for specifying and invoking sample size determination and allocation procedure	ICT Con						X
	Prepare and conduct training for SBR staff	ICT Con						X
	Develop detailed statement of requirements of process for specifying and invoking stratification procedures	ICT Con						X
	Build system for specifying and invoking stratification	ICT Con						X
	Develop procedures for specifying stratification	SBR						X
	Test procedures and system for specifying and invoking stratification	SBR						X
	Install system for specifying and invoking stratification	ICT Con						X
	Prepare and conduct training for SBR staff	ICT Con						X
	Develop detailed statement of requirements of process for specifying and invoking sample selection procedure	ICT Con						X
	Build system for specifying and invoking sample selection procedure	ICT Con						X X
	Develop procedures for specifying sample selection procedure	SBR						X
	Test procedures and system for specifying and invoking sample selection procedure	SBR						X
	Install system for specifying and invoking sample selection procedure	ICT Con						X
	Prepare and conduct training for SBR staff	ICT Con						X

ID	Activity	Respon- sible Area	NSO staff days	Con- sulting days	Costs	Year 1	Year 2	Year 3
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C4 Build, Test, and Install Frame, Sample and Survey File Processes

C4-4 Build, test, and install survey control file process

	Develop detailed statement of requirements for producing survey control file	ICT						X			
	Build system for producing survey control file	ICT						X			
	Develop procedure for producing survey control file	SBR						X			
	Test procedures and system for producing survey control file	SBR							X		
	Install system for producing survey control file	ICT							X		
	Prepare and conduct training for SBR staff	ICT								X	

C4-5 Build, test, and install process for survey shell database

	Develop detailed statement of requirements of process for producing survey shell database	ICT							X		
	Build system for producing survey shell database	ICT							X		
	Develop procedure for producing survey shell database	SBR							X		
	Test procedures and system for producing survey shell database	SBR								X	
	Install system for producing survey shell database	ICT								X	
	Prepare and conduct training for SBR staff	ICT									X

ID	Activity	Respon- sible Area	NSO staff days	Con- sulting days	Costs	Year 1	Year 2	Year 3
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C5 Build, Test, and Install Respondent Monitoring Processes

C5-1 Build, test, and install individual enterprise status reporting process

	Develop detailed statement of requirements of process for displaying & reporting individual enterprise status	ICT Con						X
	Build system for displaying & reporting individual enterprise status	ICT Con						X
	Develop procedures for displaying & reporting individual enterprise status	SBR						X
	Test procedures and system for displaying & reporting individual enterprise status	SBR						X
	Install system for displaying & reporting individual enterprise status	ICT Con						X
	Prepare and conduct training for SBR staff	ICT Con						X

C5-2 Build, test, and install respondent burden measurement process

	Develop detailed statement of requirements of process for measuring aggregate respondent burden	ICT Con						X
	Build system for displaying & reporting measuring aggregate respondent burden	ICT Con						X
	Develop procedures for displaying & reporting measuring aggregate respondent burden	SBR						X
	Test procedures and system for measuring aggregate respondent burden	SBR						X
	Install system for measuring aggregate respondent burden	ICT Con						X
	Prepare and conduct training for SBR staff	ICT Con						X

C6 Build, Test, and Install Processes for Producing Statistics from SBR

C6-1 Build, test, and install process for business statistics publication based on SBR data

	Develop detailed statement of requirements of process for producing SBR-based publication	ICT						X
	Develop process for producing SBR-based publication	ICT						X
	Test process for producing SBR-based publication	SBR						X
	Prepare and conduct training for SBR staff	ICT						X

ID	Activity	Respon- sible Area	NSO staff days	Con- sulting days	Costs	Year 1	Year 2	Year 3
D	INITIALIZE AND OPERATE SBR							
D1	Initialize the SBR with Administrative Data							
D1-1	Initialize with data from primary administrative source							
	Obtain full set of data							X
	Create administrative tables in SBR							X
	Create statistical tables in SBR							X
	Analyze tables, identify systematic sources of error, and discuss with administrative source							X
	Correct problems							X
	Repeat process as many times as needed							X X
D1-2	Initialize with data from first additional administrative source							
	Obtain full set of data							X
	Update administrative tables in SBR							X
	Update statistical tables in SBR							X
	Administrative source							X
	Correct problems							X
	Repeat process as many times as needed							X X
D1-3	Initialize with data from second additional administrative source							
	Obtain full set of data							X
	Update administrative tables in SBR							X
	Update statistical tables in SBR							X
	Analyze tables, identify systematic sources of error, and discuss with administrative source							X
	Correct problems							X
	Repeat process as many times as needed							X X

ID	Activity	Respon- sible Area	NSO staff days	Con- sulting days	Costs	Year 1	Year 2	Year 3
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D2 Conduct First Rounds of SBR Survey and Profiling

D2-1 Conduct first round of SBR Survey

	Check system and algorithm for identifying highest-priority enterprises							X
	Correct problems							X
	Identify enterprises to be contacted							X
	Conduct survey and process data							X
	Conduct automatic update of SBR and check for processing problems and data errors							X
	Conduct manual update of SBR and check for processing problems and data errors							X X
	Correct/modify SBR survey system and procedures as needed							X

D2-2 Conduct first round of profiling

	Check system and algorithm for identifying highest-priority enterprises							X
	Correct any problems							X
	Identify enterprises to be profiled							X
	Conduct profiling							X
	Conduct manual update of SBR-based profiling results							X
	Correct/modify profiling system and procedures as needed							X X

D3 Conduct Full-scale Test of Survey File Production and Respondent Burden Measurement

D3-1 Produce and verify Enterprise Snapshot

	Produce Enterprise Snapshot							X
	Analyze and identify processing problems and data errors							X
	Solve problems, correct errors, and rerun as needed							X

ID	Activity	Respon- sible Area	NSO staff days	Con- sulting days	Costs	Year 1	Year 2	Year 3
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D3 Conduct Full-scale Test of Survey File Production and Respondent Burden Measurement

D3-2 Produce and verify Common Frame

	Produce Common Frame							X
	Analyze and identify processing problems and data errors							X
	Solve problems, correct errors, and rerun as needed							X
	Select business surveys to be involved in test							X

D3-3 Produce and verify frame for first selected business survey

	Define frame specification							X
	Produce survey frame							X
	Analyze and identify processing and data errors							X
	Correct errors and rerun as needed							X

D3-4 Produce and verify sample for second selected business survey

	Define sample specification							X
	Select survey sample							X
	Analyze and identify processing and data errors							X
	Correct errors and rerun as needed							X

D3-5 Check respondent burden measurements

	Check the reporting current obligations of two enterprises, one in the sample, one not in the sample							X
	Check overall respondent burden totals based simply on manufacturing sample							X
	Correct problems and rerun if necessary							X

D4 Full-scale Test Production of SBR-Based Business Statistics

	Define tables required							X
	Produce tables							X
	Analyze tables and identify processing and data errors							X
	Correct errors and rerun as needed							X

ID	Activity	Respon- sible Area	NSO staff days	Con- sulting days	Costs	Year 1	Year 2	Year 3
E	REVIEW AND REVISE ECONOMIC SURVEY PROGRAM							
E1	Review Economic Survey Program							
E1-1	Review Economic Survey Program							
	Consider impact of SBR and how program could be better harmonized and integrated							X
	Consider introduction of annual economy-wide survey							X
	Consider introduction of periodic household-based enterprise survey							X
	Consider introduction of other new survey							X
E2	Redesign Existing Business Surveys to Make Optimum Use of SBR							
E2-1	Redesign First Survey							
	Specify coverage and content							X
	Prepare sample design							X
	Design questionnaire							X X
	Define data collection procedures							X
	Design editing & imputation procedures							X X
	Design estimation procedures							X X
	Design output tables and determine dissemination procedures							X
	Design procedures for transition from current to redesigned survey							X
E2-2	Redesign Second Survey							
	Specify coverage and content							X
	Prepare sample design							X
	Design questionnaire							X X
	Define data collection procedures							X
	Design editing & imputation procedures							X X
	Design estimation procedures							X X
	Design output tables and determine dissemination procedures							X
	Design procedures for transition from current to redesigned survey							X



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