31 January 2003

The 2007 Revision of ISIC and CPC

A *Draft* Concepts Paper

This paper has been prepared by the Technical Subgroup of the Expert Group on International Economic and Social Classifications and has subsequently been discussed by the Expert Group. The purpose of this paper is to outline the view of the Expert Group on conceptual issues for the 2007 revision of the International Standard Industrial Classification of All Economic Activities (ISIC) and the Central Product Classification (CPC).

The statements in this paper do not constitute a final decision or any final agreement on those issues. This concepts paper will be used as a basis for discussions with countries on the upcoming classification revisions. Feedback from countries on the opinions expressed in this paper is necessary to proceed with the revision process.

Sections:

I Introduction

1. At its thirtieth session in 1999, the Statistical Commission agreed that the International Standard Industrial Classification of All Economic Activities (ISIC) and the Central Product Classification (CPC) should be revised every five years, thereby keeping the classifications relevant while avoiding major disruptions in time series. According to this revision cycle, the next planned revision for ISIC and the CPC will be in 2007.

2. The purpose and rationale for these revisions is to repair weaknesses in the classifications, to reflect changes in technology or economic organization, to respond to new and permanent demands for data and to achieve greater comparability or convergence among different classifications.

3. Three driving forces condition any revision: relevance, comparability and continuity. In every revision, each of these has a different importance. For example, for the 2002 revision of ISIC (ISIC Rev. 3.1), continuity was the most important factor. As the Statistical Commission has given clear direction to bring about greater convergence in the activity classifications used around the world, comparability will be a very important factor for the 2007 revision. It should be noted however that continuity is always a very important criterion and that changes should only be made where the benefits in terms of comparability or relevance outweigh the costs in terms of continuity.

4. In terms of relevance, the UN Statistical Division receives a steady stream of requests for small changes to both ISIC and the CPC, but no real pattern emerges from these requests. There has, however, been a strong demand for reflecting activities and products variously described as the Information sector, Information and Communications Technologies or the New Economy, in the classifications. In addition, globalization, international trade and the changing organization of production are also driving requirements that the classifications be updated. Finally, the time has come to seriously consider a number of recurring requests to better reflect important activities and products in areas such as tourism, environmental industries and biotechnology.

5. In terms of comparability, the results of the Convergence project between the North American and European industry classifications will be a major input to the revision process. In addition, ISIC will take into account current or project revisions to other major national industry classifications such as ANZSIC (Australia and New Zealand), JSIC (Japan) and NatSIC (China).

6. Based on these general guidelines for the revision, this paper examines specific conceptual issues for both ISIC and CPC as well as initial structural options. For each conceptual issue,

the current treatment in ISIC or CPC is described, along with alternative treatments, for example, the NAICS treatment where different. The consensus - of the Technical Subgroup of the Expert Group on International Economic and Social Classifications (TSG or Group) - achieved on the issues is given and a brief discussion follows to explain whether or not this consensus helps, hinders or is neutral with respect to convergence.

7. The following conceptual issues are addressed:
   For ISIC:
   - Purpose and criteria: activities versus industries
   - Statistical units
   - Classification principles: treatment of vertical integration, the top-down approach and the value added criterion
   - Principle of grouping and the production process principle
   - Activity - product links
   - Hierarchical structure and level to be adopted by countries

   For the CPC:
   - Purpose, scope and coverage
   - Aggregation structure and links to other classifications

8. In addition, an initial possible high-level structure for ISIC, with alternate options, is provided and discussed, with a view to obtaining feedback and further suggestions through the consultation process planned as the next phase of the revision process.

II ISIC Conceptual Issues

Purpose and Criteria: A Classification of Activities or industries?

9. The present ISIC is a classification of productive economic activities. Its main purpose is to provide a set of activity categories that can be used for the collection and presentation of statistics according to such activities. Industries are then formed by grouping units with a common primary activity, according to specified similarity criteria. ISIC can then be used to produce statistics by activity or by industry, for enterprises as well as for establishments or kind of activity units.

10. The Group considered whether to change ISIC from an activity classification to an industry classification system that would group producing units as they were and not through an analysis of the activities carried out. In other words to go from " This class includes the activities of....” to “This class includes "establishments" primarily engaged in the activity of...”

11. This has, in theory, a primordial effect on the classification since it means that as long as it exists in reality a class can contain a bundle of activities each on its own classified elsewhere.

12. The advantage is that it is no longer necessary to have a coherent algorithm of determination of the principal activity since headings making it possible to classify the existing units.

13. The Group recommended that ISIC remains an activity classification not only for reasons of continuity, but also because the Group considered that in real life implementation, the difference between the two turns out to be almost non-existent.

Statistical Units

14. The TSG confirmed that the ISIC Rev. 3.1 definitions relating to statistical units such as enterprises and establishments (based on the SNA93 definitions) remain suitable for ISIC 2007. The establishment is defined as an enterprise or part of an enterprise, that is situated in a single location and in which only a single (non-ancillary) productive activity is carried out or in which the principal productive activity accounts for most of the value added. It was noted that the possibilities for implementation of this concept may be different across countries (because of regulations, legal systems etc), or may be similar across countries but labelled differently (e.g. as a 'kind of activity' unit, or a 'type of activity unit'). The following text, which stems from ISIC Revision 2, could be reconsidered "In practice many countries find that the (*smallest*) unit that they are able to delineate and for which they compile production data, may engage in more than one activity, a principal activity and one or more secondary activities or be found to have more than one location. In some countries, this latter unit is also described as an establishment, in others it is described as a "kind of activity" unit.

Ancillary activity:

15. The description and treatment of ancillary activity should be reviewed to ensure that it accords with the SNA93 treatment. The SNA defines an ancillary corporation as a subsidiary corporation, wholly owned by a parent corporation, whose productive activities are ancillary in nature: that is, are strictly confined to providing services to the parent corporation, or other ancillary corporations owned by the same parent. A productive activity is described as ancillary when its sole function is to produce one or more common types of services for intermediate consumption within the same enterprise. They are typically services that are likely to be needed, to some extent or other, in most enterprises, whatever the nature of their principal activities. The kinds of services that may be provided through ancillary activities include transportation, purchasing, sales and marketing, various kinds of financial or business services, employment, computing and communications, security, maintenance, and cleaning.

16. For National Accounts purposes, neither the inputs into, nor the outputs from, ancillary activities are recorded separately in the SNA from others consumed or produced by the principal or secondary productive activities conducted within the enterprise. At the enterprise level (i.e. the level at which financial and balance sheet accounts are maintained), ancillary corporations are not treated as separate institutional units in the SNA - they should be combined with the parent corporation to form a single institutional unit.

17. Similarly, at the production level, any ancillary production must be distributed over all the establishments which it serves (i.e. classified to the industry of the units served), in proportion to the latter's' outputs or costs, and added to the latter's' own costs.

18. Even though the SNA treatment is to merge this activity as described above, the TSG acknowledges that in reality, ancillary production may be recorded in separate enterprises and establishments, particularly for the compilation of regional accounts. In such cases, the 'ancillary' enterprise should be dual coded to its own institutional sector, and to that of its parent, and the 'ancillary' establishment should be dual coded to its own industry, and to the primary industry that it serves.

19. When a geographically separate ancillary unit is identified that serves more than one unit of the enterprise, it is possible to observe the intent of the SNA, by coding it to its own activity,

imputing an output to it, equivalent to the sum of its costs, and allocating the imputed output, as imputed service inputs, into all the production units that use its services.

Captive units

20. The TSG agreed that ISIC 2007 should provide a definition of a captive unit, and provide guidance on the appropriate treatment of such a unit. A draft definition and treatment will be completed in time for regional consultation.

Classification principles

21. The Group considered that the present top-down approach for classifying units ensures the best consistency with aggregated data by avoiding different classification of a unit at different levels.

22. The principal activity of a unit should be determined by reference to the value added by the goods sold or services rendered. In practice it is often not possible to obtain the information on value added for individual products. It is therefore recommended that in such cases, the principal activity be determined by other criteria as an approximation, such as:
    - The proportion of the gross output of the unit that is attributable to the goods or services associated with these kinds of activity;
    - Value of sales of those groups of products;
    - Employment if that can be allocated approximately by kinds of activity;

23. The Group also considered the present treatment of vertical integration in ISIC where a unit with a vertically integrated chain of activities should generally be classified to the class indicated by the nature of the final product.

24. Since the classification of all other cases of multi-activity units are made according to the value added criteria the Group strongly recommended that this also be the case for vertical integration.

25. This would be a change from the current ISIC treatment, but it would mean the deletion of a large number of conventions or exceptions and would ensure a coherent treatment. The group also noted that in practice this would further convergence with NAICS.

26. As a help to users this should be supplemented by an extensive set of examples for guidance in the ISIC manual.

Principles for grouping

27. Presently production units are grouped in ISIC either by input, process or output. The TSG considered the adoption of a single underlying principle for creation of both the elementary categories and the upper level aggregates of ISIC.

28. The Group considered the production process principle as used in NAICS and noted that for NAICS it makes theoretical economic sense, made the whole system more coherent, made it much easier to do the work and put a stop to long drawn-out discussions.

29. However, breaking time series is costly, and should not be done without strong justification. Even the NAICS process adopted a rough rule that said industries would only be changed if there was some outside proposal, formal or informal, to do so, or if change was required to

reach international comparability. The result is that the production function criterion was not universally applied during the development of NAICS.

30. The replies to the UN questionnaire showed that most respondents preferred a mixed approach.

31. The TSG therefore recommended that, as was done in the elaboration of NAICS, if a given grouping exists, and if everybody were content with it then it would not be touched. Only in case of disagreement or if production process principle would improve either comparability or relevance should it be used as a guiding principle. It was considered a tool to bring classifications together, and not a requirement for every grouping.

Activity-product link

32. The Group agreed that in reality there is a link between activity and product classifications, since products were the output of industries, and that most products were the outcome of a single industry. Both activity and industry classification systems always contain lists of products that are the outputs of the production processes used in the industry. Lists of products are important, both for their own purposes (much data is collected on products, price indexes for example) and for classification work itself.

33. The TSG recommended that in view of the fact that there is a demand for such a link that facilitates the statistical processing of data from the surveys for the National Accounts it should be provided.

34. The nature of the link should not be a forced one-to-one relationship, nor perhaps dogmatically pure but a useful flexible one, based on empirical input. A special treatment should be developed for the problematic areas of multi-industrial links, breaking up of lower level detail and treatment of products that are not the output of any industry. Also it was recommended that doubtful allocations be flagged.

Country adaptation of ISIC

35. The current references to country adaptation in ISIC seem inadequate in conveying to all countries the rationale for and degree to which it is expected that ISIC should be implemented. It is therefore worth mentioning in the Introduction that as ISIC is a reference classification, an optimal level of implementation should be prescribed so as to ensure international comparability of statistics using ISIC. It was agreed that the two-digit level, i.e. the second highest level in the classification, irrespective of final coding structure decisions, would constitute such a level. It should nevertheless be clear, that ISIC can function as a national classification, either fully or to varying degrees. Strong suggestion should therefore be made that countries implement ISIC fully at the two-digit level, while allowing for varying degrees of adherence at the three and four digit levels. It was also thought to spell this out to reduce the obligation for those countries, which may perceive it as an absolute imperative to implement ISIC fully down to the final detailed level. The new wording in the ISIC introduction should make it clear that countries should conform at the two-digit level, but would explicitly note the latitude that countries have in their implementation of customizing ISIC in accordance with their specific economic realities at lower levels of their classifications.

36. First suggestions on a possible high-level structure for ISIC to focus discussions are set out in section IV.

III CPC Conceptual Issues

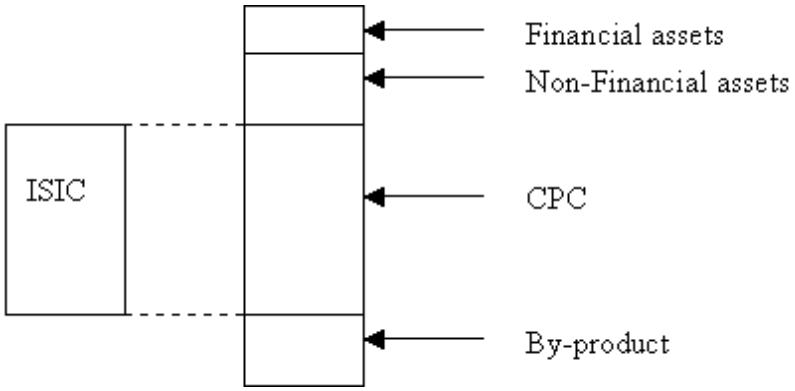
Purpose, scope and coverage

37. The question of an appropriate definition of the scope of the CPC has a strong impact on any subsequent decisions, such as structure and building blocks. Though some changes have been made in CPC v 1.1 there are still some questions to be resolved with respect to the scope of the CPC.

38. To reach a conclusion, further discussion is necessary to decide whether the CPC should primarily be designed to (a) serve as model for statistical classifications to be used in particular statistical programmes; or (b) serve as a central link to other existing product classifications, while also filling gaps in areas not covered by other product classifications.

39. The first option considered was to define the CPC as only covering production. It needs to be determined if a definition of production can be used to identify products. It also needs to be decided, whether the definition of production should be restricted to the production boundaries of the SNA.

40. It was agreed that in addition to a classification of produced products, both goods and services, the CPC should be complemented by a classification of produced and non-produced assets, and unintended by-products such as waste. Both new and used goods can generate revenues.



41. If the CPC was to be based on production, while other aspects were to be covered in separate classifications (listed in the diagram), such as produced and non-produced assets and unintended by-products of production, it may be useful to combine these classifications as a family in one publication, under one common introduction, rather than separating them. This would better reflect the role of the CPC as a "central" classification, as in (b) above, not just a collection of smaller individual ones. (There is an overlap between the "CPC" and "Non-financial assets" portions in the above diagram, as for instance machines are both being produced and become assets).

Aggregation Structure

42. The Group did not have time to create an example of a new structure. Four different options were identified for consideration as a CPC aggregation structure.

i) ***Industry of origin*** - practically typing the CPC to the ISIC structure.

43. The advantage of compiling statistics using product and activity classifications that are strongly linked is increased ease of use for a particular analytical purpose. Grouping products by industry of origin is the current approach for the supply and use tables of the production accounts of the National Accounts. A danger however, is that when aggregating from the level of products, the aggregates of products and activities look similar, which could lead to confusion. Also it was argued that a central product classification should serve more purposes than production statistics, and therefore the structure could be different from that of the activity classification. An example of the industry of origin structure can be found in the EU Classification of Products by Activities (CPA), which is linked to the activity classification NACE.

ii) ***Structure based on demand inspired by expenditure by purpose classifications***.

44. The TSG recognized the possibility of using the structure of the classifications of expenditure according to purpose; in particular the Classification of Individual Consumption According to Purpose (COICOP); Classification of the Purposes of Non-Profit Institutions Serving Households (COPNI); and the Classification of the Outlays of Producers According to Purpose (COPP).

Structure of COICOP:

1. Food and beverage
2. Clothing and footwear
3. Housing, water electricity, gas and other fuels
4. Furnishings, household equipment and routine maintenance of the house
5. Health
6. Transport
7. Leisure, entertainment and culture
8. Education
9. Hotels, cafes and restaurants
10. Miscellaneous goods and services

Structure of COPNI

1. Research and scientific services
2. Education services
3. Health services
4. Welfare services
5. Recreational, cultural and related services
6. Religious services
7. Services of professional and labour organizations and civic associations
8. Miscellaneous services not elsewhere classified

Structure of COPP

1. Outlays on current production programs
2. Outlays on repair and maintenance
3. Outlays on engineering and related technological work
4. Outlays on research and development
5. Outlays on pollution abatement and control
6. Outlays on sales promotion

7. Outlays on external transportation
8. Outlays on employee training welfare and morale
9. Outlays on general administration

45. Further study would be needed to incorporate these structures into a possible high level CPC structure.

iii) ***Other demand based structure***

46. This could take into account work done for the North American Product Classification System (NAPCS), no results are available yet, but different directions in this work include structures based for price statistics, for expenditure statistics and structure reflecting SNA concepts such as intermediate consumption, final consumption etc.

47. Presently NAPCS is being developed for the service sectors corresponding to:
NAICS 48-49 Transportation and Warehousing
NAICS 51 Information and Cultural Industries
NAICS 52 Finance and Insurance, excluding subsector 524 Insurance Carriers and Related Activities
NAICS 54 Professional, Scientific and Technical Services
NAICS 56 Administrative and Support, Waste management and Remediation Services
NAICS 61 Educational Services
NAICS 62 Health Care and Social Assistance
NAICS 71 Arts, Entertainment and Recreation
NAICS 72 Accommodation and Food Services

iv) ***Keeping the existing structure***

48. The TSG supported the idea that principles in COICOP, COPNI and COPP be used in a further elaboration of a possible structure for CPC.

49. Of course the outcome of the discussions on a high level structure for ISIC 2007 will influence the choice of the high level structure of CPC. The group noted that the line between goods and services is getting more difficult to recognize. In addition, the influence of links with the Extended Balance of Payments Services classification must be taken into account. In this area a closer working relationship and more consultation is needed.

50. More consultation with CPC users will be necessary to evaluate the options on scope and aggregation structure outlined here.

IV A Possible Structure for a Revised ISIC

51. A possible structure for a revised ISIC in 2007 was discussed and drafted by the TSG. This section presents one view for comment that was based on a variety of inputs to the Group. Because many of the suggestions conflict when developing a structure, alternative possibilities are also noted in the narrative description of each possible tabulation category.

52. The TSG used three criteria when discussing possible structure changes for ISIC at the tabulation category level. For each proposal or suggestion, the Group evaluated the impact on the relevance of the classification, the impact on comparability, and the impact on time series continuity. This section includes a brief summary of each tabulation category, a discussion of the impacts based on the three criteria, and notes major alternatives that could be considered. References to existing ISIC tabulation categories are approximate because many details in the ISIC Rev. 3.1 will need to be discussed prior to determining the final content of a higher-level structure. The titles used in this presentation are not presented as official or suggested titles. Appropriate titles will be developed upon resolution of the tabulation category structure.

53. For many purposes, such as presentation of data in the System of National Accounts or various analysis scenarios, a top structure with 22 categories would be too detailed. A high-level structure with 10 or less categories would much better serve these needs and options for such a structure will be discussed. While a recommendation for such a structure will accompany the classification, it will not necessarily be introduced as part of the regular structure of ISIC.

A Possible High-level Structure for ISIC

	High-level categories
1	Agriculture, forestry, fishing hunting
2	Mining, quarrying
3	Manufacturing
4	Repair and maintenance
5	Electricity and gas
6	Construction
7	Trade
8	Accommodation and food services
9	Transport and storage
10	Information
11	Finance and insurance
12	Real estate, rental and leasing
13	Professional, scientific and technical services
14	Administration and support services
15	Public administration
16	Sanitation
17	Education
18	Healthcare and social assistance
19	Arts, entertainment and recreation
20	Other services
21	Private households
22	Extraterritorial organizations

54. **Agriculture, forestry, fishing, and hunting** – is based on a combination of ISIC tabulation categories A and B. These tabulation categories were combined to limit the number of top-level categories as recommended by countries in their responses to the classifications questionnaire. This tabulation category has no comparability or relevance changes and does

not impact time series data for users at the two-digit or more detailed levels. The Group also noted that in ISIC Rev. 3, the tabulation category, division, three-digit and four-digit industry all had identical content and this did not represent an efficient use of higher-level groupings.

55. **Mining and quarrying** – is based on ISIC tabulation category C. If this category remains, there will be little or no impact on the comparability, relevance, or time series for existing ISIC data. There is a second proposal for mining and quarrying that would do away with the tabulation category. Under this approach, relevant portions of mining and quarrying (roughly divisions 10-12) would be moved to a new tabulation category for energy and the remaining portions of mining and quarrying would be included with manufacturing in a structure that identified the mining of metals and other nonmetallic minerals with the primary processing of those metals and minerals. This alternative approach may improve relevance in a demand setting but would decrease comparability with most major classifications used throughout the world. In addition, the elimination of a mining and quarrying group would have a major impact on time series for manufacturing as well as mining and quarrying.

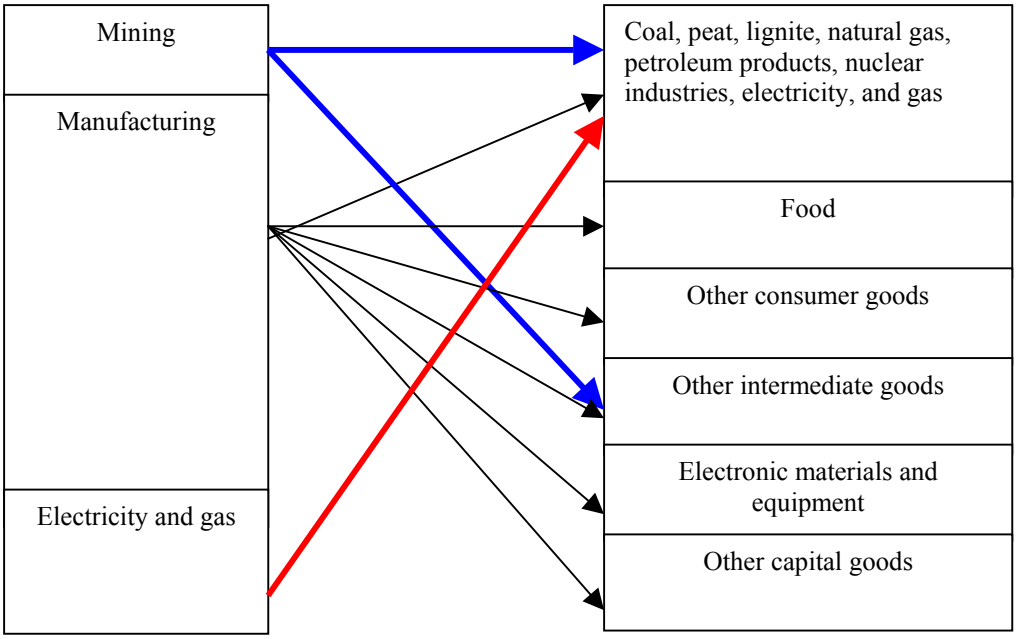
56. **Manufacturing** – is based on ISIC tabulation category D. The coverage of a manufacturing tabulation category could range from content similar to ISIC Rev. 3.1 at one end to significantly different coverage at the other extreme. There are several major classification issues that must be resolved in a new tabulation category for manufacturing. These include the treatment of repair and maintenance activities, the treatment of publishing and other content industries currently included in ISIC tabulation category D, the treatment of ICT equipment manufacturing, and the treatment of installation of a variety of capital equipment by units that do not manufacture the equipment. In addition, the alternative proposal described in the Mining and quarrying section above could significantly impact the content of manufacturing.

57. The tabulation categories listed in this paper include groupings for both information and repair and maintenance. These changes would require the separation of publishing and other content industries from manufacturing and inclusion in an Information tabulation category. In addition, separate facilities that are engaged in repair and maintenance activities will move from the individual manufacturing industries to a new tabulation category for Repair and maintenance. Both of these changes will have a negative impact on time series but are anticipated to improve the relevance of manufacturing data and improve comparability with other classifications. The Group noted the apparent conflict of repair and maintenance of capital equipment leading to manufacturing activity in geographic locations with no manufacturing plants. The TSG also noted the results of the WPIIS work and the existence of an information grouping in both NAICS and JSIC.

58. The presented set of possible tabulation categories does not include a movement of ICT manufacturing to a new sector. At a minimum, the Group does support the separate identification of high tech manufacturing industries category for reasons of comparability and relevance regardless of whether they are grouped with other manufacturing industries or grouped with the content and telecommunications industries.

59. A third proposal recommended splitting the manufacturing tabulation category into new tabulation categories representing agri-foodstuffs, other consumer goods, energy, production of other intermediate goods, manufacture of electronic materials and equipment, and production of other capital goods. Graphically, the relationship between the existing ISIC groupings and this proposal can be represented as follows:

An option for a possible new structure to the existing ISIC sections C, D, and E



60. The TSG discussed this proposal in terms of the difficulty of clearly defining the different groupings as well the limited comparability to other classifications in use throughout the world. Tabulation categories C, D and E are discussed further in paragraphs 85-102.

61. In summary, this presentation has two major changes in the content of a manufacturing tabulation category. The first is the creation of an information grouping that would remove publishing and similar content industries from existing Division 22. The second is the creation of a tabulation category for Repair and maintenance that would impact a variety of industries within existing ISIC Rev. 3.1 tabulation category D.

62. **Repair and maintenance** – is based on grouping facilities that are engaged in repair and maintenance of a variety of goods. The content of this tabulation category would be separate repair facilities that do not manufacture capital equipment or retail new versions of the goods that they repair. The tabulation category would reclassify units repairing capital equipment from manufacturing, units repairing and maintaining household goods from Division 52, and possibly include separate automobile repair facilities from Division 50. While there are major time series continuity issues with the creation of this tabulation category, the gains in both comparability and relevance are also significant.

63. **Electricity and gas** – is based on current tabulation category E with a major change for water and sewage treatment. These activities would be moved from the current Electricity, gas, and water supply tabulation category to a new tabulation category for Sanitation. The Group discussed the processes involved with water and sewage treatment and noted that they are more closely related to other remediation activities than the production of electricity and gas. The Group saw this as a relevance enhancing change.

64. The alternate structure described in the mining summary above would create an energy tabulation category rather than an electricity and gas grouping. Included would be the

extraction of oil, gas, coal, and other solid fuels and the processing of these fuels, and would result in the elimination of the mining and quarrying tabulation category.

65. **Construction** – is based on current tabulation category F with some potential changes in the content of the grouping. The first possible content change would be the inclusion of units that specialize in the installation of machinery and other heavy equipment that do not also manufacture the equipment. These units could be moved from manufacturing to construction. The second potential change would be the inclusion of part of ISIC Rev. 3.1 industry 7010 for land subdivision and development activities. These activities are closely related to the construction activities currently included in Tabulation category F. The land subdivision and development activities would be more than just paper subdivisions. The activities to move would be instances where the land is actually improved by the addition of basic infrastructure (e.g., water, sewer, utility access) as part of the development and subdivision process.

66. There is also an outstanding issue regarding the inclusion of general contractors or other units that undertake responsibility for a construction project but subcontract out the actual construction work to one or more construction subcontractors. If the treatment of jobbers in manufacturing remains as is, these general contractors could remain in construction following the same general concept.

67. **Trade** – A trade tabulation category in this presentation is based on the existing Tabulation category G for wholesale and retail trade. A major difference would be the exclusion of the repair and maintenance of automobiles and household goods performed by separate units that do not manufacture or retail new versions of the goods being repaired. The Group weighed the potential time series impacts of this against the comparability and relevance enhancing potential of a repair and maintenance tabulation category when listing this possible change. Lower level breakdowns at the division level are expected for wholesale trade, retail trade, and possibly for the combination of wholesale and retail of motor vehicles.

68. **Accommodation and food services** – is based on ISIC tabulation category H. There is little change anticipated in this grouping. The TSG did note that the current tabulation category is useful when meeting the needs of users such as the World Tourism Organization. Additional detailed changes in this area will be considered based on their needs as well as the other needs expressed in the questionnaires.

69. **Transport and storage –** is based on tabulation category I with a major change in the treatment of communications activities. The information tabulation group (noted next) would include the communications activities that are currently included in ISIC tabulation category I. The remainder of the group would remain in this possible structure. While this does impact time series at the tabulation category level, the TSG also considered the comparability and relevancy improvements that result from a grouping for transportation and storage. Detail below the tabulation category level could be broken out based first on mode of transportation (e.g., air, water, road) or by type of transportation services provided (e.g., passenger transportation or freight transportation) at the next level. Additional discussion is needed on this topic because of the variety of uses for data on transportation. The activities of travel agents and tour operators could be considered in this tabulation grouping or in a tabulation grouping for administrative and support services. The TSG discussed both possible options based on the fact that travel agencies provide services for the users or transportation as well as the transportation providers themselves. Classification of travel agents and tour operators in a grouping for administrative and support services will leave a more homogeneous grouping of activities in the transportation and storage tabulation category. It was noted that NAICS includes travel agent and tour operator activities in the Administrative and Support Services

subsector (NAICS 561) and a similar treatment by ISIC would increase comparability in that area.

70. **Information** – is a completely new tabulation category for consideration. As noted previously, a major potential improvement in ISIC is the ability to group a variety of activities that are associated with the development of content and the dissemination of content in the information economy. While there is broad agreement that some type of grouping is needed, the specific content of an Information grouping could take several paths. There are three possibilities that were discussed in detail by the TSG. The first is an Information grouping that would follow the example presented in NAICS. This would group a variety of content production and content distribution industries in one tabulation category. This has the benefits of comparability and improvement of the relevancy of ISIC. A second possibility would be separate tabulation categories for the production of content and the provision of telecommunications services. The final major alternative for an information grouping would include certain high tech manufacturing activities with the content and telecommunications portions to create a grouping similar to or defined by the ICT grouping developed by the OECD. A grouping containing additional manufacturing activities (beyond publishing) would not match the information groupings that have been developed for use in NAICS or JSIC.

71. The relevance of the individual portions is understood and acknowledged. However, the implications of their inclusion in the ISIC structure do not make them equal options. Option (1) addresses issues of recently emerged industries and provides comparability with important classifications built on this new concept. Option (2) differs from (1) in that it creates more detail at the top level, separating two major industries. Given the close connection between those two, their combination at the top level and subsequent separation at the next more detailed level of the classification may be more appropriate. Option (3), moving manufacturing of certain products to this category, creates two major problems: a) incomparability with information groupings in NAICS and JSIC and b) altering the fundamental definition of manufacturing. The latter would constitute an unnecessary problem for analysis of manufacturing data and also contradict the fundamental principles underlying the classification. In light of this, the recommended treatment would be to implement option (1), with exact boundaries to be refined, and create an alternate aggregation based on the contents of the ICT definition.

72. **Finance and insurance –** is based on ISIC tabulation category J. There is little change envisioned in the overall content of this tabulation category. The TSG did note that the current title of "Financial intermediation" should be reviewed based on the actual content of the category.

73. **Real estate, rental and leasing** – is a breakout of tabulation category K. The responses from the questionnaire circulated by UNSD indicated a need for additional breakdowns in the rapidly growing services portions of the classification. Relevance and comparability with other major classifications were the driving factors in this proposal to split Tabulation category K. The title of this possible tabulation group accurately describes the intended content. There is a second possibility that was discussed that would include the rental and leasing activities in an administrative and support services grouping rather than with real estate.

74. **Professional, scientific and technical services** – represents another breakout of tabulation category K. This grouping would include activities such as accounting, legal activities, research and development, and other activities that are strongly based on the specific skills of the human capital used to produce the services. The TSG considered both the relevance of this category and the fact that it was comparable with other classifications when including it as a

possibility. If a tabulation category is created for professional, scientific, and technical services, additional discussion of the exact content, particularly for activities currently included in division 74, will be needed.

75. **Administrative and support services** – is another possible breakdown of current tabulation category K. This possible grouping would include a variety of services that are used in the day-to-day operation of businesses. These could include cleaning and janitorial services, security services, employment services, facilities support services, and similar activities (including the travel agency services described under transportation and storage). The TSG saw both relevance improvements and comparability improvements with the separation of support services from other professional and technical services. As noted under Real estate, rental, and leasing (above), one possible alternative would be to include rental and leasing services in this grouping as a support service.

76. **Public Administration** – is based on tabulation category L. This grouping would include the current content of Division 75 with some possible differences. The Group noted that there are different treatments of public administration in a variety of the classifications reviewed. In some cases, public administration is strictly limited to the administration of government programs and military activities. Under this treatment, police activities would not be included because they are beyond the administration of programs. In another case, public administration includes administration of public programs, the military, and public order and safety activities. ISIC currently includes those activities regardless of whether they are provided by government entities or the private sector. The boundary of public administration will require additional discussion if this tabulation category is included.

77. **Sanitation** – is a new tabulation category that includes portions of division 90, Sewage and refuse disposal, sanitation, and similar activities, and portions of division 41, Collection, purification, and distribution of water. This grouping is considered based on increases in comparability and the rapid growth of interest in and expenditures on waste management and remediation activities. This area could also include part or all of division 37, Recycling.

78. **Education** – is based on ISIC tabulation category M. The details in this area were compared to ISCED as part of the ISIC Rev. 3.1 process and are reasonably up to date. If a tabulation category for education were included, the TSG would like to review the appropriateness of using an ISCED educational program classification for activities or units. Additional discussion is needed regarding what, if any, changes in the structure of lower level details will be needed for 2007. The treatment of educational support activities needs to be discussed.

79. **Health care and social assistance** – is based on tabulation category N in ISIC. If this tabulation category is maintained, the boundary between health and social work will need to be thoroughly examined during the revision process for 2007. There is also a potential **boundary issue for** daycare and early childhood education programs between the healthcare and social assistance grouping and the education grouping**.**

80. **Arts, entertainment and recreation –** is a breakout from tabulation category O. For comparability and relevance purposes, a breakout for arts, entertainment and recreation would improve the classification but at the cost of time series above the four digit level. There are some scope issues related to the inclusion of current division 92 activities in the information tabulation category that will need to be addressed. In particular, the activities of libraries and archives could be treated as information activities or as cultural activities in this tabulation category. With the inclusion of motion picture, radio, and television activities in a tabulation category for Information, this grouping would retain dramatic arts and similar entertainment, sporting activities, museums, botanical gardens, zoos, and other recreational activities. This

split at the four-digit level of ISIC will cause considerable disruption to existing time series data but the resulting information grouping is thought to be highly valuable to a revised classification. The TSG noted that this might not be of appropriate size for a tabulation grouping if that is the only criterion used. If the grouping is viewed in terms of similar activities or units, or if considerations of national importance and relevance are reviewed, there is a greater justification for this tabulation category.

81. **Other services** – is based on the remainder of tabulation category O. This tabulation group includes a variety of services that are not in the information grouping or the arts, entertainment, and recreation grouping. Examples of this include personal services, laundry services, death care services, membership and similar organizations, as well as miscellaneous services. This grouping is a residual for services that do not fit any of the possible tabulation categories listed in this paper.

82. **Private households –** is based on current tabulation category P. Although this is a case where the tabulation category, division, and four digit industries were the same in ISIC 3.0 (additional details for production by households was created for ISIC Rev. 3.1), the TSG felt that the households could not reasonably be grouped in any of the other tabulation category possibilities presented here and should therefore remain as a separate grouping.

83. **Extraterritorial bodies –** is based on current tabulation category Q. Although this is also a case where the tabulation category, division, and four-digit industry are the same, the TSG felt that extraterritorial bodies should also remain a separate grouping in a revised international classification.

84. This draft list of possible tabulation categories was prepared by the Technical Subgroup to advance discussions on the need for revisions to the highest levels of ISIC. This is not an official recommendation but rather a list of things that can be considered and discussed prior to making any formal decisions on the highest-level aggregations for ISIC Rev. 4.

Annex

This annex describes issues for three sections of the revised ISIC structure as shown in the document. The indicated breakdown is only illustrative at this point and has not been discussed in detail by the Technical Subgroup.

Issues concerning the 2-digit ISIC structure for Mining, Manufacturing and Utilities

85. This sub-section of the paper takes a more detailed look at the ISIC Rev. 3.1 grouping of Mining, Manufacturing and Utilities (sections C, D and E), which is analyzed according to the following criteria:
    i) Relevance ii) Continuity iii) Comparability iv) Borderline Problems

1 Mining and quarrying

86. The TSG discussed two options for handling Mining and Manufacturing. The first is to leave the section as it is (option A), the second is to create a new energy sector (option B). There would of course be a third option (C), namely to provide the Energy sector as an alternative aggregation as was done in ISIC Rev. 3, but abandoned in ISIC Rev. 3.1.

Option A) In this case the above structure remains stable for ISIC 2007

New	**Former**	**D e s c r i p t i o n**
C	**C**	**Mining and quarrying**
10	10	Mining of coal and lignite; extraction of peat
11	11	Extraction of crude petroleum and natural gas; service activities incidental to oil and gas extraction, excluding surveying
12	12	Mining of uranium and thorium ores
13	13	Mining of metal ores
14	14	Other mining and quarrying

Content	No changes to the former version. Mining and quarrying comprises mining of all products (solid, fluid, gaseous) and all types (underground, surface, wells). Minor supplemental activities at the mining site (milling, dressing, beneficiating) are included. Excluded are water collection, purification, distribution and bottling as well as further manufacturing of the raw material (e.g. crushing, grinding not connected to the mining process).
Relevance:	Measuring energy in the future will probably be of higher relevance than mining, but mining is a very traditional and clearly demarcated sector – even political/taxation issues may be connected to the classification
Continuity:	no impacts
Comparability:	no impacts, convergence project, NAICS and NACE follow this approach
Borderline Problems:	no changes

Option B) For this scenario, the Mining and quarrying section would completely disappear – the major part of it going to the enlarged Utilities Section see 4, the rest to Manufacturing.

Option C) This option – already realized in ISIC 3 – enables the identification of mining as well as the energy breakdown. The default structure would follow option A, but providing the structure of utilities (option B) as a rearrangement of option A.

Content	see A above and 4 as in this approach A is the default classification structure and C is only a re-arrangement of A
Relevance:	see above and 4 (compromise between A and B)
Continuity:	minor impacts (split of classes on a lower level)
Comparability:	no impacts
Borderline Problems:	may occur on a lower level

87. If this option is selected, some energy sources have to be unambiguously identifiable, e.g.

    Collection of Firewood in 0200 (Forestry and related services)
    Production of chips particles as firewood in 2010 (Sawmilling and planing of wood)
    Production of wood briquettes as firewood in 2021 (Wood manufacturing)
    Production of charcoal (for heating/cooking purposes) in 2411 (Manufacture of basic chemicals)
    Manufacturing of ethanol gained from sugar-cane, fuels from natural substances/vegetation (e.g. rape)

88. This would require splits of the currently existing categories.

2 Manufacturing

89. The key changes in Manufacturing are that repair/maintenance activities should be taken out following the proposal of the Convergence Project; Manufacturing would be condensed, resulting in a breakdown with certain similarities with ISIC Rev. 2. The changes would be to aggregate
    - Divisions 15 and 16, Manufacturing of food, beverages and tobacco
    - Divisions 17 till 19, Manufacture of textiles, wearing apparel, fur, leather, luggage…
    - Divisions 34 and 35, Manufacture of vehicles and transportation equipment

90. The latter changes involve little effort, shorten the list of 2-digit items and increase the clarity of the classification structure, without any impacts on comparability or time-series breaks.

91. It has furthermore been proposed to exclude two specific parts from Manufacturing, namely
    - Class 221, Publishing, printing and reproduction of recorded media, which will move to the newly established information sector,
    - Division 37, Recycling, which will move to ISIC 90, Sanitation

92. For technical components (Divisions 30-33) a regrouping will be necessary.

Content:	As in the past, manufacturing will be the physical or chemical transformation of materials/products into new products. In the future repair/maintenance activities should be clearly distinguished from manufacturing itself.
Relevance:	differentiation between manufacturing/service is highly demanded; aggregations would increase transparence; the differentiation between

	consumer goods/intermediate goods would facilitate the application in an SNA context (demand side based); the removal of Recycling as well as Publishing are the consequences of the demand for Information Sector and the changed treatment of Recycling
Continuity:	high impact as a significant part is broken out of manufacturing (repair, maintenance, recycling, publishing)
Comparability:	high impact
Borderline Problems:	number will decrease, as the changes in repair/maintenance and publishing account for diminishing borderline problems with wholesale/retail trade and the information sector, respectively

93. One slightly problematic issue is the new breakdown for electronic/electric products or high-tech/low-tech products, which would require a clear definition.

The new structure including the changes performed:

New	**Former**	**D e s c r i p t i o n**
	D	**Manufacturing**
15	15-16	Manufacture of food products and beverages and tobacco
16	17-19	Manufacture of textiles, wearing apparel, dressing and dyeing of fur, tanning and dressing of leather, luggage…
17	20	Manufacture of wood and of products of wood and cork, except furniture manufacture of articles of straw and plaiting materials
18	21	Manufacture of paper and paper products
19	22	Publishing, printing and reproduction of recorded media
20	23	Manufacture of coke, refined petroleum products and nuclear fuel
21	24	Manufacture of chemicals and chemical products
22	25	Manufacture of rubber and plastics products
23	26	Manufacture of other non-metallic mineral products
24	27	Manufacture of basic metals
25	28	Manufacture of fabricated metal products, except machinery and equipment
26	29	Manufacture of machinery and equipment n.e.c.
27	New	High Tech Manufacturing (or Computers, Communications Equipment Electronic Components)
28	New	Low Tech Manufacturing (or Electrical Equipment)
29	34-35	Manufacture of transport equipment
30	36	Manufacture of furniture; manufacturing n.e.c.

In case of option B, two categories from former Mining become part of Manufacturing:

31	13	Mining of metal ores, except uranium and thorium
32	14	Other mining and quarrying

94. A suggestion has been made to differentiate between intermediate goods and consumer goods. Because many manufactured products are identical whether as consumer goods or as intermediate goods (e.g. food and textiles), another criterion would have be applied, e.g. the customer who buys the good.

95. Another proposal recommended going further and suggested (based on separation of intermediate goods/ consumer goods) to separate i) agri-foodstuffs (including pet food), split from ii) other consumer goods, iii) energy and a cut between consumer goods and intermediate goods, iv) production of other intermediate goods, v) manufacture of electronic materials and equipment and vi) production of other capital goods.

3 Electricity, gas and water supply (option A)

96. In either case it is envisioned that 41 (water) would move to Sanitation, as well as parts from 0140 (agricultural irrigation systems).

	E	**Electricity, gas and water supply**
40	40	Electricity, gas, steam and hot water supply

97. If option A is realized for Division 40, Electricity, gas and water supply - a decision has to be made on how to address the newly established splits in the electricity and gas industries between producers, transmitters and distributers/retailers/wholesalers (however one defines the relation to the customers).

98. One option is to make three subcategories to 40:

    4011, 4021, 4031 Production
    4012, 4022, 4032 Transmission
    4013, 4023, 4033 Distribution

    or to move transmission to transportation, distribution to retail/wholesale and leave only production in this Sector.

4 Electricity, gas and water supply (options B and C)

99. If option B were realized, the energy-producing mining products would become part of this sector as well as processing of the raw energy products, which were under Manufacturing.

	E	**Utilities/ Energy**
40	NEW	Mining and quarrying for energy-producing materials

401	10	Mining of coal and lignite; extraction of peat
402	11	Extraction of crude petroleum and natural gas; service activities incidental to oil and gas extraction, excluding surveying
403	12	Mining of uranium and thorium ores
41	23	Manufacture of coke, refined petroleum products and nuclear fuel
42	40	Electricity, gas, steam and hot water supply

Content	In this scenario all energy relevant sectors would be aggregated. These are mining of "energy producing materials" in every form (solid, fluid, gaseous; e.g. coal, petroleum, gas, uranium) as well as the manufacture of these raw materials to "modified, refined" energy sources (refined petroleum, electricity, steam, hot water).
Relevance:	more relevant for the energy sector
Continuity:	high impacts (major cut)
Comparability:	needs to be assured; convergence project currently maintains mining as is.
Borderline Problems:	many (see alternative structure below), disadvantage of having parts of former mining (salt, stone, …) all of a sudden under manufacturing

100. Potential energy sources would be taken out of Mining (Divisions 10-12) and put under a new established heading (like "Mining and quarrying for energy-producing materials"), one level lower than before. In addition Division 23, manufacturing of potential energy sources, moves from manufacturing to energy, as well as some more detailed parts of classes, depending on the spectrum of the Energy sector, which would be:

0200 Forestry and related services… [Collection of Firewood]
2010 Sawmilling and planing of wood… [Chips particles as firewood]
2021 Wood manufacturing… [Production of wood briquettes as firewood]
2411 Manufacture of basic chemicals… [Parts of production of charcoal]
Furthermore Manufacturing of ethanol gained from sugar cane, fuels from natural substances/vegetation (e.g. rape)

101. In the case that the above alternative aggregation comes into effect (as alternate classification), the four items will have to be identifiable in the regular ISIC structure – which means that these (relatively small and unimportant) items, have to be in a separate class.

102. Some questions remain concerning current ISIC sections C, D and E:

- Would we have to develop an energy concept?
  - Firewood, charcoal, etc. are substitutes of oil, gas,… and would have to be taken out from the respective classes; (even animal power is energy)
  - Potential vs. kinetic? Renewable vs. non-renewable? Only heat, electricity and water?
- Recycling 37: complete move to Sanitation or only a part (if only parts, which ones?)
- Split 40, 41 for production, transmission, and distribution in the energy sector (e.g. 401 production, 402 transmission, 403 distribution) **or** classify transmission as transport, distribution as wholesale/retail?