United
Nations

Department of Economic and Social Affairs

Manual on the Classification of Business Functions

Department of Economic and Social Affairs
Statistics Division

Statistical Papers   Series F No. 125

Manual on the Classification of Business Functions

United Nations
New York, 2023

Department of Economic and Social Affairs

The Department of Economic and Social Affairs of the United Nations is a vital interface between global policies in the economic, social and environmental spheres and national action. The Department works in three main interlinked areas: (i) it compiles, generates and analyses a wide range of economic, social and environmental data and information on which United Nations Member States draw to review common problems and to take stock of policy options; (ii) it facilitates the negotiations of Member States in many intergovernmental bodies on joint courses of action to address ongoing or emerging global challenges; and (iii) it advises interested Governments on the ways and means of translating policy frameworks developed in United Nations conferences and summits into programmes at the country level and, through technical assistance, helps build national capacities.

Note

The designations employed and the presentation of the material in the present publication do not imply the expression of any opinion whatsoever on the part of the United Nations concerning the legal status of any country or of its authorities or the delimitations of its frontiers. The term "country" as used in this publication also refers, as appropriate, to territories or areas. The designations of country groups in the publication are intended solely for statistical or analytical convenience and do not necessarily express a judgment about the stage reached by a particular country, territory or area in the development process. Mention of the names of firms and commercial products does not imply the endorsement of the United Nations. The symbols of United Nations documents are composed of capital letters and numbers. Mention of such a symbol indicates a reference to a United Nations document.

Preface and acknowledgements

The *Manual on the Classification of Business Functions* was developed to provide a common framework for measuring how enterprises organize their production and supporting functions and to improve understanding of globalization, global value chains and sourcing patterns. The classification provides an internationally agreed set of categories to collect and report statistics on the business functions of enterprises and, therefore, a common framework for international comparison.

The classification of business functions goes beyond the traditional product or activity breakdown and provides more relevant categories for describing and measuring how companies organize their production and supporting functions. Such classification is particularly useful in measuring domestic and international sourcing and the distribution of work in global value chains.

Work on the classification started with the recommendation adopted by the Expert Group on International Statistical Classifications of the United Nations (renamed the "United Nations Committee of Experts on International Statistical Classifications" in March 2021) at its meeting held from 18 to 20 May 2011, in New York, to develop guidance for identifying core and support business functions in relation to international outsourcing by enterprises. A technical subgroup was established to review existing work carried out in Europe, Canada and the United States of America, and to develop and test the classification of business functions. Eurostat took the lead in building and testing a potential classification in European Union countries through the International Sourcing/Global Value Chains Survey. In November 2020, the Technical Subgroup met in New York to review country experiences in the use of the classification. The Subgroup agreed that there was a need to elevate the classification of business functions to the level of an international statistical classification in order to harmonize efforts in measuring sourcing.

A global consultation on the draft manual was carried out from August to October 2020. On the basis of the outcome of the consultation, and upon recommendation of the Committee of Experts on International Statistical Classifications, the classification of business functions was submitted and endorsed by the Statistical Commission at its fifty-third session, in March 2022, as an international statistical classification.

The following experts were members of the Technical Subgroup and contributed to the development of the *Manual*: Franklin Assoumou Ndong (Canada), Peter Bøegh Nielsen (Denmark), Amitava Saha (India), Stefano Menghinello (Italy), Fred Demollin and Bart Loog (Netherlands), Andrew Hancock (New Zealand), Severa Belista De Costo (Philippines), Paula Bordelo (Portugal), Fay Dorsett (United States), Celestino Giron (European Central Bank), Axel Behrens, Nikola Sunjka and Georgios Papadopoulos (Eurostat), Nadim Ahmad (Organisation for Economic Co-operation and Development), Barbara D'Andrea (World Trade Organization), Timothy Sturgeon and Sharon P. Brown (independent experts) and Ilaria Di Matteo, Markie Muryawan, Ronald Jansen, Ivo Havinga, Nancy Snyder and Zhiyuan Qian (Statistics Division). The project was carried out under the overall supervision of Mr. Havinga.

Invaluable inputs were received from various national statistical offices in 2020 during the global consultation, as well as from regional workshops and meetings with international and regional agencies, such as the Eurostat Global Value Chains Task Force and various national statistical offices.

Special acknowledgements go to Messrs. Sturgeon and Nielsen, who were active throughout the initial proposal and revision process, and to Messrs. Sunjka and Papadopoulos, for leading the substantive development of the present classification and its implementation in the global value chain surveys in Europe.

Abbreviations and acronyms

CPA	Statistical Classification of Products by Activity
CPC	Central Product Classification
GVC	global value chain
ICT	information and communications technology
IS	international sourcing
ISCO	International Standard Classification of Occupations
ISIC	International Standard Industrial Classification of All Economic Activities
NACE	Statistical Classification of Economic Activities in the European Community
NAICS	North American Industry Classification System

Contents

Chapter I
Introduction

A. Introduction to the classification of business functions

1.   Economic policymaking requires high-quality statistics on how and where enterprises[1] are sourcing specific business functions.[2] This new demand stems from the mainstreaming of domestic and international sourcing[3] strategies by enterprises across size, industry classifications and economic territory. It cannot be assumed that enterprises will carry out all or even most business functions entirely within their organizations and their domestic economy. Furthermore, organizational and geographical fragmentation in global value chains[4] is evident in the main revenue-producing activity of enterprises and across various supporting or ancillary business activities, such as research and development, information and communications technology (ICT) services, customer support, and different management and administrative activities. A measurement framework based on business functions is required to capture enterprise-level information on those arrangements.

2.   The classification of business functions is intended for use in the production of business statistics, building on experiences from several recent surveys in Europe, Canada, the United States and India. The primary use of business function statistics is to examine the details of international sourcing. However, it could also be applied to domestic sourcing.

3.   International sourcing statistics can help statisticians and policymakers to measure and monitor organizational and spatial patterns in national, regional and global value chains and allow for the effects of those patterns – on employment, wages, innovation, skills, firm survival and turnover – to be measured. In domestic sourcing, classifying business functions helps to analyse the dynamics of business function specialization. The classification of business functions is applicable for both developed and developing countries to measure the impact of both domestic and international sourcing in their national economies. However, in practice, its implementation has focused more on international sourcing than domestic sourcing.

B. Historical background

4.   In 2011, the Statistics Division submitted to the Expert Group on International Statistical Classifications of the United Nations the proposal to develop an international classification of business functions based on the experiences of selected countries and Eurostat in the measurement of the phenomenon of international sourcing.

5.   At its meeting in May 2011, in New York, the Expert Group on International Statistical Classifications agreed that guidance for identifying core business functions and support functions in relation to their international sourcing should be developed. It recognized that global sourcing had high policy relevance and that further work was needed to improve its measurement by developing a common framework and

---

[1]   An enterprise may be a corporation, a quasi-corporation, a non-profit institution or an unincorporated enterprise (*System of National Accounts 2008*).

[2]   A business function is a grouping of common tasks that enterprises must carry out on a regular basis, either internally or externally, to bring goods or services to market.

[3]   Total or partial movement of business functions by an enterprise to another enterprise, either within the domestic market or across borders.

[4]   The sequence of all functional activities required in the process of value creation involving more than one country.

guidelines. The Expert Group therefore suggested to create a subgroup to discuss the need for a standard classification of business functions to replicate and compare the results of such studies internationally. Such classification would go beyond the traditional product or activity breakdown (the Central Product Classification (CPC) or the International Standard Industrial Classification of All Economic Activities (ISIC)) and provide more relevant categories to study how companies structured their operations. It was recognized that such classification would be essential in the measurement of outsourcing[5] and the distribution of work in global value chains and relating business functions to international trade flows.

6.   At its forty-third session, in February 2012, the Statistical Commission concurred with the aforementioned conclusions of the Expert Group on International Statistical Classifications. As a result, a technical subgroup on the classification of business functions was created the same year. In addition, experimental work was carried out in Europe, Canada and the United States to develop and test a classification of business functions. In particular, Eurostat took the lead in building and testing the classification in European Union countries through the International Sourcing/ Global Value Chains Survey. On the basis of the experience gained by Eurostat, a draft classification of business functions was developed. Furthermore, the terms of reference of the technical subgroup were updated in October 2020 in the light of the work carried out since 2012.

7.   The Technical Subgroup on the Classification of Business Functions met in November 2020 to review the draft classification. The Subgroup agreed that there was a need to elevate the classification of business functions to the level of an international statistical classification in order to harmonize efforts in measuring sourcing.

8.   The present *Manual on the Classification of Business Functions* reflects the comments by the Technical Subgroup and was prepared for global consultation in order to seek endorsement by the United Nations Committee of Experts on International Statistical Classifications and the Statistical Commission in 2022.

C.   Structure of the *Manual*

9.   The *Manual* is organized as follows. Chapter I contains the introduction and chapter II covers the underlying principles of the classification of business functions. The concept of business functions and their use in statistical surveys are described in chapter III. A critical distinction is made between core and support functions, and some of the policy issues addressed by international sourcing statistics are identified. Prior uses of classifications of business functions in statistical surveys are also examined. Chapter IV contains a description of the classification of business functions, which comprises three levels of disaggregation. Lastly, chapter V contains the concluding comments and lays out the way forward. Supplements, submitted as separate Excel files, provide correspondences between the proposed classification of business functions and the Statistical Classification of Products by Activity (CPA), the International Standard Classification of Occupations (ISCO), the Statistical Classification of Economic Activities in the European Community (NACE), ISIC and CPC.

---

[5]   Total or partial movement of business functions by an enterprise to another enterprise outside its group.

Chapter II
Underlying principles of the classification

A. Purpose and nature of the classification

10.   The primary use of the classification is as a tool for statistical analysis. It is aimed at showing how enterprises organize their production and supporting functions, and, in particular, at helping with understanding globalization and global value chains when international sourcing occurs, and domestic value chains when domestic sourcing occurs. Adopting an international classification for business functions ensures international comparability of statistics on domestic and international sourcing and on global value chains. The main reasons for which enterprises engage in international sourcing and participate in global value chains are to reduce labour and other costs, access new markets and specialized knowledge or technologies, and focus on core business. On the other hand, barriers to international sourcing and global value chain activities are often related to legal or administrative hurdles, taxation issues, trade barriers and tariffs, lack of qualified labour in the domestic market and financial constraints.

B. Scope of the classification

11.   Business functions can be thought of as a set of tasks that enterprises must carry out regularly, either internally or externally, to bring goods or services to the market. Examples of such tasks are management, research and development, information technology, marketing and sales, and transport. The classification of business functions thus covers all those tasks and is aimed at categorizing them under the broader term of business functions. Business functions are typically differentiated from business processes, which refer to work organized temporarily to achieve a specific goal.

C. Statistical units, observational units and population

12.   The statistical unit of the classification is restricted to the enterprise, which is defined in the System of National Accounts 2008. The population covers only market-producing enterprises, as only those can have a core business function (defined as the production of goods or services for the market).

13.   An enterprise is an institutional unit in its capacity as a producer of goods and services. It is an economic transactor with autonomy in respect of financial and investment decision-making, as well as authority and responsibility for allocating resources for the production of goods and services (ISIC, Rev.4, para. 77). The European Union's definition of the enterprise is in line with the definition in ISIC, Rev.4.[6]

14.   The enterprise is a statistical construct and not a legal form. As such, it is not always the appropriate observation unit. Consequently, the observational unit for the classification of business functions is the legal unit. However, in many cases, the enterprise statistical unit often consists of only one legal unit, in which case the enterprise can be surveyed directly.

[6]   The European Union defines the 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. An enterprise carries out one or more activities at one or more locations. An enterprise may be a sole legal unit" (Council Regulation (EEC) No. 696/93 of 15 March 1993 on the statistical units for the observation and analysis of the production system in the Community).

D. Differences from other types of classification

15.   The classification of business functions is a classification according to the kind of business functions and not a classification of goods and services (e.g. CPC) or activities (e.g. ISIC). A unit can carry out multiple business functions simultaneously. The classification of business functions is aimed at grouping similar tasks to form broader classes of business functions.

16.   Generally, it is impossible to establish a one-to-one correspondence between business functions and activities or business functions and products, and the classification of business functions is not designed to measure product data at any detailed level. However, a general correspondence between business functions and activities or products can be created, which would make it easier to identify business functions (correspondence tables to ISCO-08, ISIC, Rev.4, and CPC, version 2.1, are under development and will be provided as supplements to the present publication when they are available).

E. Implementation plan

17.   After its adoption at the international level, the implementation of the classification of business functions will require several coordinated activities to support countries in its gradual use for both national purposes and global reporting. The plan includes four main components: (a) an information campaign to raise awareness among countries of the existence of the classification and its benefits; (b) the development of methodological tools to guide data producers and users; (c) technical assistance programmes targeting national data producers; and (d) the establishment of an appropriate organizational and institutional framework at the international level to foster the implementation of the classification of business functions. In addition, the implementation of the plan will require additional resources, the availability of which will determine the pace of completion.

Chapter III
Concept of business functions and their use in statistical surveys

A. Concept of business functions

18.   The concept of business functions is well known in the field of management. It can be traced to the early work of Michael Porter (1985), who identified a list of nine "activities" in a generic "value chain". Five "primary" activities follow a rough value added sequence (inbound logistics, operations, outbound logistics, marketing and sales, and service), while four "support" activities serve the entire organization (firm infrastructure, human resources, technology development and procurement). Individual functions can be further divided into subfunctions.[7]

19.   In his generic model, Mr. Porter clearly included activities relevant to a manufacturing enterprise. Still, the concept was meant to be flexible, with strategic managers using categories based on the actual functions carried out within their organizations. However, the importance of his model is not in the specific list of activities (or business functions) that it provides, but in the influence of his work and the work of his many followers among enterprise managers, who were encouraged to undertake a careful analysis of their organizations according to specific functions within its value chain. The idea was to divide the activities of the enterprise into "physically and technologically distinct categories".[8] While the division and subdivision of activities could be carried out ad infinitum, managers were instructed to identify activities that: (a) had different economics (e.g. scale or transport requirements); (b) had a high potential impact of differentiation (e.g. activities that could provide a competitive advantage over rivals); or (c) represented a significant or growing proportion of costs.

20.   Once identified, business functions could be measured and evaluated in quantitative terms (most basically in terms of costs and profit margins for each), and decisions could be taken regarding external or internal sourcing.[9] At a time when leading industries, such as the computer industry, were shifting from a "vertical" organizational structure, where firms performed most functions in-house, to a "horizontal" structure, where firms specialized in specific functions based on an identified "core competence" (Prahalad and Hamel, 1997), the concepts developed by Mr. Porter provided a method for analysing the enterprise in advance of making critical decisions about which functions to outsource and which functions to keep in-house. When costs or market access were an important factor, offshoring[10] was a favoured strategy, mainly to large market countries with low operating costs, such as China and other countries in East Asia (Gereffi, 1994; Baldwin, 2011).

21.   It thus became more common for managers to conceive of, evaluate and monitor their organizations in terms of a parsimonious list of functionally distinct business functions (e.g. manufacturing versus transport versus administration), strategically important (e.g. research and development, product design and marketing) and costly (e.g. manufacturing and information technology services). Of course, a Porteresque

[7] Note that, in Mr. Porter's framework, an "activity" does not refer to the industry of the enterprise, as is the case in European business statistics, but to a more or less coherent set of tasks organized for an identifiable purpose, referred to in the present *Manual* as a "business function".

[8] Those categories were expected to vary according to the "[enterprise's] history, its strategy, its approach to implementing strategy and the underlying economics of the activities themselves" (Porter, 1985, p. 33).

[9] Internal sourcing (insourcing) refers to sourcing within the enterprise or enterprise group, while external sourcing (outsourcing) refers to sourcing outside the enterprise or enterprise group. See figure 1 for a detailed overview and the glossary for more information on the definitions.

[10] Similar to international sourcing. It historically refers to international outsourcing for cost-cutting reasons.

value chain analysis also allowed managers to identify strategically unimportant functions and, therefore, top candidates for outsourcing and offshoring.

22.   The influence of Mr. Porter's ideas on enterprise managers is difficult to overstate,[11] and here lies an opportunity for economic statistics: to collect innovative business statistics by leveraging enterprise managers' manner of thinking about – and often measuring – tasks within their organizations. However, not all managers have internalized the concept of business functions concerning their businesses. As business function surveys shift from an experimental status, where surveys sought out responses from higher-level managers for their "best estimates" of enterprise characteristics according to business functions, to a more standard survey that might be received and completed by accounting departments on a routine basis, familiarity with the concept cannot be assumed. The classification of business functions will support the adaptation of current approaches to designing business surveys to seek responses through regular data collection.

B.   Adapting the concept of business functions for use in statistical surveys

23.   The concept of business functions is relatively new to the statistical toolbox. Business functions offer statisticians and survey respondents a limited yet relatively comprehensive set of generic, easy-to-understand categories that describe the various functions carried out by enterprises, including and in addition to their main economic activity. Business function statistics are needed because enterprises, in addition to producing the goods or services from which they earn their turnover, typically require a set of functions to support their core revenue-producing function. Since support functions are defined separately from the main industry classification, they can be expressed as a generic list. Business functions are therefore identifiable parts of business statistics.

24.   Although business functions have commonalities with existing concepts in economic statistics, such as occupations, industries and activities or products, they differ in many ways. From a conceptual point of view, a business function is defined as a grouping of common tasks that enterprises must carry out regularly, either internally or externally, to bring goods or services to the market, such as administration and management, research and development, and marketing and sales. Business functions are typically differentiated from business processes, which refer to work organized temporarily to achieve a specific goal. As such, business functions are relatively stable in an organization, while business processes last only until the goal is met.

25.   Business functions can be thought of as the "occupations of enterprises". They can be associated with specific industries and activities, occupations and products in a general way but are not reducible to them. The classification of business functions is therefore not a complementary grouping within any other classification. It is based on a novel concept in business management. Nonetheless, correspondence tables (concordances) to other classifications, such as ISIC, ISCO and CPC, help to improve the analytical uses of the classification on business functions. With the linkage of business functions to business activities, products or jobs, the classification of business functions can be used not only in international sourcing surveys but also in other types of business surveys.

[11]   As at 4 February 2019, Mr. Porter had 421,937 citations on Google Scholar. The book in which the concept of business functions was introduced (*Competitive Advantage: Creating and Sustaining Superior Performance*, 1985), has been published in 13 languages in 30 reprintings over 11 editions and garnered 94,832 citations. Complementary influencers have also been important. For example, the article published in 1997 by C. K. Prahalad and Gary Hamel entitled "The core competence of the corporation" garnered 34,217 citations.

C. Using the classification of business functions to define patterns of industrial organization and sourcing location

26.   The main motivation for the classification of business functions[12] stems from the need to measure domestic and international sourcing in a consistent and internationally comparable manner. The sourcing strategies of enterprises are most often thought of in connection with manufacturing and manufacturing services. Outsourcing and the offshoring of labour-intensive parts of the manufacturing process have been a long-standing practice in specific industries and countries, such as the semiconductor and television assembly in East Asia for the United States market and apparel assembly in North Africa for European markets (Fröbel and others, 1980; Grunwald and Flamm, 1985). However, in the 1990s and 2000s, it became more common and generalized across more industries, such as telecommunications equipment, automobiles and automotive parts and commercial aircraft parts (Sturgeon, 2002).

27.   Some goods-producing enterprises partially maintained internal manufacturing, while others became entirely "factory-less" (Bernard and Fort, 2015), sourcing all production externally. Thus, those manufacturers never pursued the strategy of in-house production. Consequently, "contract manufacturers", such as Flex, Foxconn and Pou Chen, increased in number, size and scope, creating an easy-to-access "global supply base" that encouraged more companies to engage in the twin and often entwined strategies of outsourcing and offshoring (Sturgeon and Lester, 2004).

28.   After 2001, outsourcing and offshoring became more common for support functions, such as telephone marketing and customer contact services (often organized in "call centres"), software coding and back-office functions, such as payroll and document management, especially in India (Dossani and Kenney, 2003). The growing use and capabilities of ICT systems have accelerated both outsourcing and trade in such ICT-enabled services[13] (Van Welsum and Reif, 2009). Echoing the rise of contract manufacturers, specialized service providers, such as Infosys and Wipro, grew and eventually set up international operations to provide remote services. More recently, enterprises have been experimenting with fragmenting and relocating parts of the research and development process (Cantwell and Mudambi, 2005; Lewin and others, 2009; Frick, 2014). Most recently still, with the rise of the digital economy, the ease and reliability of remote access to knowledge-intensive services and of setting up internationally distributed business systems have been increasing with great rapidity (United Nations Conference on Trade and Development, 2017). In Europe, international sourcing trends has remained strong, with manufacturing enterprises driving almost half of international sourcing cases. The main reason enterprises engaged in international sourcing used to be to cut costs, but more and more enterprises have been motivated to source internationally in order to focus on their core business (Eurostat, 2019).

29.   The concept of outsourcing supposes a shift from internal to external sourcing. While this may have been common in the earlier rounds of externalization and internationalization, many younger firms now begin operations with a heavy reliance on external and international sourcing for various business functions. This is why the term "outsourcing" is not used in the present *Manual* unless it specifically refers to the movement from internal to external sourcing. The terms used, namely, "internal and external sourcing" and "domestic and international sourcing", are neutral as to the original state of enterprise organization (vertically integrated or vertically specialized) and the direction of change in sourcing choices (internal or external).

[12]   To date, the classification of business functions has been mostly used in international sourcing surveys.

[13]   ICT-enabled services are services products delivered remotely over ICT networks (as defined in the "International trade in ICT services and ICT-enabled services", United Nations Conference on Trade and Development, 2015).

30.   Traditional business statistics have few tools for capturing or characterizing the new sourcing patterns and the enterprise configurations and business models that go with them, especially in an international context. New international input-output data sets, constructed by merging multiple national-level supply-use tables with international trade statistics, provide researchers and policymakers with further information on the various roles that countries play in "global value chains", such as export assemblers and exporters of low- or high-value intermediates.[14] There is a demand for statistical tools that can "look inside" the enterprise to understand better how enterprises are linked to affiliated and non-affiliated suppliers both domestically and abroad. International sourcing surveys using a classification of business functions are aimed at meeting that demand.

31.   International sourcing surveys need to collect information on domestic and international sourcing. Domestic and international sourcing can be carried out within the enterprise or enterprise group[15] or by external suppliers. Thus, managers are presented with the four basic sourcing options shown in figure 1: two domestic options (internal domestic sourcing from within the enterprise or enterprise group and external domestic sourcing from independent (non-affiliated) suppliers); and two international options (internal international sourcing from within the enterprise group (i.e. foreign affiliates) and external international sourcing from independent suppliers).

32.   Figure 1 shows the sourcing options available for a single business function or the enterprise as a whole. In theory, the four options are possible for any business function, and enterprises can and do source various functions differently. Thus, domestic and international sourcing information can be captured in a single survey question by asking respondents to characterize the four options for a predetermined list of business functions. This concept is shown as a generic survey question in table 1.

[14]   Prominent examples of publicly available international input-output data sets include the World Input-Output Database project, funded by the European Commission as part of the seventh Framework Programme; the Organisation for Economic Co-operation and Development/World Trade Organization Trade in Value Added database; and the Eurostat intercountry supply, use and input-output tables, called "Full international and global accounts for research in input-output analysis" (FIGARO).
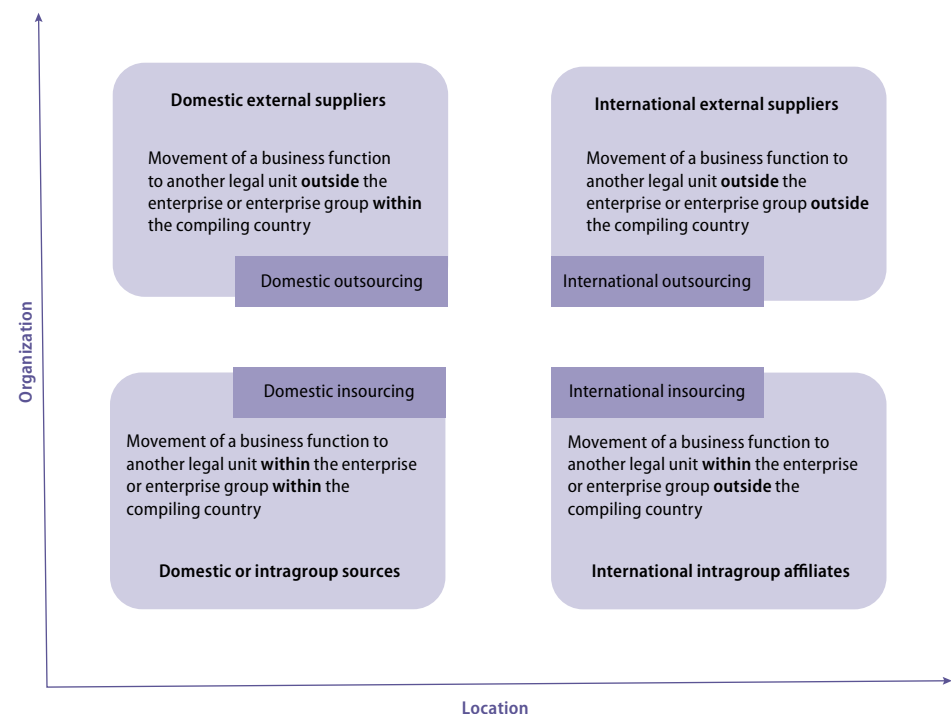
[15]   An enterprise group is an association of enterprises bound together by legal and/or financial links (Council Regulation 696/1993 and System of National Accounts, 2008).

Figure 1
Organization and location: four sourcing options for business functions

Source: Adapted from Nielsen, 2008, and the Eurostat methodology for international sourcing surveys.

Table 1
Generic survey question on business function sourcing by organization and location

Business functions:	Location: Organization:	Domestic sourcing		International sourcing	
		Domestic insourcing	**Domestic outsourcing**	**International insourcing**	**International outsourcing**
	Function A				
	Function B				
	Function C				
	Function D				
	Function …				

33.   To illustrate how such a framework can help with describing the sourcing practices of an enterprise, a hypothetical example of a firm that primarily manufactures automotive parts can be considered. It may produce some of those parts (its core business function) in-house in one or more of its domestic factories as well as manufacture other parts internationally (offshore) in the factories of affiliated or non-affiliated companies in other countries. In addition, the firm might have in-house expenditure devoted to research and development and new product development, source transport services from local trucking companies in each of its production locations and internationally source a portion of its software design and coding work (included in the information technology services function) from an external supplier located in yet another country.

34.   While most survey research using the business function framework has focused on capturing such patterns of domestic and international sourcing, the classification of business functions can help with classifying and comparing almost any enterprise characteristic, such as employment and wages, technology adoption, training and skill requirements. In other words, business functions can provide an alternative method for comparing enterprise characteristics. For example, one could compare employees' wages between business functions or job skill requirements to identify high-skilled jobs (functions).

35.   To date, business functions have mainly been used in international sourcing surveys carried out in developed countries, and the classification of business functions was built on that experience. The aim of those surveys is to capture domestic and international sourcing patterns from the perspective of the enterprise that makes the sourcing decisions. At the same time, patterns of international sourcing that are flowing into the country from foreign markets may also be captured by means of a suitably designed domestic survey. In any case, since business functions are a perspective-neutral concept, they can be used to further enhance the international sourcing surveys with the aim of capturing the enterprises that are the recipients of international sourcing (e.g. call centres). This way, business functions used in international sourcing surveys can give an indication of the number of jobs sourced to the domestic country, as well as changes in the intensity of international sourcing patterns.

D.   Core versus support business functions

36.   As discussed above, enterprises can source their main activity internally or externally and domestically or internationally. More recently, similar options have emerged for a range of business services that typically support the main activity. It

is useful to analyse the "core" and "support" functions separately, and most international sourcing surveys have made a clear distinction between "core", "primary" or "main" business functions and various "support" functions. It is therefore essential that the differences between the two be made clear.

37.   The core business function represents the revenue-producing activity of the enterprise. In most cases, it will be consistent with the main activity of the enterprise as classified by the activity or industry code entered in the statistical business register. Core business functions denote a set of functions that produce goods or services intended for the market. The core function may span several activities and include related vertical activities (e.g. the production of inputs). While enterprises do incur costs from carrying out core business functions, the outputs of those functions can also be directly associated with turnover.

38.   An enterprise may have one or more core business functions.

39.   Support business functions are carried out to permit or facilitate the production of goods or services. They do not directly generate turnover, only costs. However, the cost, efficiency and quality of support functions, especially management, marketing, logistics, research and development and other innovation-related activities, can make significant contributions to the competitiveness of enterprises. As an example, the definition of core and support functions, as used in prior European international sourcing surveys, is presented in table 2.

40.   The concept of support business functions is related to the concept of ancillary activities. As defined in the *System of National Accounts 2008*, ancillary activity is incidental to the main activity of an enterprise. It facilitates the efficient running of the enterprise but does not typically result in goods and services that can be marketed.

41.   The critical point is that, while core functions may produce either goods or services, support functions consist mainly of services. Measuring support functions is thus akin to measuring the internal and external provisions of business services. Classifications of business functions used in statistical surveys have generally excluded support services that require investments in large-scale shared infrastructure, such as sewerage, roadways and public telecommunications systems. However, such goods and services may comprise the core business function of an enterprise. They are therefore included in the present classification.

42.   Because the core business function can be either goods- or services-producing, the classification of business functions is equally applicable to manufacturing or service enterprises. The benefit of this is that both types of enterprises can complete the same survey, and the results can be directly compared or aggregated as needed.

Table 2

Core and support business functions

Core business function

Activities of an enterprise yielding income: the production of final goods or services intended for the market or for third parties. Usually, the core business functions make up the principal activity of the enterprise, but they may also include other (secondary) activities if the enterprise considers these as part of its core functions.

Support business function

Supporting activities carried out by the enterprise in order to permit or to facilitate the core business functions, its production activity. The outputs (results) of support business functions are not themselves intended directly for the market or for third parties.

Source: Eurostat, "Glossary: Business functions". Available at https://ec.europa.eu/eurostat/statistics-explained/index.php/Glossary:Business_functions.

Table 3
Core and support business functions comparison

Core business function		Support business function
Outputs are directly linked with turnover (revenue-producing)		Outputs do not directly generate turnover, only costs
Goods and services produced are intended for the market	versus	Goods and services produced are intended for internal use (not for the market)
Consistent with the main and secondary activities of the enterprise		Related to the concept of ancillary activities[a]

[a] The *System of National Accounts 2008* does not treat the research and development activity as an ancillary activity; however, in the present *Manual*, the research and development business function can be either a core or a supporting function.

E.   Analytical uses

43.   Business function statistics can be used to inform a wide variety of research and policy questions. Still, surveys to date have focused on characterizing enterprise-level patterns of domestic and international sourcing. Surveys that used business functions have been able to answer basic, yet essential, policy questions, such as "What are the main business functions that are internationally sourced?" and "Where are they sourced?". Conversely, international sourcing surveys that also measure domestic sourcing can answer questions about the functional specialization of economies (e.g. innovation versus production). For example, are enterprises mainly sourcing low value added functions internationally, such as manufacturing and back-office work, or are strategic, high-value functions, such as research and development, also being internationally sourced? What are the trends? What are the effects on employment and wages? Do countries in the global economy tend to play specific roles in global value chains by specializing in particular sets of business functions? How do these data compare with estimates arrived at by other means, such as international input-output data sets, industrial production censuses and occupational employment statistics?

44.   When linked to industrial performance measures and information about enterprise characteristics in business registers, a host of questions can be answered, such as "How do enterprises that internationally source various business functions perform relative to enterprises that do not?", "Does the type of function or source country make a difference?" and "What is the impact of different business function sourcing choices on the employment and wages of specific workers?".

45.   Classifications of business functions, deployed in surveys across countries and over time, are already helping policymakers to answer those questions and providing researchers with estimates that can be incorporated into econometric models that shed light on such topics as functional specialization in trade (e.g. Timmer and others, 2019).

Chapter IV
Classification of business functions

A. Distinction between core and support functions

46.   Surveys using classifications of business functions have proved to be effective in several contexts, and valuable new data have been collected (e.g. Eurostat, 2019). Questions about business functions are typically well understood by respondents (enterprise managers), and the results from surveys have begun to provide valuable insights into important policy questions. The extent and character of international sourcing practices in a certain period can be known for entire enterprise populations, with detail about sourcing by business function, the location of sourcing and, when linked to information in the business registers and other microdata statistical registers, the relationship between international sourcing, enterprise characteristics and jobs.

47.   The distinction between core and support functions, as described in table 2, was first introduced in the European survey on international sourcing in 2007 and has been used in most business function surveys since. Although the distinction between the core and support business functions can be made clear – as turnover-producing versus cost-incurring functions – the concept has proved difficult to implement in some surveys. In a methodological review of the European 2017/18 International Sourcing/Global Value Chains Survey, it was found in some countries that a significant number of respondents had difficulty understanding the concept, especially in countries with many small enterprises. For example, in some countries, about 30 per cent of the enterprises had problems providing information on employment by business function. Those were mainly enterprises active in trade (retail or wholesale), logistics and ICT. They either assigned all employees to the core business function or assigned them only to various support functions.

48.   There are several possible reasons for this difficulty. First, a single function can be split between core and support, for example, when an enterprise sells software on the market and produces software for internal use. It is difficult for respondents to provide accurate answers in this sort of mixed situation, and it can blur the distinction between core and support functions if it arises in multiple functions. Second, enterprises that have numerous revenue streams may have difficulty identifying a single function as the core. In fact, one benefit of business function surveys is to help to identify situations where enterprises have multiple revenue streams. Third, respondents may understand the concept of core, as in "core competence", as being related to the specific intellectual property assets or difficult-to-replicate competencies that provide the enterprise with a competitive advantage over rivals, even if no revenue is directly generated from it. Fourth, the distinction between core and support functions can be challenging for smaller enterprises, which may not have specific divisions or groups within the enterprise responsible for distinct functions. In small enterprises, employees can have responsibility for multiple functional areas, which suggests that it may be best to exclude small firms entirely from business function surveys.

49.   Lastly, as the practice of fielding surveys based on business functions matures, it could become more difficult for respondents to make distinctions based on management concepts, such as business functions, however popular they may be in business schools and in practice. As the administration of business function surveys becomes mainstream, it will be more likely that surveys will be completed in countries and by individuals with less familiarity with the concept of business functions. In earlier, more experimental surveys, top managers could be consulted for their "best estimates" of various business practices by business functions and provide accurate answers. By contrast, future surveys are more likely to be completed by personnel in regular administrative and accounting roles. This heightens the importance of providing a simple classification of business functions with reasonable and intuitively resonant correspondences to the existing product and occupational classifications.

50.   For those reasons, the classification proposed in table 4 dispenses with an ex ante distinction between core and support functions. Instead, it bases the framework on the more traditional and widely understood distinction between goods and services.

Table 4

Classification of business functions[a]

1. Production of goods	Example of tasks
1.1. Agriculture, forestry and fishing	Plant cultivation; animal raising; hunting; forestry and logging; fishing
1.2. Manufacturing and assembly	Manufacturing; processing; assembly; refining; printing and binding; metal casting; shipbuilding
1.3. Energy and raw material extraction	Mining; gas and oil extraction; stone quarrying; power generation (excluding trade in electricity)
1.4. Construction	Development of building projects; civil engineering; specialized construction tasks, including demolition
2. Provision of services	**Example of tasks**
2.1. Management and administration	
2.1.1. Management	Financial services (e.g. banking, insurance, financial leasing, fund management); head office activities; human resources management activities
2.1.2. Administrative and back-office tasks	Financial markets administration; legal tasks; bookkeeping, accounting and auditing; office administration and business support services; public administration services
2.2. Engineering and research and development	
2.2.1. Engineering and related technical services	Support tasks for raw material extraction; sound recording and video production; architectural and engineering tasks and technical analysis
2.2.2. Research and development	Research and experimental development in the area of natural sciences, engineering, social sciences and humanities
2.3. Information and communications technology	
2.3.1. Information and communications technology services other than software programming	Software publishing and computer consultancy activities; programming and broadcasting tasks; telecommunications tasks; data processing and hosting; web portals and related information service tasks; mainframe computer installation; computer and communications system maintenance and repair
2.3.2. Software programming	Computer programming and related tasks

[a]   The first, one-digit level is a "section", the second, two-digit level is a "division", and the third, three-digit level is a "group".

Table 4 *(continued)*

2. Provision of services	Example of tasks
2.4. Marketing, sales and after-sales services	
2.4.1. Marketing and after-sales services	Advertising and media representation; market research and public opinion polling; call centres
2.4.2. Sales	Retail and wholesale trade; trade in gas and electricity; activities of sales agents and real estate trading
2.5. Transport, logistics and storage	
2.5.1. Transport and logistics	Road, water, rail and air transport activities; passenger and cargo transport; postal services
2.5.2. Warehousing and storage	Warehousing; storage; packaging
2.6. Other services	
2.6.1. Facility management	Accommodation (e.g. hotels and camps); food and beverage services (e.g. cafes and restaurants); cleaning services; landscape services; real estate rental services; libraries; museums; sports centres
2.6.2. Maintenance and repair services	Maintenance and repair of non-ICT electronic equipment, transport vehicles and personal and household goods
2.6.3. Other services not included elsewhere	Water, waste collection and sewerage; remediation services; professional services (e.g. photography and translation); book and periodical publishing; travel agency activities; rental and operational leasing activities; security; education; human health activities and residential care; social services; creative and arts activities; gambling and betting; sports activities, excluding facility management; activities of membership organizations; household activities

51.   While the proposed classification of business functions means that the distinction between core and support function will be absent in the survey instrument, the concept is still vital in the analysis phase. It is therefore recommended that statisticians use the survey results and, when available, information from business registers to determine core and support functions assigned after the fact in the analysis phase. Methods for determining core functions are provided in the following subsection. However, when the accuracy of the data collected in that manner is an issue, the information on the core business function can also be collected directly by means of a survey question.

52.   A second difference from other classifications of business functions is the inclusion of a full range of sectoral categories in the goods-producing functions: agricultural production and fishing; manufacturing and assembly; energy and extraction of raw materials; and construction. Almost any type of goods-producing enterprise of sufficient size has the potential for engaging in external and international sourcing. Including the full range of goods-producing sectors also helps with the process of creating correspondences to activity classifications. However, the correspondences are not directly correlated and should mainly be considered a survey tool, guiding responding enterprises and helping survey managers.

53.   Lastly, the classification includes a three-level hierarchy of functions, including sections (one digit), divisions (two digits) and groups (three digits). The hierarchical structure opens the possibility for collecting greater or lesser detail, which can be especially important in heterogeneous – in terms of skills and wages, for example – functions, such as management and administration; engineering and research and development; marketing, sales and after-sales service; and transport, logistics and storage.

B.   Methods for identifying the core business function

54.   As mentioned above, it is not required for survey respondents to identify the core function. Instead, it is recommended that statisticians derive the distinction at a later stage of the survey, for example, using statistical analysis in a way comparable to ISIC (or NACE) main industry code/activity designation.

55.   The basic approach that can be used to identify the core business function of an enterprise is employment. Because prior surveys have consistently found the share of employment in the core/primary business functions to average between two thirds and three quarters of total enterprise employment, by far the largest share, statisticians can assign the label "core" to the business function with the largest share of employment with some level of confidence.

56.   However, this approach misses information about multiple sources of revenue and may misassign the core function when enterprises generate a large share of the revenue from business functions with few employees (e.g. enterprises with fully automated factories). Observing the mix of revenue-producing functions in a manufacturing enterprise can also help to characterize the increasing content of services in goods production (sometimes referred to as "servicification"). It can be assumed that information on which business functions produce turnover in an enterprise will be apparent to respondents.

57.   In countries where international sourcing surveys can be linked to information in the business register, the industry/activity code of the enterprise can be used to increase the confidence level when assigning the designation of core function to an enterprise. In practice, the main activity of an enterprise in the business register is, in some cases, determined by using information about the allocation of employees.[16] The three options are depicted in table 5.

58.   Statisticians should be able to predict with high probability whether a business function is "core" or "support" if it satisfies at least two out of the three criteria from table 5. The process for the business functions identification is depicted in figure 2.

[16] Details on how to determine the main activity of an enterprise are provided in ISIC, Rev.4, available at https://unstats.un.org/unsd/classifications/Econ/Download/In%20Text/ISIC_Rev_4_publication_English.pdf.

Table 5
Approaches for identifying core business function: employment or turnover

	Share of employment (*percentage*)	Share of turnover (*percentage*)	Industry code from the business register
1. Production of goods			
2. Provision of services			
2.1. Management and administration			
2.2. Engineering and research and development			
2.3. Information and communications technology	Largest value associated with core business function	Largest value associated with core business function	Industry code should reflect core business function
2.4. Marketing, sales and after-sales service			
2.5. Transport, logistics and storage			
2.6. Other services			
Total	100	100	

Figure 2
Business function identification flow chart
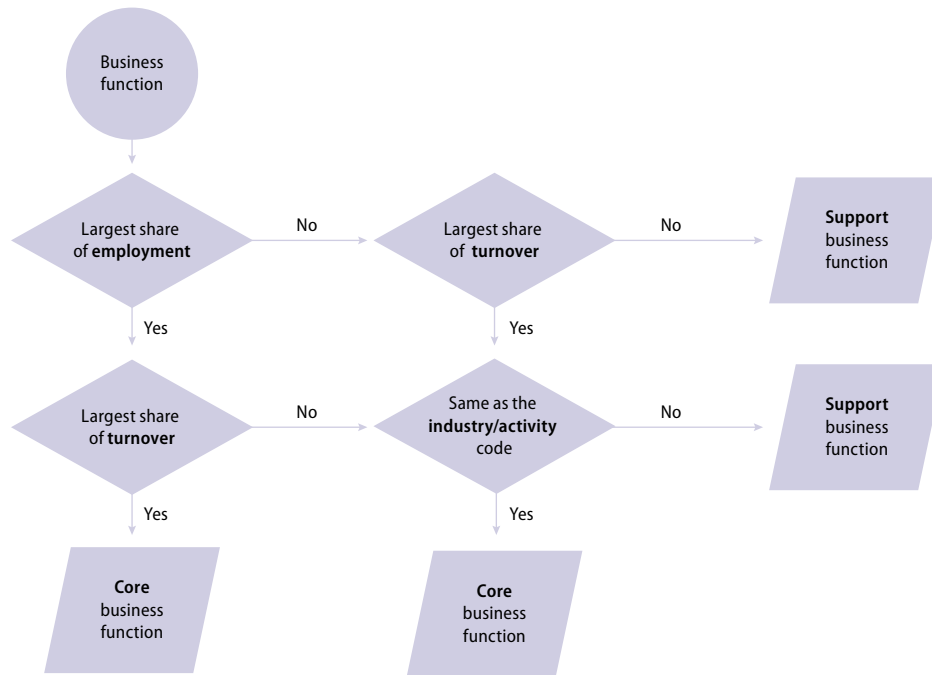
59.   However, there are still difficult cases in applying this approach. Three main challenges have been identified, namely, (a) the unavailability of the data on turnover or share of employment; (b) the same business function being both core and support; and (c) difficulty estimating whether a function generates turnover.

60.   According to feedback received by Eurostat during the international survey, long disaggregation (hierarchical structure of the classification of business functions with more detailed categories at the lower levels) can be challenging to understand and lead to fewer cases by business function, which in turn might cause confidentiality issues in smaller economies.

61.   The economic phenomenon of job-sharing could make it difficult to assess the number of jobs by business function accurately. However, job-sharing can be better assessed by using full-time equivalents for measuring a single job in a business function. Alternatively, in the case of surveying, respondents can be directly asked to categorize the jobs into business functions for which the majority of the tasks have been conducted.

Chapter V
Concluding comments

62.   Innovations in business statistics are rare and take time to test, deploy and perfect. Nevertheless, the use of a business function framework as a tool to discover and classify changes in enterprise characteristics, especially patterns of domestic and international sourcing, has proved effective and of high policy interest. Macropatterns of global value chain engagement can be estimated with recent innovations, such as international input-output data sets, but business function surveys can provide a crucial bottom-up picture of global integration and a great deal of policy-relevant detail when linked to microdata resources on enterprise and worker characteristics.

63.   Statisticians have already learned a great deal from international sourcing surveys, much of it aligned with expectations. For example, international sourcing is rare among all enterprises, but more common among large ones. Most international sourcing is to affiliated enterprises. In the European Union, China is the most common extra-European Union destination for core functions, and India is the most common for support functions. There is a net reduction of jobs in the European Union due to international sourcing, with the number of jobs relocated abroad because of international sourcing roughly double that of jobs added from reductions in international sourcing. Job relocations abroad resulting from international sourcing are concentrated in manufacturing and affect low-skilled workers the most (Eurostat, 2019).

64.   However, as the surveys and the practices that they measure mature, several adjustments may be needed to classify business functions and survey methods. In the present *Manual*, a simple (yet expandable) classification of business functions likely to be well understood by personnel in addition to top strategic managers is proposed. The potential confusion from the ex ante division of business functions into core and support has been eliminated. The recommendation is to assign those labels after the fact, on the basis of either the function with the largest employment or revenue, the activity code in the business register, or some combination. It will be crucial for policymakers to be able to detect which business functions are "sticky" to the enterprise and domestic economy and which are more "footloose".

65.   As a possible way forward for the classification of business functions, further research is needed on its applicability for capturing the four types of sourcing, namely, domestic and international outsourcing and domestic and international insourcing. This research will be vital, as it will address the applicability and relevance of the classification for all countries.

66.   In addition, upon the finalization of the classification, a compilation guide on the classification of business functions might be developed, as well as correspondence tables between the classification on business functions and other existing international statistical classifications, such as CPC and ISIC. The correspondence tables will facilitate linkage between business functions and economic activities and the products that an enterprise produces. Correspondences with other classifications, such as the North American Industry Classification System (NAICS), CPA, ISCO and NACE, will also be beneficial. The correspondence tables to ISIC and CPC will be provided as supplements to the finalized classification of business functions.

References

Baldwin, Richard (2011). Trade and industrialization after globalization's 2nd unbundling: how building and joining a supply chain are different and why it matters. NBER Working Paper, No. 17716. Cambridge, Massachusetts: National Bureau of Economic Research.

Bernard, Andrew B., and Teresa C. Fort (2015). Factory-less goods producing firms. *American Economic Review*, vol. 105, No. 5 (May).

Brown, Clair, Timothy Sturgeon, and Conner Cole (2013). *The 2010 National Organizations Survey: Examining the Relationships between Job Quality and the Domestic and International Sourcing of Business Functions by United States Organizations*. IRLE Working Paper, No. 156-13, University of California, Berkeley.

Cantwell, John, and Ram Mudambi (2005). MNE competence-creating subsidiary mandates. *Strategic Management Journal*, vol. 26, No. 12 (December).

Dossani, Rafiq, and Martin Kenney (2003). "Lift and shift": moving the back office to India. *Information Technologies and International Development*, vol. 1, No. 2 (Winter).

European Commission, and others (2009). *System of National Accounts 2008*. New York: United Nations.

Eurostat (2019). International sourcing, business functions and global value chains, article updated by Nikola Sunjka and Georgios Papadopoulos, 22 September 2022.

Frick, Walter (2014). Research: don't offshore your R&D. *Harvard Business Review*, 24 January.

Fröbel, Folker, Jürgen Heinrichs, and Otto Kreye (1980). *The New International Division of Labour: Structural Unemployment in Industrialized Countries and Industrialization in Developing Countries*. Cambridge, United Kingdom of Great Britain and Northern Ireland: Cambridge University Press, p. 13.

Gereffi, Gary (1994). The organization of buyer-driven global commodity chains: how U.S. retailers shape overseas production networks. In *Commodity Chains and Global Capitalism*, Gary Gereffi and Miguel Korzeniewicz, eds. Westport, Connecticut: Greenwood Publishing Group.

Grunwald, Joseph, and Kenneth Flamm (1985). *The Global Factory: Foreign Assembly in International Trade*. Brookings Institution Press.

Lewin, Arie Y., Silvia Massini, and Carine Peeters (2009). Why are companies offshoring innovation? The emerging global race for talent. *Journal of International Business Studies*, vol. 40, No. 6 (August).

Nielsen, Peter Bøegh (2008). *International Sourcing: Moving Business Functions Abroad*. Copenhagen: Statistics Denmark.

Prahalad, C. K., and Gary Hamel (1997). The core competence of the corporation. In *Strategische Unternehmungsplanung: Strategische Unternehmungsführung – Stand und Entwicklungstendenzen*. Heidelberg: Springer.

Porter, Michael E. (1985). *Competitive Advantage: Creating and Sustaining Superior Performance*. New York: Free Press.

Sturgeon, Timothy J. (2002). Modular production networks: a new American model of industrial organization. *Industrial and Corporate Change*, vol. 11, No. 3 (June).

Sturgeon, Timothy J., and Richard K. Lester (2004). The new global supply base: new challenges for local suppliers in East Asia. In *Global Production Networking and Technological Change in East Asia*, Shahid Yusuf, M. Anjum Altaf and Kaoru Nabeshima, eds. Washington, D.C.: World Bank and Oxford University Press.

Timmer, Marcel P., Sébastien Miroudot, and Gaaitzen J. de Vries (2019). Functional specialization in trade. *Journal of Economic Geography*, vol. 19, No. 1 (January).

United Nations (2008). *International Standard Industrial Classification of All Economic Activities: Revision 4*.

_____ (2009). *International Recommendations for Industrial Statistics 2008*.

_____ (2015). *Central Product Classification*.

United Nations Conference on Trade and Development (2015). International Trade in ICT Services and ICT-enabled Services, TN/UNCTAD/ICT4D/03.

_____ (2017). The 'new' digital economy and development, TN/UNCTAD/ICT4D/08.

Van Welsum, Desirée, and Xavier Reif (2009). We can work it out: the globalization of ICT-enabled services. In *International Trade in Services and Intangibles in the Era of Globalization*, Marshall Reinsdorf and Matthew J. Slaughter, eds. Chicago and London: University of Chicago Press.

Glossary

The following is a list of concepts and their definitions as used in the present *Manual*.

Concept	Definition
Activity (economic activity)	A combination of actions carried out by a specific entity that uses labour, capital, goods and services to produce specific products (goods and services) (*International Recommendations for Industrial Statistics 2008*).
Ancillary activity	A supporting activity undertaken within an enterprise in order to create the conditions within which the principal or secondary activities can be carried out (*System of National Accounts 2008*, para. 5.36). It facilitates the efficient running of the enterprise but does not typically result in goods and services that can be marketed.
Business functions	A grouping of common tasks that enterprises must carry out regularly, either internally or externally, to bring goods or services to market.
Core business function	A set of functions that produce goods or services intended for the market.
Enterprise	An institutional unit in its capacity as a producer of goods and services. An enterprise is an economic transactor with autonomy in respect of financial and investment decision-making, as well as authority and responsibility for allocating resources for the production of goods and services (ISIC, Rev.4, para. 77).
Factoryless goods producer	An enterprise that outsources the manufacturing transformation activities but owns the underlying intellectual property products and controls the outcome of the production process.
Global value chain	A sequence of all functional activities required in the process of value creation involving more than one country.
Insourcing	A total or partial movement of business functions by an enterprise to another enterprise within the enterprise group.
International sourcing	A total or partial cross-border movement of business functions by an enterprise to another location outside the compiling country.
Offshoring	Similar to "international sourcing". It historically mostly refers to international outsourcing for cost-cutting reasons.
Outsourcing	A total or partial movement of business functions by an enterprise to another enterprise outside its group.
Sourcing	A total or partial movement of business functions from a part of an enterprise to another part or to a different enterprise. It refers to either outsourcing or insourcing in terms of organizational structure, or domestic and international sourcing in terms of geographical location.
Support business function	A set of functions that permit or facilitate the core business functions, the outputs of which are not intended for the market.

Annex
Classifications of business functions used in prior statistical surveys

Use of business functions in surveys

1.   The first official survey to introduce the concept of business functions in a statistical context was the 2007 European survey on international sourcing. The survey was repeated in 2012 and 2017/18, with minor modifications and as the International Sourcing/Global Value Chains (IS/GVC) Survey.[17] The 2007 survey was conducted in 13 European countries, the 2012 survey in 15 European countries and the 2017/18 survey in 16 European countries. In the European IS/GVC surveys, questions about sourcing practices were bounded within a specific time period (changes to sourcing within the past three years). Although this practice helped to identify new outsourcing and offshoring, the current domestic and international sourcing picture cannot be assessed when prior changes to sourcing are missing from the data. However, the surveys did not contain questions about historical sourcing events, out of feasibility and data quality concerns.

2.   Unofficially, the approach was also pilot tested by an academic team with a representative (by employment) sample of 317 enterprises in the United States of America in the National Organizations Survey in 2010 (Brown and others, 2013). This small-scale United States survey also collected data on sourcing costs and wages, which had proved difficult or impossible to collect in Europe. However, only asking if a function is outsourced or not (binary choice) runs the risk of overrepresenting small levels of international sourcing in the data. It was therefore recommended that questions aimed at collecting quantitative information (i.e. the cost of goods or services sold) on the four sourcing options be further tested, refined and offered as an option for compilers seeking quantitative information on business function sourcing.

3.   Lastly, Statistics Canada used an approach similar to the European Union survey in 2009 and 2012 in its mandatory Survey of Innovation and Business Strategy, covering about 9,600 enterprises.

Business functions lists

4.   The classification of business functions for the three European surveys is shown in columns 1, 2 and 5 of the table below. The 2010 National Organizations Survey used a classification of business functions very similar to the 2007 and 2012 European surveys, but split the category of "marketing, sales and after-sales services, including help desks and call centres" into two, namely, "customer and after-sales service" and "sales and marketing", and specified facilities maintenance as a distinct business function instead of including it in the residual "other business functions" category (see the third column in table A1).

[1]   The survey was conducted in two rounds. The first round was conducted in 2017 and contained questions about international sourcing for the period 2014–2016 in Denmark, Germany, Italy, Latvia, Lithuania, Kingdom of the Netherlands, Portugal, Romania, Slovakia and Sweden. The second round was conducted in 2019 and contained questions about international sourcing for the period 2015–2017 in Austria, Bulgaria, Finland, Hungary, Norway and Poland.

5.　　The survey from Statistics Canada used a more granular classification, including 14 business activities plus a residual category (see the fourth column in table A1). The Canadian classification also split the core function into two ("production of goods" and "production of services") and identified call centre and help centre activities separately from the European aggregated support function "marketing, sales and after-sales services, including help desks and call centres". Furthermore, the "ICT services" function was divided into the following three groups: "data processing", "software development" and "ICT services". Lastly, the support function "administrative and management functions" was divided into four activities: "legal services", "accounting and bookkeeping", "human resource management" and "financial management". The subcategories of the Statistics Canada classification of business can be aggregated into the classifications used in Europe and the United States. As shown in the fifth column of table A1, the 2017/18 European survey followed the example of the Canadian survey in several respects: it split the core business function into goods and services, and the research and development/engineering function into research and development and engineering and related technical services (as had the 2007 survey).

Table A1
Examples of classification of business functions used in statistical surveys

2007 International Sourcing Survey (Eurostat)	2012 International Sourcing/Global Value Chains Survey (Eurostat)	2010 National Organizations Survey (United States: Brown and Sturgeon)	2009 and 2012 Surveys of Innovation and Business Strategy (Statistics Canada)	2017/18 International Sourcing/Global Value Chains Survey (Eurostat)
(7 functions: 1 core and 6 support)	(6 functions: 1 core and 5 support)	(8 functions: 1 core and 7 support)	(14 functions: 2 core and 12 support)	(9 functions: 2 core and 7 support)
Core business function	Core business function	Primary business function	Provision of goods Production of services	Core business functions • Production of goods (for the market) • Provision of services (for the market)
Distribution and logistics	Distribution and logistics	Transport, logistics and distribution	Distribution and logistics	Transport, logistics and distribution support functions
Marketing, sales and after-sales services, including help desks and call centres	Marketing, sales services and after-sales services, including help desks and call centres	Customer and after-sales service Sales and marketing	Call centres and help centres Marketing, sales and after-sales service	Marketing, sales and after-sales service support function
ICT services	ICT services	Information technology systems	Data processing Software development ICT services	Information technology services and software support functions
Administrative and management functions	Administrative and management functions	Management, administration and back-office functions	Legal services Accounting and bookkeeping Human resource management Financial management	Management, administration and back-office support functions
Research and development Engineering and related technical services	Research and development, engineering and related technical services	Research and development of products, services or technology	Research and development Engineering and related technical services	Research and development, engineering and related technical services and research and development support functions • Research and development services • Engineering and related technical services (excluding research and development)
Other	Other	Facilities maintenance Other	Other	Other business functions

Abbreviation: ICT, information and communications technology.