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Note: This paper was presented to the Stockholm meeting of the OECD Working Party on Indicators for the Information Society, in April 2002. Comments received at that meeting have not yet been incorporated in the attached draft. Comments from delegates to the Voorburg Group meeting are most welcome.

A PROPOSED DEFINITION OF ICT MANUFACTURING GOODS

Introduction

1. In 1998, OECD Member countries agreed on an activity-based definition of the ICT sector. This definition, based on an international standard classification of activities (ISIC Rev.3), was considered to be a first step to obtain some initial measurement of ICT sector core indicators [see DSTI/ICCP/IIS(2002)2]. Thus, the approach taken by WPIIS was to first define the activities, and subsequently work on a list of ICT goods and services that could complement and help to refine the activity-based definition. While this was the primary reason driving this work, another reason for developing a definition of ICT products is to be able to link domestic production data with international trade data.

2. The difficulties to establish a list of ICT products were recognised by WPIIS since the start in 1998. These difficulties were related to the rapidly changing character of ICT goods and services and the dated nature of current standard classifications. The approach taken by WPIIS was to look at a classification of ICT goods first and separately from that of ICT services. This paper summarises the work on ICT manufacturing goods carried out over the years and presents a final proposal for discussion and approval. It is presented with a view to reaching consensus on a set of commodities that make up ICT manufactured goods and can be used to complete the definition of ICT goods and services. Issues related to the classification of ICT services are discussed in DSTI/ICCP/IIS(2002)7.

1998-2001: some background

3. WPIIS work on ICT manufacturing goods started in 1998. Several papers were written on this topic by Olof Gärdin (Eurostat) and discussed over the 1998-2000 period at meetings of the OECD, as well as at meetings of the Voorburg Group on Services statistics and of the Eurostat's Working Group on Statistics for the Information Society.

4. At the 2000 WPIIS meeting, it was agreed to adopt the broad general structure for manufacturing products as outlined in the paper presented by Olof Gardin [DSTI/ICCP/IIS(2000)2 – A Definition of ICT Manufacturing Products, A Proposal for Discussion]. That broad structure was based on the Prodcom

classification and was arrived at after consideration of the set of principles for the manufacturing sector adopted at the 1998 meeting of WPIIS. These principles are that the products must either:

- Be intended to fulfil the function of information processing and communication by electronic means, including transmission and display, or
- Use electronic processing to detect, measure and/or record physical phenomena, or to control a physical process.

Parts and accessories for such products were also considered to fall within the definition.

5. The broad general structure agreed in 2000 was as follows:

- Telecommunications equipment
- Consumer electronics
- Computers
- Office machinery
- Electronic components
- Instruments and equipment for detecting, measuring, checking and controlling physical phenomena or processes.

6. It is important to note that this agreement did not necessarily imply that, for example, all products that could be viewed as consumer electronics would be considered to be ICT manufactured products. Some will be, but not necessarily all.

7. Also at the 2000 meeting, WPIIS did not agree to a proposal for more detailed products based on the categories outlined in the CPC – Central Product Classification - (with a detailed link provided back to the HS – Harmonised System - nomenclature). Instead, it asked Secretariat to obtain some professional advice on the detail that ought to be included within the definition. The Secretariat tried to obtain this by getting advice from the European Information and Communication Technology Association. While input was promised by that organisation, the only response received in the end was a general agreement on the OECD existing proposal.

8. At the 2001 meeting of WPIIS, a proposal based on this broad general structure approved in 2000 was tabled as a room document [DSTI/ICCP/IIS(2001)/RD4] and presented by Bill Pattinson. Given that the proposal was tabled directly and for the first time at the 2001 meeting, there was not possibility of an in-depth discussion of the proposal. The proposal is now tabled again for discussion, especially in the light of reviewing the ICT sector activity-based definition [see DSTI/ICCP/IIS(2002)2].

User needs for a detailed definition of ICT manufactured goods

9. There are two main reasons for an elaboration of ICT manufactured goods. These are:

- To provide a framework in which commodity statistics can be compiled, and

- To provide users with a more refined definition of the ICT activity-based definition than is possible with the use of ISIC classes.

A Framework for Commodity Statistics

10. Economic statistics users generally require statistics about both industries and commodities. The industrial data (similar to the type included in "Measuring The ICT Sector" generally provides structural data about the firms that are producing the relevant goods and services, such as their employment and their value added. The commodity data, on the other hand, enable individual commodities to be analysed, and in particular enables domestic production within a country to be compared with imports and exports. While a similar analysis can be undertaken at a more aggregated industrial level, that aggregated level itself is only an approximation and will often hide trends in the data that are relevant for users.

11. Thus a key requirement for ICT manufactured goods is that they can be related to international trade data. This means that it is necessary to therefore either define them in terms of the HS classification or provide a link to that classification.

Refine the activity-based definition of the ICT sector

12. ICT sector statistics provide information about statistical units (in this case, enterprises) that are classified to the industrial classes defined as being part of the ICT sector. These statistical units will sometimes produce ICT goods or services solely, sometimes will produce a mixture of ICT and non-ICT goods and services and on occasions may not produce any ICT goods or services at all. It is only by collecting product information that this can be determined. The collection of such data thus may enable the user to have a much better idea of how closely the ICT sector as measured in any country resembles the group of statistical units that primarily produce ICT goods and services. (In statistical terms, this is often referred to as deriving "coverage" and "specialisation"ratios.)

13. Thus the key requirement from this point of view is that the products are defined in such a way as to enable the collection of production statistics – in general this means that they will probably need to align to international commodity classifications such as the Central Product Classification or ProdCom.

4. Using the HS classification

14. While both the trade and the local production commodity classifications could be used to help develop a set of products to be included in our definition, this paper concentrates on the HS classification. This is mainly because there are data available for all Member countries using that classification. The same cannot be said for the commodity classifications.

15. The HS classification has a number of levels - at the most detailed level, there are far too many classes to be used as a basis for the list of ICT products. One way of reducing this number is to look at the trade classification, and the international trade data, at a more aggregated level. Obviously, the greater degree of aggregation, the less pure the results.

16. Tables 1-6 attached show the major products included in each of the general headings shown in the structure agreed at the 2000 WPIIS. A major product is defined for this purpose as being any commodity that contributes at least 1% to the total exports for its group, either in aggregate for the OECD or as an unweighted country average. The tables show the commodities that would be included if a definition were to be derived at both the 4 and 6 digit levels of the HS classification using the concordance

provided by Mr Gardin in DSTI/ICCP/IIS(2000)2. To define ICT manufactured goods at the 6 digit level requires the addition of the categories shown in shading in the Tables.

17. Some conclusions from this analysis are shown below.

Telecommunications equipment

18. The total value of telecommunications equipment exports of OECD in 1999 was $US 126 billion, based on the 6 digit level concordance. This represents 3.7% of total OECD exports. There are very few differences between the 4 and 6 digit levels. The only additions to the major 4 digit commodities are

- the telecommunications parts of aircraft and spacecraft and
- instruments for measuring or checking electrical quantities specifically for telecommunications
- transmission apparatus for radio telephony, radio telegraphy, radio broadcasting or television including television cameras (including mobiles).

19. It would not be possible to measure the specific telecommunications parts for aircraft and spacecraft (without going to a very detailed level of the classification) and so these ought to be excluded from the list. The measuring and checking instruments could be included in the category for measuring and checking instruments. The major component of the latter group is likely to be mobile phones that should be included in this category. Thus it would appear to be reasonable to use a mixture of the 4 and 6 digit classification to delineate the major products for telecommunications equipment as:

- Electrical apparatus for line telephony and line telegraphy (including telephones)
- Transmission apparatus for radio telephony, radio telegraphy or television (including mobile phones)
- Radar apparatus, radio navigational aid apparatus and radio remote control apparatus, and
- Parts suitable for the use solely or principally with the above apparatus.

Consumer electronics

20. The total value of OECD exports of consumer electronics in 1999 was $US 63 billion, based on the 6 digit concordance. This represents 1.5% of total OECD exports. The major difference between the 4 and 6 digit commodities relates to unrecorded magnetic tapes and discs and video cameras. A delineation of products based on a mixture of the 4 and 6 digit classifications would lead to the major products being as follows:

- Microphones, loudspeakers, headphones and earphones
- Turntables, record decks, record players and cassette players
- Magnetic tape recorders

- Video recording or reproducing apparatus
- Parts and accessories for sound reproducing and recording apparatus
- Unrecorded magnetic tapes and discs
- Video cameras
- Reception apparatus for radio telephony, radio telegraphy or radio broadcasting
- Television receivers including video monitors and projectors.

Computers

21. The total value of OECD exports of computers in 1999 was $US 193 billion, based on the 6 digit concordance. This represents 4.7% of total OECD exports. The only difference between the 4 and the 6 digit concordances relates to the treatment of parts and accessories. In the 4-digit classification parts and accessories for computers are included in the same group as parts and accessories for typewriters and word processing machines. It would seem to be inappropriate to include all parts and accessories in either "computers" or "office machinery" and so a combination of 4 and 6 digit classifications is proposed.

22. The major products for this group would be as follows:

- Computers
- Parts and accessories for computers.

Electronic components

23. The total value of OECD exports of electronic components in 1999 was $US 187 billion based on the 6-digit concordance. This represents 4.6% of total OECD exports. The major differences between the two levels are that electric conductors (which should be included in the definition) are combined in the 4-digit classification with ignition and winding wire sets (which should be excluded) and that cards with magnetic strips could be separately identified at the 6 digit level.

24. The major products were as follows:

- Electrical capacitors
- Electrical resistors
- Printed circuits
- Thermionic and cathode ray valves and tubes
- Diodes, transistors and similar semi-conductor devices
- Electronic integrated circuits and microassemblies

- Electric wire conductors
- Cards with magnetic strips

Office machinery

25. The total value of OECD exports of office machinery in 1999 was $US 14 billion, based on the 6-digit concordance. This represents 0.4% of total OECD exports. The vast majority of this relates to photocopiers and their parts and accessories, which is a separate 4-digit part of the classification. The "Other office machines" that might be considered to be ICT goods are designated as being in other parts of the HS classification.

26. The major products under this heading are as follows:

- Photocopiers
- Cash registers, typewriters, word processing machines, calculating machines, accounting machines
- Parts and accessories for the above

Instruments for detecting, measuring, checking and controlling physical processes

27. The total value of OECD exports in 1999 was $US 53 billion based on the 6-digit concordance. This represents 1.3% of total OECD exports. However it is very difficult to use the HS classification to clearly specify the particular instruments that are to be included. This is because the majority of the exports are allocated to the "not elsewhere specified" categories. External advice will be needed to more precisely delineate the commodities to be included. Delegates may wish to examine the commodities shown in Table 6 and offer advice on what ought to be included in the final list. In the interim, the major products list could include:

- Lenses, prisms, mirrors
- Photographic cameras
- Electron microscopes
- Compasses and other navigational instruments
- Instruments used in geodesy, topography, hydrography etc
- Machines for testing the hardness, strength of materials
- Gas, light or electricity meters
- Mileometers and other revolution counters
- Other measuring and checking instruments.

5. Conclusion

28. This paper has attempted to derive a list of manufactured products that might be considered to be ICT goods. It has been based on the agreements reached in earlier meetings concerning the principles to be adopted and the broad general structure for the list. The list has been based on the HS classification and it is proposed that a mixture of the 4 and 6 digit levels of the classification will be needed. It is important to note that it is desirable to use the classification at as high a level of aggregation as possible to avoid problems created by data becoming unavailable because of confidentiality problems at a more disaggregated level. The HS classification was chosen as the model because it is the classification by which detailed trade data are available for all Member countries. There are established concordances between the HS classification and the Central Product Classification that is used by some Member countries as the basis for their collections of local production data.

29. In considering the lists, delegates might care to review if the principles adopted in 1998 have been interpreted appropriately in arriving at the list as well as the individual entries within them.

30. Agreement to the list (modified, as appropriate) does not necessarily mean that data will have to be collected and compiled at that level. The list initially can be used merely to better describe the outputs of the ICT industries and as a guide to review the ICT activity-based definition.

ANNEX TABLES

Tables 1-6 attached show the major products included in each of the general headings shown in the structure agreed at the 2000 WPIIS. Major is defined for this purpose as being any commodity that contributes at least 1% to the total exports for its group, either in aggregate for the OECD or as an unweighted country average. The tables show the commodities that would be included if a definition were to be derived at both the 4 and 6 digit levels of the HS classification using the concordance provided by Mr Gardin in DSTI/ICCP/IIS(2000)2. To define ICT manufactured goods at the 6 digit level requires the addition of the categories shown in shading in the Tables.

Table 1. TELECOMMUNICATIONS EQUIPMENT - Product composition of OECD exports

HS Rev.2 codes	HS Rev.2 description	Total OECD shares		Unweighted mean country shares	
		1998	1999	1998	1999
4-digit					
8517	Electrical Apparatus For Line Telephony Or Line Telegraphy, Including Such Apparatus For Carrier-Current Line Systems	39.5	41.3	44.2	41.8
8526	Radar Apparatus, Radio Navigational Aid Apparatus And Radio Remote Control Apparatus	2.8	2.3	3.9	4.1
8529 (1)	Parts Suitable For Use Solely Or Principally With Transmission And Reception Apparatus For Radio-Telephony, Radio-Telegraphy, Radio-Broadcasting, Television, Radar Apparatus, Radio Navigational Aid Apparatus Or Radio Remote Control Apparatus	17.9	17.1	22.2	22.8
6-digit					
851711	Telephone Sets For Line Telephony With Cordless Handsets	1.7	1.3	1.9	1.6
851719	Telephone Sets For Line Telephony; Videophones (Excl. Line Telephone Sets With Cordless Handsets And Entry-Phone Systems)	2.0	1.8	3.1	1.9
851721	Facsimile Machines For Line Telephonhy	1.5	1.1	1.0	0.7
851722	Teleprinters For Line Telegraphy	0.0	0.0	0.0	0.0
851730	Telephonic Or Telegraphic Switching Apparatus	5.6	5.6	3.9	4.1
851750	Apparatus For Carrier-Current Line Systems Or Digital Line Systems, For Line Telephony Or Line Telegraphy (Excl. Telephone Sets, Videophones, Facsimile Machines, Teleprinters And Switching Apparatus)	10.1	12.2	11.3	11.9
851780	Electrical Apparatus For Line Telephony Or Line Telegraphy (Excl. Telephone Sets, Videophones, Facsimile Machines, Teleprinters, Switching Apparatus And Carrier-Current Or Digital Line Transmitting And Receiving Apparatus)	3.0	2.6	3.6	3.6
851790	Parts Of Electrical Apparatus For Line Telephony And Line Telegraphy, Incl. Carrier-Current Apparatus, N.E.S.	15.5	16.5	18.5	17.0
852510	Transmission Apparatus For Radio-Telephony, Radio-Telegraphy, Radio-Broadcasting Or Television	1.9	1.9	1.9	1.3
852520	Transmission Apparatus Incorporating Reception Apparatus, For Radio-Telephony, Radio-Telegraphy, Radio-Broadcasting Or Television	28.2	31.7	21.2	24.5
852530	Television Cameras (Excl. Camcorders Capable Of Recording Television Programmes Using An External Video Tuner)	2.4	1.6	2.3	2.1
852610	Radar Apparatus	1.5	0.9	2.0	0.7
852691	Radio Navigational Aid Apparatus	0.8	0.9	1.2	1.1
852692	Radio Remote Control Apparatus	0.6	0.5	0.7	2.3
852910 (1)	Aerials And Aerial Reflectors Of All Kinds; Parts Suitable For Use Therewith, N.E.S.	2.8	2.6	3.8	4.5
852990 (1)	Parts Suitable For Use Solely Or Principally With Transmission And Reception Apparatus For Radio-Telephony, Radio-Telegraphy, Radio-Broadcasting, Television, Radar Apparatus, Radio Navigational Aid Apparatus Or Radio Remote Control Apparatus	15.1	14.5	18.5	18.3
880260	Spacecraft, Incl. Satellites, And Suborbital And Spacecraft Launch Vehicles **(part)**	3.8	1.3	1.5	0.7
880390	Parts Of Aircraft And Spacecraft, N.E.S. **(part)**	2.1	1.5	1.7	1.6
903040	Instruments And Apparatus For Measuring Or Checking Electrical Quantities, Specifically For Telecommunications, E.G. Cross-Talk Meters, Gain Measuring Instruments, Distortion Factor Meters, Psophometers	1.4	1.4	1.1	1.1

(1) Parts of 8529 could be considered as Consumer electronics.

Source: OECD International Trade in Commodities Statistics (ITCS), 2001

Table 2. CONSUMER ELECTRONICS - Product composition of OECD exports (1)

HS Rev.2 codes	HS Rev.2 description	Total OECD shares		Unweighted mean country shares	
		1998	1999	1998	1999
4-digit					
8518	Microphones And Stands Therefor (Excl. Cordless Microphones With Built-In Transmitter); Loudspeakers, Whether Or Not Mounted In Their Enclosures; Headphones, Earphones And Combined Microphone/Speaker Sets (Excl. Telephone Sets, Hearing Aids and Helmets)	9.8	11.0	14.4	17.7
8519	Turntables, Record-Decks, Record-Players, Cassette-Players And Other Sound Reproducing Apparatus, Not Incorporating A Sound Recording Device (Excl. Those Combined With Radio-Broadcast Receivers Or Television Receivers)	4.5	4.2	3.1	3.0
8520	Magnetic Tape Recorders And Other Sound Recording Apparatus Whether Or Not Incorporating A Sound Reproducing Device	2.5	2.3	4.6	2.6
8521	Video Recording Or Reproducing Apparatus	9.4	10.0	6.5	7.3
8522	Parts And Accessories Of Sound Reproducing And Recording Apparatus And Video Recording Or Reproducing Apparatus, N.E.S.	6.2	5.9	5.6	4.5
8527	Reception Apparatus For Radio-Telephony, Radio-Telegraphy Or Radio-Broadcasting, Whether Or Not Combined, In The Same Housing, With Sound Recording Or Reproducing Apparatus Or A Clock	14.9	14.7	18.0	16.3
8528	Television Receivers -Incl. Video Monitors And Video Projectors-, Whether Or Not Combined, In The Same Housing, With Radio-Broadcast Receivers Or Sound Or Video Recording Or Reproducing Apparatus	31.2	29.2	34.0	34.6
6-digit					
851810	Microphones And Stands Therefor (Excl. Cordless Microphones With Built-In Transmitter)	0.9	1.1	1.1	1.7
851821	Single Loudspeakers, Mounted In Their Enclosures	0.9	0.9	1.7	2.0
851822	Multiple Loudspeakers, Mounted In The Same Enclosure	1.8	1.8	3.8	4.2
851829	Loudspeakers, Without Enclosure	1.7	1.7	1.8	2.0
851830	Headphones, Earphones And Combined Microphone/Speaker Sets (Excl. Telephone Sets, Hearing Aids And Helmets With Built-In Headphones, Whether Or Not Incorporating A Microphone)	0.8	1.1	1.3	2.3
851840	Audio-Frequency Electric Amplifiers	1.8	2.3	2.0	2.2
851850	Electric Sound Amplifier Sets	0.5	0.7	0.8	1.3
851890	Parts Of Microphones, Loudspeakers, Headphones, Earphones Or Audio-Frequency Electric Amplifiers, N.E.S.	1.1	1.3	1.2	1.5
851999	Sound Reproducing Apparatus, Not Incorporating A Sound Recording Device (Excl. Record Players, Coin-Operated Or Disc-Operated Record-Players, Transcribing Machines And Cassette-Players)	3.8	3.6	2.6	2.5
852090	Sound Recording Equipment Whether Or Not Incorporating A Sound Reproducing Device (Excl. Magnetic Tape Recorders Incorporating Sound Reproducing Apparatus)	1.2	1.3	1.0	1.2
852110	Video Recording Or Reproducing Apparatus, Magnetic Tape-Type	7.5	6.8	5.4	5.3
852190	Video Recording Or Reproducing Apparatus (Excl. Magnetic Tape-Type)	2.0	3.2	1.1	2.0
852290	Parts And Accessories Of Sound Reproducing And Recording Apparatus And Video Recording Or Reproducing Apparatus, N.E.S.	6.1	5.8	5.2	4.3
852311	Magnetic Tapes, Unrecorded, Of A Width =<4 Mm	1.7	1.4	1.4	1.1
852312	Magnetic Tapes, Unrecorded, Of A Width >4 Mm But =<6.5 Mm	0.7	0.6	0.4	0.4
852313	Magnetic Tapes, Unrecorded, Of A Width >6.5 Mm	5.9	5.3	4.2	3.6
852320	Magnetic Discs, Unrecorded	5.3	4.5	3.1	3.0
852390	Prepared Unrecorded Media For Sound Recording Or Similar Recording Of Other Phenomena (Excl. Magnetic Tapes, Magnetic Discs And Products Of Chapter 37)	1.8	2.2	2.2	2.7
852540	Still-Image Video Cameras And Other Video Camera Recorders	6.0	8.8	2.6	3.0
852721	Radio-Broadcast Receivers Not Capable Of Operating Without An External Source Of Power, Of A Kind Used In Motor Vehicles, Incl. Apparatus Capable Of Also Receiving Radio-Telephony Or Radio-Telegraphy, Combined With Sound Recording Or Reproducing	7.5	7.7	6.2	7.2
852731	Radio-Broadcast Receivers, For Mains Operation Only, Incl. Apparatus Capable Of Also Receiving Radio-Telephony Or Radio-Telegraphy, Combined With Sound Recording Or Reproducing Apparatus (Excl. Those Of A Kind Used In Motor Vehicles)	2.4	2.4	2.5	2.6
852790	Receivers For Radio-Telephony, Radio-Telegraphy Or Commercial Radio	3.1	2.7	7.0	4.1
852812	Television Receivers, Colour, Whether Or Not Incorporating Radio-Broadcast Receivers Or Sound Or Video Recording Or Reproducing Apparatus	27.0	24.6	30.5	30.0
852821	Video Monitors, Colour	1.3	1.4	1.8	2.4
852830	Video Projectors	2.5	2.9	1.4	1.7

(1) This table excludes 6-digit HS codes of 8518, 8519, 8520, 8521, 8527and 8528 with less than 1% share of the "Consumer electronics" group.

Source: OECD International Trade in Commodities Statistics (ITCS), 2001

Table 3. COMPUTERS - Product composition of OECD exports

HS Rev.2 codes	HS Rev.2 description	Total OECD shares		Unweighted mean country shares	
		1998	1999	1998	1999
4-digit					
8471	Automatic Data Processing Machines And Units Thereof; Magnetic Or Optical Readers, Machines For Transcribing Data Onto Data Media In Coded Form And Machines For Processing Such Data N.E.S.	64.4	63.3	63.7	60.1
6-digit					
847110	Analogue Or Hybrid Automatic Data Processing Machines	0.8	0.7	2.9	1.9
847130	Data-Processing Machines, Automatic, Digital, Portable, Weighing <=10 Kg, Consisting Of At Least A Central Processing Unit, A Keyboard And A Display (Excl. Peripheral Units)	5.2	5.0	4.2	3.9
847141	Data-Processing Machines, Automatic, Digital, Comprising In The Same Housing At Least A Central Processing Unit, Plus One Input Unit And One Output Unit, Whether Or Not Combined (Excl. Portable Weighing <=10 Kg And Excl. Presented In The Form Of Systems)	2.9	3.8	4.0	4.1
847149	Data-Processing Machines, Automatic, Digital, Presented In The Form Of Systems Comprising At Least A Central Processing Unit, One Input Unit And One Output Unit (Excl. Portable Weighing <=10 Kg And Excl. Peripheral Units)	5.5	4.4	3.6	4.8
847150	Processing Units For Automatic Data-Processing Machines, Digital, Whether Or Not Containing In The Same Housing One Or Two Of The Following Types Of Unit: Storage Units, Input Units, Output Units, N.E.S.	10.8	11.6	9.8	9.1
847160	Input Or Output Units For Digital Automatic Data-Processing Machines, Whether Or Not Containing Storage Units In The Same Housing	16.9	16.3	19.1	17.3
847170	Storage Units For Digital Automatic Data-Processing Machines	15.9	14.9	14.2	12.8
847180	Units For Digital Automatic Data-Processing Machines (Excl. Processing Units, Input Or Output Units And Storage Units)	4.5	5.0	3.7	3.6
847190	Magnetic Or Optical Readers, Machines For Transcribing Data Onto Data Media In Coded Form And Machines For Processing Such Data, N.E.S.	1.8	1.7	2.3	2.6
847330	Parts And Accessories For Automatic Data-Processing Machines Or For Other Machines Of Heading 8471, N.E.S.	35.1	36.3	35.5	39.1
847350	Parts And Accessories Equally Suitable For Use With Two Or More Typewriters, Word-Processing Machines, Calculating Machines, Automatic Data-Processing Machines Or Other Machines, Equipment Or Devices Of Headings Nos 8469 To 8472, N.E	0.5	0.4	0.8	0.7

Source: OECD International Trade in Commodities Statistics (ITCS), 2001

Table 4. ELECTRONIC COMPONENTS - Product composition of OECD exports [1]

HS Rev.2 codes	*HS Rev.2 description*	Total OECD shares		Unweighted mean country shares	
		1998	1999	1998	1999
4-digit					
8532	Electrical Capacitors, Fixed, Variable Or Adjustable, Pre-Set	5.0	5.1	5.7	6.2
8533	Electrical Resistors -Including Rheostats And Potentiometers (Excl. Heating Resistors)	1.9	1.8	2.5	2.4
8534	Printed Circuits	5.0	4.7	7.0	6.5
8540	Thermionic, Cold Cathode Or Photocathode Valves And Tubes, E.G. Vacuum Or Vapour Or Gas Filled Valves And Tubes, Mercury Arc Rectifying Valves And Tubes, Cathode-Ray Tubes And Television Camera Tubes	7.8	7.0	5.6	5.5
8541	Diodes, Transistors And Similar Semiconductor Devices; Photosensitive Semiconductor Devices, Including Photovoltaic Cells Whether Or Not Assembled In Modules Or Made Up Into Panels (Excl. Photovotaic Generators); Light Emitting Diodes; Mounted Piezo-Electric Crystals, N.E.S.	9.2	9.1	8.3	8.3
8542	Electronic Integrated Circuits And Microassemblies	61.7	63.7	37.7	40.4
6-digit					
852330	Cards Incorporating An Unrecorded Magnetic Stripe	0.1	0.1	0.4	0.2
852460	Cards Incorporating A Recorded Magnetic Stripe	0.0	0.0	0.1	0.1
853221	Fixed Electrical Capacitors, Tantalum (Excl. Power Capacitors)	0.6	0.6	1.1	1.6
853222	Fixed Electrical Capacitors, Aluminium Electrolytic (Excl. Power Capacitors)	1.0	0.9	0.5	0.5
853224	Fixed Electrical Capacitors, Ceramic Dielectric, Multilayer (Excl. Power Capacitors)	1.5	1.7	1.7	1.9
853340	Electrical Variable Resistors, Including Rheostats And Potentiometers (Excl. Wirewound Variable Resistors And Heating Resistors)	0.6	0.5	1.1	0.8
854011	Cathode-Ray Television Picture Tubes, Including Video Monitor Cathode-Ray Tubes, Colour	3.3	2.8	3.8	3.7
854040	Data/Graphic Display Tubes, Colour, With A Phosphor Dot Screen Pitch Of <0.4 Mm (Excl. Photo-Cathode Tubes And Cathode-Ray Tubes)	1.3	0.9	0.3	0.2
854091	Parts Of Cathode-Ray Tubes, N.E.S.	1.3	1.3	0.7	0.7
854110	Diodes Other Than Photosensitive Or Light Emitting Diodes	2.2	1.8	1.8	1.6
854121	Transistors Other Than Photosensitive Transistors, With A Dissipation Rate <1 W	1.0	1.0	0.5	0.5
854129	Transistors Other Than Photosensitive Transistors, With A Dissipation Rate >=1 W	1.7	1.5	1.2	1.1
854140	Photosensitive Semiconductor Devices, Including Photovoltaic Cells Whether Or Not Assembled In Modules Or Made Up Into Panels; Light Emitting Diodes (Excl. Photovoltaic Generators)	1.8	2.0	1.5	1.9
854160	Mounted Piezo-Electric Crystals	1.2	1.4	2.1	1.9
854212	Cards Incorporating An Electronic Monolithic Digital Integrated Circuit Smart Cards	0.9	1.0	1.2	2.1
854213	Monolithic Digital Integrated Circuits As Metal Oxide Semiconductor Circuits, Of Mos Type (Excl. Cards Incorporating An Electronic Integrated Circuit [Smart Cards])	33.5	36.0	19.6	20.7
854214	Monolithic Digital Integrated Circuits Obtained By Bipolar Technology (Excl. Cards Incorporating An Electronic Integrated Circuit "Smart Cards")	2.0	1.4	0.9	0.8
854219	Electronic Integrated Circuits, Monolithic, Analog Or Analog/Digital	11.8	11.6	6.4	6.2
854230	Electronic Integrated Circuits, Monolithic, Analog Or Analog/Digital	9.0	8.7	5.3	5.4
854240	Hybrid Integrated Circuits	1.4	1.9	1.3	1.9
854250	Electronic Microassemblies Made From Discrete, Active Or Both Active And Passive Components, Combined And Interconnected	0.8	0.8	1.1	1.0
854290	Parts Of Electronic Integrated Circuits And Microassemblies, N.E.S.	2.3	2.3	2.0	2.2
854420	Co-Axial Cable And Other Co-Axial Electric Conductors, Insulated	0.9	0.8	2.5	1.9
854441	Electric Conductors, For A Voltage =<80 V, Insulated, Fitted With Connectors, N.E.S.	2.3	2.1	8.2	7.3
854449	Electric Conductors, For A Voltage =<80 V, Insulated, Not Fitted With Connectors, N.E.S.	1.6	1.4	4.7	4.6
854451	Electric Conductors, For A Voltage >80 V But =<1000 V Fitted With Connectors, N.E.S.	1.2	1.2	4.4	3.9
854459	Electric Conductors, For A Voltage >80 V But =<1000 V, Not Fitted With Connectors, N.E.S.	2.3	2.0	10.5	10.6
854470	Optical Fibre Cables Made Up Of Individually Sheathed Fibres, Whether Or Not Containing Electric Conductors Or Fitted With Connectors	1.0	1.1	2.2	2.1

(1) This table excludes 6-digit HS codes of 8532, 8533, 8540, 8541and 8542 with less than 1% share of the "Electronic components" group.

Source: OECD International Trade in Commodities Statistics (ITCS), 2001

Table 5. OFFICE MACHINERY - Product composition of OECD exports

HS Rev.2 codes	*HS Rev.2 description*	Total OECD shares		Unweighted mean country shares	
		1998	1999	1998	1999
4-digit					
9009	Photocopying Apparatus Incorporating An Optical System Or Of The Contact Type, And Thermo-Copying Apparatus	75.5	80.5	55.2	54.5
6-digit					
846911	Word-Processing Machines (Excl. Automatic Data-Processing Machines And Units Thereof Of Heading No 8471 and Laser, Thermal And Electrosensitive Printers)	0.2	0.2	0.3	0.3
846912	Typewriters, Automatic (Excl. Word-Processing Machines, Automatic Data-Processing Machines And Units Thereof Of Heading No 8471 and Laser, Thermal And Electrosensitive Printers)	0.4	0.3	0.6	0.4
847010	Electronic Calculators Capable Of Operation Without An External Source Of Power	1.7	1.8	2.1	2.8
847021	Electronic Calculating Machines Incorporating A Printing Device, With Mains Connection (Excl. Data-Processing Machines Of Heading No 8471)	0.4	0.4	0.5	0.6
847029	Electronic Calculating Machines Not Incorporating A Printing Device, With Mains Connection (Excl. Data-Processing Machines Of Heading No 8471)	0.2	0.1	0.3	0.6
847040	Accounting Machines Incorporating A Calculating Device (Excl. Data-Processing Machines Of Heading No 8471)	0.3	0.2	0.7	0.7
847050	Cash Registers Incorporating A Calculating Device	4.1	4.8	9.5	15.0
847310	Parts And Accessories For Typewriters Or Word-Processing Machines Of Heading 8469, N.E.S.	3.1	3.8	9.2	6.5
847321	Parts And Accessories For Electronic Calculating Machines Of Subheading Nos 8470.10, 8470.21 Or 8470.29, N.E.S.	2.4	1.2	3.6	2.0
847340	Parts And Accessories For Other Office Machines Of Heading 8472, N.E.S.	11.6	6.6	17.9	16.7
900911	Electrostatic Photocopying Apparatus, Operating By The Direct Process Whereby The Original Image Is Reproduced Directly Onto The	0.9	0.8	3.0	3.4
900912	Electrostatic Photocopying Apparatus, Operating By The Indirect Process Whereby The Original Image Is Reproduced Via An Intermediate Onto The Copy	34.3	37.0	17.6	16.4
900921	Photocopying Apparatus, Incorporating An Optical System (Excl. Electrostatic)	4.1	3.0	8.2	7.2
900922	Photocopying Apparatus, Of The Contact Type	0.3	0.2	0.7	0.8
900930	Thermo-Copying Apparatus (Excl. Thermo-Printers)	0.2	0.1	0.3	0.1
900990	Parts And Accessories For Photocopying And Thermo-Copying Apparatus N.E.S.	35.9	39.3	25.5	26.6

Source: OECD International Trade in Commodities Statistics (ITCS), 2001

Table 6. INSTRUMENTS AND EQUIPMENT FOR DETECTING, MEASURING, CHECKING ETC. - Product composition of OECD exports [1]

HS Rev.2 codes	HS Rev.2 description	Total OECD shares		Unweight country
		1998	1999	1998
4-digit				
9002	Lenses, Prisms, Mirrors And Other Optical Elements Of Any Material, Mounted, For Instruments Or Apparatus (Excl. Such Elements Of Glass Not Optically Worked)	4.7	4.4	2.3
9006	Photographic Cameras, Photographic Flashlight Apparatus And Flashbulbs (Excl. Discharge Lamps Of Heading 8539)	7.0	6.5	5.7
9012	Electron Microscopes, Proton Microscopes And Diffraction Apparatus	1.0	0.8	0.7
9013	Liquid Crystal Devices Not Constituting Articles Provided For More Specifically In Other Heading s; Lasers (Excl. Laser Diodes); Other Optical Appliances And Instruments Not Elsewhere Specified In Chapter 90	10.2	13.9	7.4
9014	Direction Finding Compasses; Other Navigational Instruments And Appliances (Excl. Radio Navigational Equipment)	7.2	7.0	7.1
9015	Instruments And Appliances Used In Geodesy, Topography, Photogrammetrical Surveying, Hydrography, Oceanography, Hydrology, Meteorology Or Geophysics (Excl. Compasses); Rangefinders	5.8	4.6	6.3
9024	Machines And Appliances For Testing The Hardness, Strength, Compressibility, Elasticity Or Other Mechanical Properties Of Materials, E.G. Metals, Wood, Textiles, Paper Or Plastics	2.8	2.4	1.7
9028	Gas, Liquid Or Electricity Meters, Incl. Calibrating Meters Therefor	2.8	2.5	7.7
9029	Revolution Counters, Production Counters, Taximeters, Mileometers, Pedometers And The Like (Excl. Gas, Liquid And Electricity Meters); Speed Indicators And Tachometers (Excl. Those Of Headings 9014 and 9015); Stroboscopes	4.0	3.9	6.7
9031	Measuring Or Checking Instruments, Appliances And Machines Not Elsewhere Specified In Chapter 90; Profile Projectors	20.0	18.7	20.7
9032	Regulating Or Controlling Instruments And Apparatus (Excl. Taps, Cocks And Valves Of Heading 8481)	20.1	19.8	22.7
6-digit				
900110	Optical Fibres, Optical Fibre Bundles And Cables (Excl. Made Up Of Individually Sheathed Fibres Of Heading 8544)	3.4	4.2	3.0
900190	Lenses, Prisms, Mirrors And Other Optical Elements, Of Any Material, Unmounted (Excl. Such Elements Of Glass Not Optically Worked, Contact Lenses And Spectacle Lenses)	2.1	2.5	1.5
900719	Cinematographic Cameras For Film Of >=16 Mm In Width (Excl. For Double-8 Mm Film)	0.2	0.2	0.2
900720	Cinematographic Projectors	0.2	0.3	0.3
900791	Parts And Accessories For Cinematographic Cameras N.E.S.	0.2	0.2	0.3
900792	Parts And Accessories For Cinematographic Projectors N.E.S.	0.1	0.1	0.1
901420	Instruments And Appliances For Aeronautical Or Space Navigation (Excl. Compasses And Radio Navigational Equipment)	4.2	4.2	3.0
901480	Navigational Instruments And Apparatus (Excl. For Aeronautical Or Space Navigation, Compasses And Radio Navigational Equipment)	1.2	1.2	2.1
901490	Parts And Accessories For Compasses And Other Navigational Instruments And Appliances N.E.S.	1.5	1.4	1.7
901580	Instruments And Appliances Used In Geodesy, Topography, Hydrography, Oceanography, Hydrology, Meteorology Or Geophysics (Excl. Compasses, Rangefinders, Theodolites, Tacheometers, Levels And Photogrammetrical Surveying Instruments And Appliances	2.6	1.9	3.5
901590	Parts And Accessories For Instruments And Appliances Used In Geodesy, Topography, Photogrammetrical Surveying, Hydrography, Oceanography, Hydrology, Meteorology Or Geophysics, And For Rangefinders N.E.S.	2.2	1.6	1.4
902480	Machines And Appliances For Testing The Mechanical Properties Of Materials (Excl. Metals)	1.3	1.1	0.9
902890	Parts And Accessories For Gas, Liquid Or Electricity Meters N.E.S.	1.1	1.0	2.6
902920	Speed Indicators And Tachometers; Stroboscopes	2.6	2.4	2.2
902990	Parts And Accessories For Revolution Counters, Production Counters, Taximeters, Mileometers, Pedometers And The Like, Speed Indicators And Tachometers, And Stroboscopes	0.9	1.0	1.2
903010	Instruments And Apparatus For Measuring Or Detecting Ionizing Radiations	1.1	0.8	0.5
903020	Cathode-Ray Oscilloscopes And Cathode-Ray Oscillographs	0.9	0.8	0.6
903031	Multimeters For Voltage, Current, Resistance Or Electrical Power (Excl. Recording Device)	0.8	0.7	0.8
903039	Instruments And Apparatus For Measuring Or Checking Voltage, Current, Resistance Or Electrical Power (Excl. Recording Device, Multimeters, And Cathode-Ray Oscilloscopes And Oscillographs)	2.7	2.5	2.2
903082	Instruments And Apparatus For Measuring Or Checking Semiconductor Wafers Or Devices	2.1	2.4	0.9
903083	Instruments And Appliances For Measuring Or Checking Electrical Quantities, With Recording Device (Excl. Appliances Specially Designed For Telecommunications, Cathode-Ray Oscillographs And Apparatus For Measuring Or Checking Semiconductor Wafers or Devices)	0.5	0.7	0.4
903120	Test Benches For Motors, Generators, Pumps, Etc.	1.0	0.9	1.2
903141	Optical Instruments And Appliances For Inspecting Semiconductor Wafers Or Devices Or For Inspecting Photomasks Or Reticles Used In Manufacturing Semiconductor Devices	1.6	1.4	0.3
903149	Optical Instruments, Appliances And Machines For Measuring Or Checking, Not Elsewhere Specified Or Included In Chapter 90	1.1	1.2	0.9
903180	Instruments, Appliances And Machines For Measuring Or Checking, Not Elsewhere Specified In Chapter 90 (Excl. Optical)	11.8	11.0	12.7
903190	Parts And Accessories For Instruments, Appliances And Machines For Measuring And Checking, N.E.S.	3.9	3.8	5.0
903210	Thermostats	2.8	2.6	3.7
903289	Regulating Or Controlling Instruments And Apparatus (Excl. Hydraulic Or Pneumatic, Manostats, Thermostats, And Taps, Cocks And Valves Of Heading 8481)	11.9	12.0	13.6
903290	Parts And Accessories For Regulating Or Controlling Instruments And Apparatus, N.E.S.	4.0	3.8	4.0

(1) This table excludes 6-digit HS codes of 9012, 9014, 9015, 9024, 9028, 9029, 9031 and 9032 with less than 1% share of the "Instruments" group.

Source: OECD International Trade in Commodities Statistics (ITCS), 2001