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Emerging conceptual issues in global production**Typology of Global Production Arrangements [Parts of the
Chapter 2 of the draft Guide to Measuring Global
Production]****Prepared by Task Force on Global Production***Summary*

The document is an extract from chapter 2 of the draft “Guide to measuring global production”, providing a typology of global production arrangements and recommendations on their recording in line with the System of National Accounts, 2008 (2008 SNA) and Balance of Payments Manual, sixth edition (BPM6). A previous version of this document was presented for discussion to the Thirteenth Session of the Group of Experts on National Accounts, Geneva, 6-9 May 2014 (document ECE/CES/GE.20/2014/12). The recommendations on the treatment of one type of arrangement - factoryless goods producers, were revised afterwards and are presented in this document. The guidance on the other global production arrangements was not subject to any substantive changes and therefore is not included in this updated document.

Currently the Guide is sent for consultation with the Conference of European Statisticians (CES) member countries with view of presenting it for adoption to the CES Plenary in June 2015.



I. Introduction

1. This chapter provides a typology of global production arrangements. This typology can be helpful in identifying how much explicit coordination takes place, which can be an indication of how much control (and the associated risk) a lead enterprise has over the production process. This information is required for national accountants and balance of payments compilers to understand the nature of transactions taking place inside global value chains. For each product or asset flow observed inside global value chains, it must be decided whether a change of economic ownership takes place. The principles of economic ownership are further explored in Chapters 3 and 4 of the draft Guide to Measuring Global Production. This chapter discusses the various kinds of economic relationships that may exist between a principal, or leading enterprise, and other units, such as producers on a fee or contract basis (referred to as contractors), participating in the global value chain.

2. The typology aims to strengthen international comparability by providing guidance to national compilers on the proper breakdown of the activities along the global production chain. However, the analysis of real case examples may be blurred by different arrangements that may be brought together into one global value chain. At the same time, multinational enterprises may rearrange their global production from one day to another. The various country case studies in the draft Guide to Measuring Global Production illustrate these real life complexities.

3. The following section presents the typology, including a sequence of numerical examples to illustrate their main characteristics in accounting terms. Section III focuses on one specific global production arrangement, namely this managed by so-called factoryless goods producers (FGP). The nature of FGPs in terms of their economic activity classification, and in terms of their role in the global value chain, requires further examination as the current accounting standards (cf. International Standard Industrial Classification of All Economic Activities (ISIC) Rev.4, 2008 SNA, BPM6) do not provide specific guidance with regard to this category of global producers. This section suggests a treatment of FGPs that should be further tested with real life examples in order to inform future revisions of the accounting standards. The last section of this chapter winds up with conclusions and recommendations.

4. The typology is established on the basis of examined actual cases. It is likely that ongoing research will lead to a further expansion of arrangements presented in the typology. For example, agricultural, fishery and mining production in the developing world have also become part of the operations of multinational enterprises (MNEs). There are cases where land is simply leased out for purposes of agriculture production and the entire harvest is directly shipped to the country holding the lease. Similarly, small island states have been issuing fishing licenses to foreign vessels, which fish in their waters, but sell fish in international markets as frozen or processed. The accounting aspects of such arrangements have not been examined by the Task Force on Global Production. There are also new arrangements in the area of services that are expected to evolve in the future and will benefit from further examination.

II. Typology of global production arrangements

5. Global production arrangements may be set up and managed in various ways. Sometimes the chain follows the organisational structure of a MNE. Alternatively the chain may include a number of unaffiliated companies. A principal is usually the organising and controlling company of such arrangements. The unaffiliated contractors may become quite dependent on their relationship with the principal. Under such circumstances the difference between an affiliated and an unaffiliated contractor can be very unclear. The control exerted

by a principal on a captive unaffiliated contractor can be practically the same as the control exerted by the MNE parent in a direct investment relationship on its affiliate. One difference is perhaps that unaffiliated contractors may supply their output to more than one principal.

6. Two key features of a dependant relationship are (a) the principal controls the specifications of the output of the contractor and (b) usually plays a leading role in intellectual property product (IPP) management. Global production arrangements constitute much more than simply a sequence of interlinked markets. They are importantly characterized by the information streams required to connect principals, the lead firms coordinating the tasks, and suppliers. This knowledge aspect of global production chains clearly has a linkage to management of the supply chain and exchange of intellectual property. The principles of ownership and management of intellectual property is further discussed in Chapter 4 of the draft Guide.

7. This section will focus on several types of global production arrangements where a lead enterprise arranges their particular network of suppliers to produce a given good or service. The typology discusses the different types of global value chains and translates these into the current interpretation of the international standards. In reading this section it will become clear that further consideration may be necessary on some aspects of the various global production arrangements and later chapters will address these issues.

8. The main objectives of developing this typology are the following. Firstly, it supports the proper breakdown of economic activities along the global production process on a country-by-country basis. Secondly, it helps in assigning the kind of economic activity of a principal (an enterprise that exerts a certain level of control over the production process) and a supplier (contractors, goods producers, and other participating units in the global production process). Thirdly, the typology assists in identifying the economic ownership of inputs, outputs, and intellectual property for the activities along the production process. Fourthly, the typology helps identify the type of output (goods, trade margins, services) of the participating units in the global production arrangement.

9. To better understand the various types of global production arrangements it is useful to look at the entire production process from the viewpoint of the domestic entity. This could be the principal, a contract producer or any other provider inside the global value chain. For national accounting purposes, it is important to identify the economic activity of each of the participating units in the production chain as well as the value added of each unit. The typology presented in this section uses the ISIC Rev.4 as the industry classification system that groups producing units into detailed industries based on similarities in the economic activity, taking into account the characteristics of the outputs, the inputs and the process and technology of production.

10. To better understand the nature of a production activity and the output it generates, e.g. a good or service, it is also important to identify each entity's involvement in terms of ownership of the material inputs, intellectual property and outputs at each stage of the production process.

11. Table 1 describes global production arrangements for producing goods and services from the viewpoint of the domestic entity and reflects the various combinations of economic ownership of the inputs and outputs in the production process. To address the various boundary issues of global production arrangements, all combinations of economic ownership are discussed. The table also addresses cases where no lead enterprise can be identified.

Table 1
Typology of global production arrangements and transactions involved

Description of production process from point of view of domestic entity which represents the principal	Entities involved	Economic activity	ISIC Industry	Economic ownership of			Type of output	International transactions related to production process
				Materials	Intellectual Property	Output		
Case A. Goods sent abroad for processing	Domestic (Principal)	Manufacturing	Manufacturing	X	X	X	Goods	Record the processing fee as an import of a manufacturing service. Record materials sent for processing as imports of goods if purchased abroad. Exclude materials sent for processing from exports of goods if purchased in the domestic economy. Record the output of manufactured goods as exports of goods if sold abroad. Exclude the output of manufactured goods from imports of goods if sold in the domestic economy.
	Foreign Supplier	Manufacturing service provider	Manufacturing				Services	Record processing as exports of manufacturing services. Exclude materials received for processing from imports of goods if shipped from an economy different from that of the supplier. Exclude the output of manufactured goods from exports of goods if not sold in the economy of the supplier.
Case B. Goods under merchandising	Domestic	Merchandising	Trade			X	Services (Margin on Goods)	Record the purchase of a good under merchandising as a negative export, and the subsequent sale as a positive export, of goods. The difference between the two represents the trade margin as output of the merchant. If the physical form of the goods is changed during the period the goods are owned, as a result of manufacturing services performed by other entities, then the goods transactions are recorded under general merchandise rather than merchandising.
	Foreign Supplier	Manufacturing	Manufacturing	X	X		Goods	Record the output of the supplier as an export of goods.
Case C. Factoryless goods production (according to the current accounting standards)	Domestic (Principal)	Merchandising	Trade		X	X	Services (Margin on Goods)	As under B
	Foreign Supplier	Manufacturing	Manufacturing	X			Goods	As under B

Case D. Fragmenting part of production of services, IPPs	Domestic (Principal)	Production of services	Appropri ate service Industry	X	X	Services	Record purchase from foreign suppliers as imports of services (by type). If the principal sells the service abroad, record gross value in exports of services (by type).
	Foreign Supplier	Production of services	Appropri ate service Industry			Services	Exports of services (by type)
Case E. Fragmenting part of production of services, excluding IPPs	Domestic (Principal)	Production of services	Appropri ate service Industry		X	Services	Record purchase from foreign suppliers as imports of services (by type). If the principal sells the service abroad, record gross value in exports of services (by type).
	Foreign Supplier	Production of services	Appropri ate service Industry			Services	Exports of services (by type)
Case F. Subcontracti ng production of services	Domestic (Principal)	Purchase and sale of service without any significant transformation of the service between purchase and sale	Appropri ate service Industry		X	Services	Record purchase from foreign suppliers as imports of services (by type). If the principal sells the service abroad, record gross value in exports of services (by type).
	Foreign Supplier	Production of services	Appropri ate service Industry			Services	Exports of services (by type)
Case G. Direct Investment Enterprise not directly engaged in producing goods	Domestic	Financial and business services	Section M			Services	None
	Foreign Supplier	Manufacturing	Manufact uring	X	X	X	Goods Exports of goods
Case H. Direct Investment Enterprise not directly engaged in producing services	Domestic	Financial and business services	Section M			Services	None
	Foreign Supplier	Production of services	Appropri ate service Industry	X	X	X	Services Exports of services

12. The table indicates the economic engagement between the principal and the supplier in terms of production and does not necessarily designate direct investment relationships. In other words, the supplier may, or may not, be owned by the principal. The table assumes that economic ownership of the materials, the intellectual property, and output can be assigned to either the principal or the supplier. In practice this may be a difficult task. Chapters 3 and 4 of the draft Guide address the principles of economic ownership of materials and intellectual property, respectively.

13. The identification of the economic ownership of inputs, outputs and intellectual property is not only important for determining the type of economic activity in terms of industry classification of entities engaged in global production but also for the type of

output the unit produces (e.g., a trade margin or a manufactured product) and how the international trade flows related to global production should be recorded.

14. The following subsections provide simple examples of the global production arrangements presented in Table 1. All cases describe global production arrangements where the principal is located in one country and the supplier in another country. All cases are illustrated with the help of an ‘athletics shoe manufacturing’ example using the data presented in Table 2. This table illustrates the breakdown of the value of the athletic shoe.

Table 2

Breakdown of value of the athletic shoe

<i>Value components</i>	
Material inputs	30
Compensation of production workers	20
Compensation of managers for managing production	2
Other purchased services associated with production of the shoe	3
Return on intellectual property products (IPP)	30
Compensation of sales workers	15
Purchased services associated with selling the shoe	4
Profit on selling the shoe	6
Total	110

A. Case A: Transformation of materials owned by a domestic principal

15. This type of global production arrangement and the respective guidance on its treatment in the accounts in line with 2008 SNA and BPM6 were presented in the document ECE/CES/GE.20/2014/12 and discussed at the Thirteenth Session of the Group of Experts on National Accounts, Geneva, 6-9 May 2014. The proposed text was not subject to any substantive changes afterwards and is, therefore, omitted from the current document.

B. Case B: Merchanting

16. This type of global production arrangement and the respective guidance on its treatment in the accounts in line with 2008 SNA and BPM6 were presented in the document ECE/CES/GE.20/2014/12 and discussed at the Thirteenth Session of the Group of Experts on National Accounts, Geneva, 6-9 May 2014. The proposed text was not subject to any substantive changes afterwards and is, therefore, omitted from the current document.

C. Case C: Factoryless goods producers

17. The fragmentation of production has allowed firms to outsource processing activities to specialised domestic and foreign establishments. Some firms, known as factoryless goods producers, factoryless manufacturers, virtual manufacturers, or fabless manufacturers, supply inputs of IPPs, such as the technology, know-how and product

design, but fully outsource the material transformation process required to produce the output.

18. FGP is a principal that controls the outcome of production of a good by undertaking the entrepreneurial steps and providing the technical specifications required to produce the good. The FGP concentrates on innovation and marketing decisions. While the FGP does not supply material inputs into the production process, the FGP does supply substantial service inputs in the form of technology, know-how, and product design. Likewise, the FGP maintains control over the outcome of the production process by providing technical specifications that are essential for the transformation of the material inputs. The FGP controls access and delivery of the final output to consumers.
19. The contract processor manages the transformation process by typically supplying material inputs and transforming the material inputs. The contract processor is a manufacturer that delivers pre-specified goods to the FGP at pre-determined prices and cannot sell the goods to parties other than the FGP. While a transaction in goods takes place between the contract processor and the FGP, the transaction cannot be seen as an unconditional market transaction. Key in this arrangement is that the transaction is conditional, which makes the contract processor captive: it cannot sell the good to other parties. In the case of factoryless manufacturing, control over the outcome of the production process and ownership and provision of the IPP inputs seem to coincide with the economic ownership of the final output.
20. ISIC Rev.4 provides guidelines for classifying a unit that outsources production. Paragraph 137 of ISIC defines the term “outsourcing” as “...a contractual agreement according to which the principal requires the contractor to carry out a specific production process.” In ISIC, criteria for classifying a principal that outsources the complete production process are as follows:

Outsourcing of the complete production process

142. In general, if the principal outsources the complete production process of a good or service, it is classified as if it were carrying out the production process itself. This applies in particular to all service-producing activities, including construction. In the case of manufacturing, however, the following special considerations apply.

143. In manufacturing, the principal provides the contractor with the technical specifications of the manufacturing activity to be carried out on the input materials. The input materials (raw materials or intermediate goods) can either be provided (owned) by the principal or not.

144. A principal who completely outsources the transformation process should be classified into manufacturing if and only if it owns the input materials to the production process—and therefore owns the final output.

145. A principal who completely outsources the transformation process but does not own the input materials is in fact buying the completed good from the contractor with the intention to re-sell it. Such an activity is classified in Section G (wholesale and retail trade), specifically according to the type of sale and the specific type of good sold.

21. Paragraphs 142-145 of ISIC Rev.4 indicate that a FGP should be classified as a distributor. FGPs typically do not provide or own the material inputs subject to processing. This is where FGPs differ from the principals in a ‘goods sent abroad for processing’ arrangement. So a seemingly insignificant difference in the global production arrangement, i.e. the upfront ownership of at least some of the material inputs prior to processing, radically changes the representation of a principal in terms of ISIC: manufacturing versus trade.

22. At present, the representation of FGPs in the global production typology of this Guide is according to ISIC Rev.4 recommendations. However, the delivery of key IPP related inputs into the production process implies that the role of FGPs in such an arrangement is more substantive than trading. Therefore, it is recommended that more strict rules for detection of these companies are developed, so they can be separately identified and analysed within trade classes. As a next step the alternative view on FGPs, which is outlined in Section III of this chapter should be tested by countries in order to enhance the guidance on treating these companies in the international accounting standards.

1. Athletic shoes example C1

23. Continuing with the athletic shoe example, the principal in country A outsources the transformation of its athletic shoe to a foreign supplier located in country B. The principal controls the production of the shoe by providing the supplier the blueprints of production. The principal maintains ownership of the intellectual property embedded in the shoe, controls the overall production process and is responsible for marketing and selling the shoe. The supplier purchases the materials (according to the specifications of the principal) and the principal acquires the shoe at the factory gate price including the materials plus the value of the processing (compensation of the production workers) but excluding any value associated with the use of IPPs in this production process.

24. Following ISIC Rev.4 recommendations, the production accounts of the principal and supplier look similar to those outlined under the merchanting example (Case B1) in Table 2.7 of the draft Guide to Measuring Global Production. However, there is one significant difference. In the merchanting example, the IPP related inputs (30) are provided by the supplier of the good, while in the case of factoryless goods production the IPP related inputs are provided by the principal. In addition, in this case the (chain) management of production (2) is supposed to be carried out by the principal as well, and not by the supplier. Further, the other services associated with production of the shoe (3) are equally supposed to be purchased by the FGP, and not by the supplier.

25. As a consequence the output of the FGP, i.e. the trade margin, equals 60 instead of 25. Current standards recommend that the total output of the FGP is recorded as trade margin. But it should be stressed that IPP related activities (30) are larger than the conventional trade margin as shown under Case B1 (25). There is an argument that the Principal should not be classified to the distribution sector and that the IPP input should be accounted for as an intrinsic part of the commodity value at basic prices. This point is further discussed in Section III.

Table 3

Example C1 – Production account, countries A and B

	<i>Principal Country A Trade</i>	<i>Supplier Country B Manufacturing</i>
Gross Output	60	50
Goods	0	50
Services	60	0
Intermediate inputs	7	30
Materials	0	30
Processing services	0	0
Other services	7	0
Value added	53	20

Compensation of employees	17	20
Taxes less subsidies on production	0	0
Gross operating surplus	36	0

26. Since, according to the current standards, the principal of a FGP arrangement is identified as a distributor, the recording of international transactions are similar to those under a merchanting arrangement (Table 2.8 of the draft Guide to Measuring Global Production). Again, one significant difference is that in the case of factoryless goods production the IPP inputs are not reflected in Country B's export of goods. Instead, the IPP inputs show up in the net exports of goods under merchanting of Country A (i.e. the trade margin).

Table 4

Example C1 – International transactions

	<i>Country A</i>	<i>Country B</i>	<i>Country C</i>	<i>Total</i>
Exports	60	50	0	110
Goods	60	50	0	110
Net exports of goods under merchanting	60	0	0	60
Goods acquired under merchanting	-50	0	0	-50
Goods sold under merchanting	110	0	0	110
Services	0	0	0	0
Imports	0	0	110	110
Goods	0	0	110	110
Services	0	0	0	0

Country case study**Factoryless Semiconductor Producers**

This case study originates from a country with a relatively large number of factoryless semiconductor producers, referred to as country A. According to the Global Semiconductor Alliance, factoryless semiconductor producers are called “fables” because “Fables refers to the business methodology of outsourcing the manufacturing of silicon wafers. Fables companies focus on the design, development and marketing of their products and form alliances with silicon wafer manufacturers, or foundries.” Foundries are typically located in Asia because of the generally low cost of labour, so fables companies can benefit from lower production costs while concentrating their research and development resources on the end market.

In country A, a typical fables semiconductor enterprise has a management unit and a large R&D unit. During the development of the design, the testing of the semiconductor is performed at the enterprise of a subcontractor, often situated in another country. At later stages the production is also performed by sub-contractors outside the territory of country A.

An example of such a factoryless semiconductor enterprise in country A is a fables enterprise designing and marketing finished products worth about a quarter of a billion dollars, which are produced by non-affiliated enterprises in an Asian country. The income of the domestic enterprise in country A amounts to about 35% of the output value. The share of the domestic enterprise in the combined added value is quite high and may be assumed to reflect mainly the value of R&D performed within country A. In its financial reports the domestic enterprise registers the whole value of the sales of the final production as domestic income, so that on the one hand it is easy to collect many of the gross data needed to analyse all production processes in the global value chain. On the other hand, in order to separate the activities between the countries, one has to collect data on the

transactions taking place between the domestic enterprise, the producers abroad, and the customers, since no movement of goods has been observed in the foreign trade data, and the transfer of R&D to be used in the outsourced production also has not been recorded.

27. FGP could be involved in a combination of activities such as the factoryless goods production of a product A and branding of a product B. One such firm, a computer producer, utilizes a significant number of unaffiliated contractors around the world to manufacture products that have been designed by the firm. The firm uses multiple contractors to maintain flexibility in their supply chain and manufacturing process thereby generating cost efficiencies and reducing time to market for own-designed products. In addition, the computer firm's financial statements indicate the firm also purchases original manufactured products from third-party producers and resell these products under the firm's own-brand name.
28. It should be emphasised that the stylized arrangements discussed in this section are simplified versions of actual global production arrangements that can be very elaborate. The discussion above illustrates that a firm might use a combination of global production arrangements and statistical offices may have difficulty distinguishing between a producer that is only branding products and a producer that provides the blueprints of the production process, thus exercising control over the production process. These borderline cases are further examined in Chapter 5 of the draft Guide.

2. Athletic shoes example C2 (drawing the borderline between FGP and IPP services supply)

29. The intellectual property inputs in global production arrangements may also be provided by entities other than FGPs. For example, companies specialised in R&D may supply their knowledge inputs without being engaged in the production of goods. Suppose an entity creates a new and innovative midsole that improves the athletic performance of runners. The entity sells the rights to use the design and the specifications for making the shoe to a shoe manufacturer which is also responsible for marketing and selling the shoe and receives the revenue. The R&D supplier receives revenue from selling or licensing the design and should not be seen as the principal arranging an international supply chain to make a particular good or service. It is simply a participant in the supply chain that is responsible for supplying the intellectual property products.
30. Continuing with the athletic shoe examples, a unit in country A is transferring the rights to use the design and blueprints of how to make the shoe to a manufacturer in Country B in return for a fee. The manufacturer in Country B transforms the shoe and is responsible for marketing and selling the shoe and records the full value of the shoe in its turnover, including the IPP service fee embedded in the shoe. Tables 5 and 6 show that the company in Country A exports the IPP service fee to Country B. All other production takes place in country B under the full responsibility and ownership of the shoe manufacturer.

Table 5
Example C2 – Production account, countries A and B

	<i>Country A R&D provider</i>	<i>Country B Manufacturer</i>
Gross Output	30	110
Goods	0	110
Services	30	0

Intermediate inputs	0	67
Materials	0	30
Processing services	0	0
Other services	0	37
Value added	30	43
Compensation of employees	0	37
Taxes less subsidies on production and imports	0	
Gross operating surplus	30	6

Table 6
Example C2 – International transactions

	<i>Country A</i>	<i>Country B</i>	<i>Country C</i>	<i>Total</i>
Exports	30	110	0	140
Goods	0	110	0	110
Services (use of intellectual property)	30	0	0	30
Imports	0	30	110	140
Goods	0	0	110	110
Services (use of intellectual property)	0	30	0	30

D. Services related global production arrangements

31. The three types of global production arrangements listed below and the respective guidance on their treatment in the accounts were presented in the document ECE/CES/GE.20/2014/12 and discussed at the Thirteenth Session of the Group of Experts on National Accounts, Geneva, 6-9 May 2014. The proposed text was not subject to any substantive changes afterwards and is, therefore, omitted from the current document.

Case D: Fragmenting the production of services, Intellectual Property Products (IPPs)

Case E: Fragmenting part of the production of services, excluding IPPs

Case F: Subcontracting production of services

III. An alternative view on factoryless goods producers

32. There is an emerging consensus among national accountants and balance of payments compilers that the current treatment of FGPs as outlined in Tables 3 and 4 is not satisfactory. It is argued that the provision of critical inputs such as IPP services (i.e. the blueprints of products) implies that FGPs are engaged in activities other than trade. This suggests that the criterion of ownership of material inputs in ISIC Rev.4, as referred to in Section II should be broadened to include critical services inputs such as those related to IPPs. Others have argued that FGPs are neither distributors nor manufactures but a totally new category of producers which at present are not separately identified in the current industry classifications.

33. This section provides an alternative view on FGPs in which they are treated as producers of goods instead of traders in goods. The FGP does more than simply buying and selling. Under a factoryless arrangement, the principal controls the blueprints of

production, access to customers, trademarks, and other sources of significant value embodied in the final output. The contractor only manages the material transformation related activities by strictly following the product specifications provided by the principal.

34. A key characteristic of the contractual arrangement is the captive nature of the contractor. Processing activities cannot be undertaken without the blueprints provided by the principal. Once processing is finalised according to the conditions of the contract, the contractor is entitled to compensation from the principal, and the output is no longer under the contractor's control. The contractor is not allowed to sell the output to other parties but must sell to the principal. As a result, the value added by a FGP may be significantly more than the margin associated with the activities of merely distributing goods from a producer to a consumer since the IPP inputs embedded in the good may contribute significant value to the good measured in basic prices.
35. While identified as manufacturers, the production functions or cost structures of FGPs will differ substantially from those of 'classic' vertically integrated manufacturers. From this viewpoint there may be a need to flag FGPs to allow separate analyses for example in relation to input-output (IO) analysis and measuring trade in value added.
36. The following guidance could assist statistics compilers in separating FGPs from the principals active in merchancing or goods sent for processing arrangements. Chapter 5 of the draft Guide provides references to data sources that could assist in obtaining the required evidence.

A. Factoryless goods production versus Merchancing

37. When examining the differences between trading (merchancing) and factoryless goods production the significance of IPP use in the production process of the principal firm plays a decisive role. Yet, concrete decision rules are needed as FGPs will often be active in several areas such as product development, supply chain management, marketing and trade. The role of the principal in a global production arrangement must be assessed by looking at the dominance of IPP inputs and typical activities such as innovation, supply chain management and marketing versus the provision of purely distribution services. This should determine the firm's overall economic engagement: factoryless goods production or trading (merchancing).
38. This leaves open the role of branding in a factoryless arrangement. A principal may not supply the blueprints for production but instead purchases goods from manufacturers and resells the goods under the entity's brand name. These companies may spend large amounts of money on marketing assets (advertising) to elevate the attractiveness of the brand it sells. And the return on these 'investments' will show up as a substantial increase in the value of the good as sold to customers. It has been argued that in the eyes of customers the quality of the product has increased substantially due to branding. This suggests that between purchasing and selling, the good is being transformed in terms of its quality (although perhaps not in a physical sense).
39. Branding is often associated with arrangements that are led by firms involved in the downstream end of the global supply chain, such as retailers. In terms of 'physical transformation', one may argue that branding does not significantly differ from retailing. One could make the same argument for IPPs and trading but the key difference here is that two products with the same material characteristics but different IPP inputs will have demonstrably different performance (and tangible quality) but two products identical in every way except for the brand name will not (all other things being equal). As a result, and in line with current standards (and also with the fact that

unlike IPPs, 'brands' are not considered produced assets), it is recommended that companies concentrating their activities on branding inside the global value chain should be identified as distributors and also not be identified as FGPs.

40. The research agenda of the 2008 SNA includes the recording of marketing assets (A4.53) as one issue to be investigated. According to the 2008 SNA marketing assets include brand names, mastheads, trademarks, logos and domain names. Marketing is a key driver of brand value and big corporations invest heavily in building and supporting their brands by advertising, sponsorship and other measures to build a positive image with customers. The 2008 SNA treats marketing assets as being non-produced and the expenditures incurred in their creation as intermediate consumption. They appear in the balance sheet only when they are sold. The major reason for not treating marketing assets as fixed assets is the difficulty of measuring their value.
41. More generally, in the 2008 SNA research agenda it is acknowledged that product innovation and product development involves, in addition to R&D, other activities such as product design, market research and marketing. FGPs are expected to play a significant role in each of these areas. Supply chain management is another characteristic activity of FGPs. With the exception of R&D, each of these activities does not lead to IPP capital formation and IPP use in the strict 2008 SNA sense.
42. Acknowledging that factoryless goods production involves this broader range of activities, it is suggested that FGPs are defined as those companies which are substantive IPP investors and more than 50% of value added originates from returns on IPP activities such as R&D, design, innovation, supply chain management, including activities related to non-produced assets, such as market research and marketing. Because a company must be a substantive IPP investor most companies that are only involved in branding should be excluded under these criteria.
43. It is important to stress that this definition may require refinement in the near future, based on country experiences with implementing this Guide into practice.

Country case study

Borderline cases: FGP versus branding

A principal provides a blueprint (the product design) of a toy car to a contract manufacturer abroad for production. However, the toy design does not relate to IPP investment. Like a FGP the principal maintains control over the outcome of the production process and takes responsibilities for maintaining access to consumer markets and delivery of the final output to consumers. The contractor manages the transformation process by supplying all material inputs according to the specifications of the principal and transforming them to final products according to the blueprint provided by the principal. The contractor delivers pre-specified goods to the principal at pre-determined prices. As there is no IPP input involved and the design inputs embedded in the toy car do not contribute significant value to it, the principal cannot be identified as a FGP. Instead the principal is deemed to be engaged in trading.

B. Factoryless goods production versus goods sent for processing

44. Transformation of goods owned by others (processing) is well described in the 2008 SNA and BPM6. The classic example of a processing arrangement is that of the principal shipping raw materials or semi-fabricated goods to a processor abroad. An arrangement that presents a challenge is when the principal outsources completely the production process (similarly to a FGP) but also acquired (some of the) material inputs prior to transformation. These inputs may be purchased abroad and subsequently shipped to the processor. As the principal obtains economic ownership of (some of the)

material inputs, this would be recorded as a case of processing. It should be acknowledged that the principal in such a processing arrangement has become 'factoryless' similar to principals outsourcing all purchases of the material inputs. Such companies should also be taken into consideration when defining the scope of factoryless goods producers in a future revision of ISIC.

45. A pragmatic choice is needed to distinguish those 'factoryless' arrangements falling under processing from those falling under factoryless production (in a narrow sense). The dividing line that could be drawn according to the current accounting standards is whether or not the principal has obtained at least some of the material inputs prior to processing. This criterion is in accordance with how goods sent for processing is currently explained in 2008 SNA and BPM6, and in line with the ISIC criteria for outsourcing. For example, BPM6 explicitly mentions that processing fees may partly reflect the costs of supplementary (material) inputs purchased by the processor.
46. The principals active in a 'factoryless' arrangement that fall under processing or a factoryless goods production (in the narrow sense) are often responsible for similar kinds of tasks inside the global value chain. A broad notion of FGPs is sometimes used to identify the principals of global production arrangements that are responsible for the IPP inputs, design, value chain management, marketing etc., irrespective of whether or not some of the material inputs are purchased by this principal prior to processing by a contract manufacturer.

C. Factoryless goods producers versus Head Offices (ISIC Rev.4 - 7010)

47. According to ISIC, head offices include those units overseeing and managing other units of the company or enterprise, undertaking the strategic or organizational planning and decision making for the company or enterprise by exercising operational control and managing the day-to-day operations of their related units. The output of head offices often represents intra-company services.
48. FGPs play a more active role in the production process. FGPs may be subject to supervision of a head office. As argued, FGPs are directly responsible for the IPP related inputs usually obtained from in-house research or software development. They are also responsible for value chain management usually including all stages of production: from design, material transformation up to managing consumer markets. In a factoryless goods production arrangement, the foreign contractor may, or may not, be part of the multinational enterprise structure.

D. Defining the output of the FGP

49. At first sight FGPs seem to be engaged in a similar sequence of international goods transactions as merchants. However, FGP's activities differ from trading due to the significant contribution made by IPPs owned by the principal which can be considered transformative. The scale of value added generated by FGPs as returns to IPPs, management and other services provided clearly exceeds the amount generated from core distribution activities such as minimal processing, grading, cleaning and packaging as referred to in the 2008 SNA. If FGPs are recognised as a special category of manufacturers, their output should accordingly reflect the full value of the manufactured good as sold to (foreign) customers, and not a trade margin. Similarly, the supply of goods by the contractor should be recorded as part of the FGP's intermediate consumption.

E. Defining the output of a contract manufacturer under a factoryless arrangement

50. The well-established accounting rules of goods sent for processing explain that the contractor's output is recorded as a manufacturing service. For the contracting firm this treatment also follows in the case where some part of material inputs are purchased on own account. Under such conditions the manufacturing service will include the value of these material inputs.
51. Whilst it is clear that FGPs are in the business of producing goods, the output produced by the contractor under a factoryless goods production arrangement (in short: a factoryless arrangement) requires some further elaboration. Under a processing arrangement the contractor transforms material inputs provided by the principal into a final product. Under a factoryless arrangement the contractor buys and transforms material inputs into a final output on the basis of the product specifications, i.e. the IPP related inputs, provided by the principal. In other words, a central feature of a factoryless arrangement is that the 'intangible' components owned by the FGP are physically embodied in the contractor's output, even though they are not included in the price as settled between the contractor and the principal.
52. Under a processing arrangement the contractor is not at liberty to sell its output to any purchaser. Such a restriction also holds under a factoryless arrangement. The transaction between the contractor and the FGP is based on an off market price for a product that in reality has a greater value, including the IPP capital service. However, under a factoryless arrangement the contractor is responsible for acquiring the material inputs in accordance with the specifications of the required output as defined by the FGP. Under such conditions the contractor takes more risks and plays a more active role in the production process compared to a contractor under a purely processing arrangement. Under a factoryless arrangement the contractor is generally exposed to risks related to fluctuating material input prices and holding inventories.
53. So, the key question is whether or not the contractor under a factoryless arrangement provides a manufacturing service, similar to a contractor's output under a processing arrangement. This question is tightly linked to the issue of economic ownership of the good being produced. Under processing, the principal owns substantial parts of the material inputs used in production. This implies the principal is also expected to own the final product. As a logical consequence the contractor is providing a manufacturing service.
54. Under a factoryless arrangement, the material inputs are directly acquired by the contractor, who is expected to be in control of any material inputs held in inventory prior to transformation. In contrast, the IPP inputs are under control of the principal. This split in ownership of material and intangible inputs makes it difficult to determine the economic ownership of the contractor's output prior to the delivery and whether the contractor is de-facto producing a good or a service. There are two options to consider:
- (a) Under a factoryless arrangement the contractor is, during the transformation process and prior to the transaction, considered the economic owner of the good it produces. The contractor will be selling the good and, at the point of sale, the economic ownership is then handed over to the FGP;
 - (b) Alternatively, the principal is identified as the economic owner of the good during the transformation process and prior to its delivery. This implies the contractor provides manufacturing services on goods owned by the FGP. The transaction taking place between the contractor and the FGP is that of a processing fee.

55. It should be emphasized that this choice does not affect the contractor's output value. Whether recording a good (a.) or a processing service (b.), the output of the contractor will cover the value of labour inputs, capital inputs and purchased materials, but exclude the value of the IPP related inputs supplied by the FGP.
56. Regarding an assessment of control, risk and rewards, as recommended by the SNA, it seems unlikely that any data will ever be available to make an informed decision on ownership of the contractor's output on a case-by-case basis. This means a workable convention is needed which could be established on the basis of the following arguments.
57. The arguments that can be brought forward in favour of option (a) are:
- (i) Besides factoryless arrangements, there are other examples where a producer and customer agree on the characteristics and the price of the (custom made) good prior to its production and delivery. These conditions may be such that the good cannot be sold to other customers. Generally, under such circumstances, the supplier will still be identified as the producer of the good and a transfer of ownership takes place at the moment the good is transacted. Also, before a transaction takes place, the contractor is expected to bear the risk of holding these manufactured goods in inventory, for example with respect to theft or accidents. This indicates the supplier is the economic owner of the manufactured goods prior to being transacted.
 - (ii) When recording a manufacturing service, the production accounts of the contractor and the FGP will both be blurred by the fact that the contractor produces industrial services combined with substantive use of material inputs (which seems odd) while the FGP produces a good without consuming any material inputs (idem). As such a processing type of arrangement does not seem to match very well with the fact that the principal is not responsible for acquiring any of the material inputs of production. Therefore, processing and factoryless goods production should be seen as different global production arrangements.
 - (iii) Although the physical characteristics of the good do not change between purchase and sale, the FGP will increase its value substantially by adding a return on IPPs. As such, one may conclude that in an economic sense the good purchased from the contractor is not at all the same good sold to final customers.
 - (iv) In contrast to processing, the contractor under a factoryless arrangement, is expected to be more active on input markets and will as such face risks with respect to material input prices and holding inventories. These risks should under such conditions translate to higher profit margins of the contractor.
58. Alternatively, arguments supporting option (b) are:
- (i) The contractor never becomes the economic owner of the good being produced under a factoryless arrangement, because the contractor does not have the decision power to freely sell its output or to set its prices. The contractor assembles a good by strictly following the blueprints provided by the principal. The transaction between the contractor and the FGP is based on an off market price for a product that in reality has a greater value on account of the IPP services included in it, irrespective of the risk management involved on the contractor's part. In economic terms, the contractor's output could more accurately be described as a manufacturing service encompassing material inputs. BPM6 (10.64) explains that manufacturing services may include the value of material inputs purchased by the contractor, even though this paragraph does not specifically address those cases where all material inputs are purchased by the contractor;

(ii) As such FGPs fall nicely under the goods sent for processing arrangement which simplifies the overall picture of goods related global production arrangements, limiting them only to merchanting and processing cases.

(iii) A good cannot be produced twice. The physical characteristics of the good are not altered by the FGP. This implies the transaction between the contractor and FGP resembles a manufacturing service.

59. Although there was no full agreement, the majority of the Task Force on Global Production supported the recording of a transaction in goods (option a in paragraph 54) between the supplier and principal under a factoryless arrangement. This recording follows the logic that, in economic terms, the good purchased by the FGP is an intermediate product to which the IPP value is subsequently added before being sold to the final customer.

F. ‘Goods under general merchandise’ or ‘net exports of goods under merchanting’

60. If the conclusion is that FGPs are engaged in manufacturing and a transaction in goods is recorded between the contractor and the principal, a subsequent question concerns the type of recording to be followed in the international accounts. Please keep in mind that the contractor, the principal and the final customer are supposed to be resident in different countries. There are two options:

(a) A gross recording of the import and export flows of goods (general merchandise);

(b) A net recording, i.e. net export of goods under merchanting, taking the country’s perspective in which the FGP is resident.

61. Proposition b is advocated in relation to par.10.42 of BPM6:

“In cases where the merchant is the organizer of a global manufacturing process, the selling price may also cover elements such as providing planning, management, patents and other know-how, marketing, and financing. Particularly for high-technology goods, these nonphysical contributions may be large in relation to the value of materials and assembly.”

62. Contrary to arrangements such as ‘transformation of goods owned by others’ and ‘merchanting’ factoryless goods production is not explicitly addressed in BPM6. BPM6 provides no guidance on cases where the value from these additional IPP related services is much larger than the value related to distribution services. One may conclude that the guidance in par.10.42 does not address specific cases of factoryless goods production.

63. The output of FGPs as manufacturers should reflect the full value of goods as sold to (foreign) customers instead of a trade margin. Similarly, the purchase of goods obtained from the (foreign) contractor (at prices excluding the IPP component) should be recorded as intermediate consumption. This gross recording in the production account of the FGP should be matched by a gross recording of the respective flows of goods under general merchandise (option a in paragraph 60).

G. Athletic shoes example C1*

64. Tables 7 and 8 summarize the alternative view of the Task Force on Global Production, based on the athletic shoes example. The supplier’s output of goods reflects the

‘factory-gate’ value of the shoe, excluding the IPP inputs. The principal’s output reflects the product’s full value, or consumer price, including the IPP inputs.

65. Table 8 illustrates the international trade in goods as recorded under general merchandise.

Table 7

Example C1* – Production account, countries A and B

	<i>Principal Country A Manufacturing</i>	<i>Suppliers Country B Manufacturing</i>
Gross Output	110	50
Goods	110	50
Services	0	0
Intermediate inputs	57	30
Materials	50	30
Processing services	0	0
Other services	7	0
Value added	53	20
Compensation of employees	17	20
Taxes less subsidies on production and imports	0	0
Gross operating surplus	36	0

Table 8

Example C1* – International transactions

	<i>Country A</i>	<i>Country B</i>	<i>Country C</i>	<i>Total</i>
Exports	110	50	0	160
Goods	110	50	0	160
Services	0	0	0	0
Imports	50	0	110	160
Goods	50	0	110	160
Services	0	0	0	0

H. Increasing complexity of global production arrangements

66. Factoryless goods production arrangements are difficult to grasp in national accounts statistics, even though the example of a factoryless goods production arrangement presented above is rather straightforward. Real life examples can be more complex. For example, FGPs may locate their distribution activities in close connection to foreign consumer markets. Under such conditions it is possible that the turnover is no longer reported by the FGP but instead by their foreign affiliates responsible for wholesale and retail activities. This seriously complicates the identification of such FGPs as well as determining the accounting conventions that suit such more complex arrangements. These more complex arrangements are further elaborated below.

1. Factoryless goods production with a foreign distributor, manufacturing related turnover is reported in Country A

67. The next example, as illustrated in the tables 9 and 10, presents a case in which distribution activities are carried out, not by the principal but by a foreign affiliated company in the country in which the final products are sold to customers.

Table 9
Production accounts

	<i>Country A Company Y Principal</i>	<i>Country B Company X Contract Manufacturer</i>	<i>Country C Company Y Distributor</i>	<i>Company Y Globally Consolidated Accounts</i>
Gross Output	85	50	25	110
Goods	85	50	0	85
Services	0	0	25	25
Intermediate inputs	53	30	4	57
Materials	50	30	0	50
Other services	3	0	4	7
Value added	32	20	21	53
Compensation of employees	2	20	15	17
Taxes less subsidies on production and imports	0	0	0	0
Gross operating surplus	30	0	6	36

Table 10
International transactions

	<i>Country A</i>	<i>Country B</i>	<i>Country C</i>
Exports	85	50	0
Goods	85	50	0
Services	0	0	0
Imports	50	0	85
Goods	50	0	85
Services	0	0	0

68. In the example, the principal is situated in Country A, the contract producer in Country B and the distributor in Country C where the goods are brought to the consumers. The principal and distributor belong to the same (multinational) enterprise (Company Y). The contract producer, on the other hand, represents an unaffiliated firm (Company X).

69. The principal reports the turnover (85) from the manufacturing related activities at producers' prices. This turnover includes the purchase of (intermediate) goods from the contract producer (50), a compensation for IPP inputs (30), production related services (3) and management costs (2).

70. The principal organises its wholesale and retail activities via a foreign affiliated company situated in the direct neighbourhood of the consumer market in Country C. The output of this foreign affiliate reflects a trade margin ($25 = 110 - 85$) which includes trade related service inputs (4), compensation of sales workers (15) and a pure profit margin (6).

71. Assuming similar tax arrangements in the countries A and C, Company Y is indifferent about which country the turnover from wholesale and retail activities is being reported, as profits reported in Country C will be appropriated by the parent in Country A as returns on foreign investment.
72. The example shows that offshoring the distribution related elements of the value added chain to a foreign affiliated company does not alter the role of the principal as a FGP. The draft Guide mentions that FGPs often combine value chain management and IPP related activities (e.g. research, product development) with trade related activities. But its characteristic activities are product development (e.g. providing the IPP inputs) and value chain management, and not trade.
73. Despite the several measurement challenges underscored in the Guide in connection to FGPs, the divergences of this arrangement compared with the 'classic' factoryless goods production case, does not increasingly complicate the measurement and compilation issues for such FGPs. It could be argued whether or not the profit margin (6) should be entirely associated with the distribution activities in Country C, but this is a rather minor issue. A crucial condition is that the entire manufacturing related output (as opposed to distribution related output) remains in the accounts of the FGP. This condition may not always hold.

2. Factoryless production with a foreign distributor, manufacturing related turnover is no longer reported in Country A

74. The statistical observation of the factoryless goods production arrangement becomes critically complicated once the turnover is no longer reported at the level of the principal (in the previous example still identified as the FGP) in Country A. This situation may occur when, driven by tax planning, turnover is only reported at the level of the foreign affiliated distributor in Country C. Taking advantage of favourable tax arrangements the principal may prefer reporting the turnover and profits in Country C instead of Country A.
75. As the information on the existence of such arrangements was brought to the attention of the Task Force on Global production at a late stage of finalization of the Guide, practical examples could not be collected and analysed in depth. This issue should be reviewed with priority in the future work on typology of global production arrangements and FGPs.

3. Goods sent for processing combined with a foreign distributor

76. Foreign affiliated distributors can also exist in combination with principals managing a goods sent abroad for processing arrangement. Under such conditions the principal is beyond doubt the economic owner of the processed goods prior to shipment of the goods to the distributor. It pays a processing fee and will be reporting the output of the processed goods in its production account. This implies a transaction in goods at producers' prices must take place between the principal and the foreign affiliated distributor or the distributor could be paid a commission for sales/distribution services provided to the principal who retains ownership of the goods themselves. In other words, the problems encountered above are not expected in relation to processing type of arrangements.

IV. Conclusions and recommendations

77. The stylized arrangements discussed and illustrated in this chapter are simplified versions of actual global production arrangements that can be very elaborate. A

multinational enterprise can consist of many units producing an array of products across several countries and the accompanying accounting relationships can be complex. In such situations the lines between the various types of production arrangements can become blurred.

78. The main objective of the typology is to support the proper breakdown of economic activities along the global supply chain on a country-by-country basis. Guidance on the recording of each type of global production arrangement is provided in the chapters that follow.

79. The following recommendations can be extracted from the discussions in Chapter 2:

(a) Table 1 should be used as a ‘roadmap’ to assist the translation of complex real life global production cases into recognisable schemes from which the main accounting principles can be derived. Updating this table is needed to keep track of newly emerging forms of global production arrangements, particularly in the area of services. The exploitation of natural resources (land, soil and fish stocks) in developing countries by multinational enterprises is another area where further evidence should be obtained.

(b) In the case of processing or manufacturing services on physical inputs owned by others (case A), the manufacturing service fee could include (substantial amounts of) cost of materials purchased by the processor. According to the current recommendations the processing arrangement refers to all processing done by a supplier on goods owned by others.

(c) When the goods under ownership of an entity performing a merchanting function is subject to further transformation or processing, which changes the nature of the good, the transaction can no longer be recorded under merchanting. Instead the activity reflects manufacturing and the resulting recording falls under goods sent for processing.

(d) FGPs control the supply chain, the blueprints of production, access to customers, trademarks, and other sources of significant value embodied in the final output. The contractor generally only manages the processing activities by strictly following the specifications provided by the principal. A key characteristic of the contractual arrangement is the captive nature of the contractor. The contractor’s production activities cannot be undertaken without the blueprints provided by the principal. According to the current standards, FGPs are presented as traders and their transactions are treated accordingly, but it is recommended that they are separately identified within respective classes.

(e) Rules for identification of FGPs should be developed in order to allow for better analysis of their characteristics and testing of the accounting treatment in Section III of this chapter. In this regard the following supplementary guidelines should be considered for future research: - A principal that owns, or obtains a license to use, and supplies IPP inputs but no material inputs to a contractor but still manages (controls) the overall outcome of the production process can be seen as a type of manufacturer and could be classified accordingly. For example, it could be classified to the manufacturing industry in a separate subset of existing classifications that highlights the factoryless characteristics of the firm.

(f) A principal that supplies no IPP or other inputs (goods and services) to a contractor should be classified to trade.