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**Open questions resulting from discussions on ISIC Rev.4  
by the Technical Subgroup**

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### ***I. Introduction***

During the discussions on the final version of the draft of the 4<sup>th</sup> revision of the International Standard Industrial Classification of all Economic Activities (ISIC), the Technical Subgroup could not reach a consensus on a number of issues. Some of these issues had already surfaced in earlier discussions, while others were raised or different positions were reinforced in the country replies to the 2004 ISIC draft.

For each issue, arguments for different treatment options are given. The Technical Subgroup requests the Expert Group to provide guidance on the treatment of these issues for the finalization of the ISIC revision.

### ***II. Treatment of veterinary services***

#### **A. Question for the Expert Group**

Does the Expert Group agree with the Technical Subgroup (majority) recommendation to classify “Veterinary activities” in the Section “Professional, scientific and technical services”?

#### **B. Background**

The classification of veterinary activities in ISIC rev. 4 was the subject of some prolonged discussion terminating with a division of view.

In ISIC revision 2, “Veterinary activities” was allocated a four-digit class in a three-digit group with Human health activities.

In ISIC revision 3, Veterinary activities became a three-digit group in a division Health and social work activities. In ISIC revision 4 the Technical Sub-group considered three options. Options considered by the TSG included grouping veterinary services with the following activities:

- i) Professional, scientific and technical services;
- ii) Health and social work;
- iii) Services to agriculture.

The Technical Subgroup was aware of requests from World Health Organization and OECD health accountants to give “Human health activities” a higher profile in the new ISIC to facilitate internationally comparable data on human health activities. There exists a new international System of Health Accounting, including an International Classification of Health Activities” as well as a high policy interest in the resources going into health services and in the output of the sector. This request also suggested a greater separation of human health and veterinary activities.

On the other side TSG was also aware of an interest from some in continuity with earlier versions of ISIC and the argument that veterinary services were technically close to human health services in the skills and other inputs (e.g. medication) required.

TSG agreed to elevate “Human health activities”, “Veterinary activities”, and “Social work activities”, each to division level. There were identified boundary issues between human health activities and social work activities related to residential care and the degree of medical care input, which created problems of international comparability. The TSG consequently decided to create a further division “Residential care activities”, which would have some human health groups and some social work groups. They combined Human health activities and social work activities in a Section “Human health and social work activities”, which together also had some coherent policy interest for welfare and public expenditure.

The health policy interest advocated that veterinary activities were separated more clearly from human health activities. The alternative options for veterinary activities were either a division in “Professional scientific and technical services” (in line with NAICS, and ANZSIC), or a class in “Services to agriculture”. The majority view of TSG was to include veterinary services in “Professional scientific and technical services”.

### **C. Comments on each option presented in the background**

#### **a) Classify veterinary activities as a division in the section “Professional scientific and technical services” (*This option is recommended by majority of TSG*)**

**Pro:**

- Would permit good comparability with NAICS, ANZSIC and JSIC.
- Allow a health and social work grouping, which focuses on health and other care of individuals, with increased international comparability, which is analytically interesting for policy purposes;
- Veterinary services are professional and scientific activities.
- Elevates “Veterinary activities” to Division level so increases their international comparability

**Con:**

- Veterinary practitioners like to compare themselves with Medical practitioners and the production process and inputs have parallels with the medical process.
- Breaks in continuity of classification

**b) Classify veterinary activities as a division with “Human health and social work activities” (*advocated by a minority of TSG*)**

**Pro:**

- Veterinary practitioners sometimes like to compare themselves with medical practitioners and the production process has parallels with the medical process.
- Continuity with previous versions of ISIC;
- Elevates “Veterinary activities” to Division level so increases international comparability of veterinary activities;

**Con:**

- Weakens international comparability with NAICS, ANZSIC and JSIC;
- Does not allow a human health and social work section, which focuses on health and other care of individuals;
- Not consistent with health accountants information needs;

**c) Classify “Veterinary activities” in the group - “Support activities to agriculture” (*rejected by TSG*)**

**Pro:**

- Veterinary services are an important support activity for agriculture;
- Consistent with health accountants information needs;

**Con:**

- Most veterinary service revenues come from services to households not from services to agriculture, at least in developed countries;
- It would demote veterinary services to a four-digit class
- It would weaken international comparability of veterinary services

**III. Treatment of independent technical writers, journalists and photojournalists**

**A. Question for the Expert Group**

Where should independent technical writers, journalists, and photojournalists, be classified in ISIC rev. 4? Options considered by the Technical Subgroup include arts,

entertainment, and recreation as originally proposed; with news agencies as counter proposed by European participants; or with other professional, scientific, and technical services with a split of writers based on the type of writing being performed.

## **B. Background**

The initial discussion of the Technical Subgroup raised the issue of classification for independent technical writers, journalists, and photojournalists during a discussion of arts, entertainment, and recreation activities. The original placement of the activities was based on the assumed similarity of the activities of all types of writers and artists acting independently.

In response to comments received regarding the proposed content of ISIC Rev. 4, the EU requested that the activities of independent journalists, including photojournalists be moved to the Information sector and included with new agencies and technical writers be moved to the class for all other professional, scientific, and technical services.

Finally, the discussion turned to resolving the issue by placing all photojournalists with other photographers and finding a home for independent journalists within other professional scientific, and technical services. The TSG was not able to reach consensus on this classification issue and requests the guidance of the Expert Group.

## **C. Comments on each option presented in the background**

a) Classify independent technical writers, journalists, and photojournalists, with other independent artists and writers in the section for arts, entertainment, and recreation.

### **Pro:**

- The activities of independent technical writers and journalists are very similar to the activities of other independent writers. They independently produce written or visual works for sale to others or act as contractors, providing their services for a fee.
- The activities of independent journalists often overlap with the activities of other independent artists. Independent journalists often also produce works of fiction or nonfiction that are not “news”, photographs that have significant artistic value that are not “news”, etc.
- Does not attempt to make a subjective distinction based on the subject of the activity (news vs. technical vs. other) resulting in more classification consistency over time.

### **Con:**

- Separates the activities of independent practitioners from the industries that often hire employees with the occupation of journalist.
- Does not group all activities that result in news in a single class or area.

b) Classify independent journalists, including photojournalists, with news agencies in the Information section.

**Pro:**

- Classifies those independently producing news in written or photographic form with the agencies that produce and distribute news in written and photographic form. “Independent journalists and photojournalists do exactly the same thing as the staff of press agencies but on a free-lance basis.”

**Con:**

- Does not account for the distribution capacity of new agencies that is not provided by independent journalists. The new agency’s capacity to broadly distribute news is a key to the definition of the activities in that industry.
- Not consistent with the treatment of writers and publishing. Consistent treatment would require all fiction writers to be classified with fiction publishers?
- Results in unstable classification as independent technical writers and journalists switch back and forth between news, artistic, and technical endeavors.
- Relies on a subjective definition of what is artistic and what is technical. This could result in inconsistent implementation. Various countries define art or culture differently and an objective criterion for distinguishing the difference between art and other is not provided for implementation.

c) Classify independent writers (including news writers) based on the subject of their writing (fiction or artistic writing to arts, entertainment, and recreation; technical writing, news writing, and other less artistic works to professional, scientific, and technical writing) and classify all photographic activities, including independent photojournalists in a single class for photographic activities within professional, scientific, and technical services.

**Pro:**

- Classifies all independent photographic activities together in a single class
- Classifies all independent technical writers together in a single class
- Leaves a more “pure” concept of artistic activities in the section for arts, entertainment, and recreation.

**Con:**

- Results in unstable classification as independent journalists switch back and forth between technical/news and “more artistic” endeavors.
- Mixes commercial and portrait studio activities with the more mobile activities of photojournalists.
- Relies on a subjective definition of what is artistic and what is technical. This could result in inconsistent implementation. Various countries define art or culture differently and an objective criterion for distinguishing the difference between art and other is not provided for implementation.

## **D. Additional points for consideration or discussion**

1. Implementation – ability to easily and consistently classify units over time.
2. Homogeneity of resulting data collection efforts – how will the classification decision impact revenue/unit, employment/unit and other key ratios within the target classes? Will location facilitate pricing and other statistical collections?
3. Underlying primary principles of classification in ISIC. While there are a variety of classification criteria in use throughout ISIC, should this decision be based on the input, output, or production function basis for determining classifications? Each criterion in use could result in a different “correct” decision.

## **IV. Treatment of library and archive activities**

### **A. Question for the Expert Group:**

Where should library and archives activities be classified in ISIC rev. 4? Options considered by the Technical Subgroup include information and communication (other information services) as originally proposed or with museums activities, preservation of historical sites, etc as counter proposed by European participants.

### **B. Background:**

The new section “Information and communication” gave some reason to border conflicts. The title is very general and it seemed from the beginning of the creation of this sector difficult to provide a definition which exactly gives the borderlines needed. The explanatory note of this sector is not surprisingly an enumeration of activities.

Many activities existing of provision of information, for instance education and several kinds of consultancy, found their place outside this sector. Within the Technical Subgroup there was agreement about the exclusion of these activities. However, the place of library and archives activities stayed a hot potato which was difficult to swallow.

### **C. Comments on each option presented:**

#### **a) Classify library and archives activities in the section “Information and communication”:**

##### **Pro:**

- Library and archives activities are an outstanding example of provision of information. What they do is making information accessible for a broad public by sorting and rubricating it, by building up a collection. If the criterion is that at the top of the hierarchy the categories are created looking more at the output than at the way this output is produced this will form a strong argument for inclusion of library and archives activities in the section “Information and communication”.
- More and more library and archives activities present information via internet. Much of their information is only available on internet. The conventional

physical lending of books, documents and music makes way for “e-libraries” and “e-archives”. There are several internet sites which perform in fact library and archives activities.

- Making information accessible for a broad public *by publishing* the same data carriers (books, documents, music...) is an important part of the information and communication section. To be consistent, making information accessible by library and archives activities should also stay in this section.

**Con:**

- Most activities of libraries and archives still are conventional with a low content of ICT.
- One may wonder whether, for instance romantic fiction, can be seen as information.

**b) Classify library and archives activities with museums activities, preservation of historical sites, etc**

**Pro:**

- Library and archives activities consist mainly in the preservation, documentation of human knowledge and management of public access to it. The kind of activity and the type of staff employed are more similar to those of museums or preservation of historic sites than those activities classified in the section “Information and communication”.
- Library activities contain an important cultural element, so these activities fit into the section which accommodates arts.

**Con:**

- An important part of the provision of information will be excluded from the section “Information and communication” if libraries and archives are not part of it.

**D. Additional points for consideration or discussion**

Many criteria are applicable:

**Output:** information, accessibility of human knowledge, culture

**Process:** preservation, documentation, ICT, the conventional “library process”, type of staff

**Homogeneity:** are library and archive activities more similar to information or culture

**Continuity:** is the creation of an information sector important enough to take the library and archives activities out of its familiar surroundings. On the other hand: continuity isn't a very big problem because it concerns an existing class.

**Reality:** reflects the inclusion in one of the two categories the reality of the organization and character of the library and archives activities, now and in the future.

## **V. Detailed structure under Short term accommodation**

### **A. Problem statement**

In ISIC 3.1, the group/class 5510 heading reads:

“Hotels, camping sites and other provision of short-stay accommodation”.

The last draft ISIC Rev. 4 latest presents 3 groups/classes:

- 5510 Short term accommodation activities,
- 5520 Recreational vehicle parks, trailer parks and camping grounds and
- 5590 Other accommodation.

NACE Rev.2 splits the ISIC class 5510 Short term accommodation activities into 2 classes:

- Hotels and similar accommodations (hereafter Hotels) and
- Holiday and other collective accommodations (hereafter Holiday).

The question is raised whether the ISIC class 5510 Short term accommodation activities would be split into 2 classes also in ISIC level, as in NACE. To do so, clear splitting criteria should be provided.

### **B. Current treatment in draft ISIC 4 - May 2005**

#### **5510 Short term accommodation activities**

This class includes the provision of lodging, typically on a daily or weekly basis, principally for short stay by visitors. This includes the provision of furnished accommodation in guest rooms and suites, sometimes with kitchenettes and may often include a range of additional services such as food and beverage services, parking, laundry services, swimming pools and exercise rooms, recreational facilities and conference and convention facilities.

This class also includes the provision of lodging, typically on a daily or weekly basis, principally for short stays by visitors, of self-contained space consisting of complete furnished rooms or areas for living/dining and sleeping, with cooking facilities or fully equipped kitchens. This may take the form of apartments or flats in small free-standing multi-storied buildings or clusters of buildings, or single storied bungalows, chalets or housekeeping cottages and cabins. Very minimal complementary services, if any, are provided.

This class includes accommodation provided by:

- hotels
- resort hotels
- suite / apartment hotels
- motels
- motor hotels
- inns
- guesthouses
- pensions
- bed and breakfast units
- youth hostels
- children holiday homes

- visitor flats and bungalows
- holiday homes
- housekeeping cottages and cabins

This class excludes:

- provision of homes and furnished or unfurnished flats or apartments for more permanent use, typically on a monthly or annual basis, see division 68

**552 Recreational vehicle parks, trailer parks and camping grounds**

See class 5520.

**5520 Recreational vehicle parks, trailer parks and camping grounds**

This class includes the provision of space and facilities for recreational vehicles, or in operating trailer parks, campgrounds, recreational camps and fishing and hunting camps for short stay visitors.

This class also includes accommodation provided by:

- mountain shelters

**559 Other accommodation**

See class 5590.

**5590 Other accommodation**

This class includes the provision temporary or longer-term lodging in single or shared rooms or dormitories for students, migrant (seasonal) workers and other individuals.

This class includes accommodation provided by:

- student residences
- school dormitories
- workers hostels
- rooming and boarding houses
- railway sleeping cars

**C. Current treatment in draft NACE 2**

NACE Rev.2 differentiates between the 2 classes “Hotels” and “Holiday” on the basis of the following main criteria:

- daily cleaning and bed-making (i.e. class Hotels includes daily cleaning and bed-making whereas class Holiday includes non or once a week cleaning and bed-making service).

There are several supplementary criteria, which are usually, but not always, present and therefore not easily measurable:

- in class Holiday the most typical stay is one week;
- class Holiday includes mostly some cooking facilities, class Hotels excludes typically cooking facilities;
- class Holiday includes few “other services” (e.g. laundry services, room services) which are usually available in class Hotels. However, specific recreational services are often included in class Holiday (renting of recreational equipment, availability of outdoor swimming pool, children playground or tennis court).

Holiday clubs providing services similar to the hotels, including daily cleaning and bed-making, are included in class Hotels.

NACE Rev.2 draft explanatory notes indicate as examples of kind of establishments included:

**Class Hotels**

This class includes accommodation provided by:

- hotels
- resort hotels
- suite / apartment hotels
- motels
- motor hotels
- inns
- guesthouses
- pensions
- bed and breakfast units

**Class Holiday**

This class includes accommodation provided by:

- children and other holiday homes
- visitor flats and bungalows
- housekeeping cottages and cabins
- youth hostels

## **D. Remarks**

Should the EG support the split of the ISIC class 5510 into two classes similar to NACE, the borderline between “Holiday” and “Real estate” would be, as in the current draft ISIC 4, according to the last exclusion:

- provision of homes and furnished or unfurnished flats or apartments for more permanent use, typically on a monthly or annual basis, see division 68.

The EG is asked to express an opinion on whether this criterion is sufficient (suitable?).

## **VI. *Treatment of research and experimental development in biotechnology***

### **A. Question for the Expert Group:**

Does the Expert Group agree that a new class “Research and Experimental Development in Biotechnology” (draft ISIC code 7211) be created in ISIC Rev.4?

### **B. Background and discussion:**

The growth in the use of biotechnology processes in the production of a variety of goods and services (e.g. genetically modified organisms, seeds, pharmaceuticals, waste disposal

etc.) has led to questions whether biotechnology-related activity could somehow be reflected in ISIC revision 4.

In general this was thought to be not possible as the products produced with a biotechnology input may be difficult to distinguish from those produced without such input. However the particular case of biotechnology research and development was proposed as a distinct activity.

#### *Problem of Assignment of firms to 7211*

The OECD has collected and published indicators on private and public sector activities in biotechnology, starting with the “Biotechnology Compendium”<sup>1</sup> in 2001 and a second collection in 2003<sup>2</sup>. A third is planned for 2005. A major drawback for biotechnology indicators has been the low number of indicators that are comparable across countries. This has been due, in part, to differences in the definition of biotechnology, including how a ‘biotechnology firm’ is defined.

#### *The development of the Biotechnology Framework*

(DSTI/EAS/STP/NESTI(2005)8/FINAL) and a biotechnology survey questionnaire by an OECD Ad hoc Biotechnology Statistics Group will help to produce comparable biotechnology indicators in the near future. The draft ISIC 4 revision to create a separate class 7211 for ‘research and experimental development in biotechnology’ may also be of use in providing comparable indicators, particularly because a large fraction of firms active in biotechnology have no product sales and therefore are classified as research service firms. However, there is concern about the ability of the proposed class 7211 to provide internationally comparable indicators for biotechnology activity and the subsequent interpretation of data on R&D, revenues, salaries, or employment linked to firms assigned to 7211.

The concerns derive from the methods used to assign firms to subclass 7211. The standard practice is to assign firms based on their principal activity, using value-added. This method is problematic for firms in research and experimental development that have no or very limited sales revenue as a proportion of their total expenditures. Many biotechnology and new start-up firms backed by venture or private capital will fit this description. The United States appears to solve this problem on the basis of self-designation<sup>3</sup> and other methods may be in use in other OECD countries.

Firms in class 721 “Research and experimental development on natural sciences and engineering” with a majority of their research expenditures in biotechnology are likely to either assign themselves or be assigned to 7211. However, a potential problem occurs for firms with less than 50% of their research in biotechnology research. Some of these firms

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<sup>1</sup> van Beuzekom, B. Biotechnology Statistics in OECD Member Countries: Compendium of Existing National Statistics. STI Working Papers 2001/6, OECD, Paris, September 2001.

<sup>2</sup> Devlin, A. An overview of biotechnology statistics in selected countries. STI Working Papers 2003/16, OECD, Paris, November 2003.

<sup>3</sup> See page C-2, US Census Bureau, Scientific Research and Development Services: 2002, US Department of Commerce, Economics and Statistics Administration, US Census Bureau, September 2004.

could define themselves as biotechnology firms if they perceive benefits from membership in the ‘biotechnology community’<sup>4</sup>. In addition, many firms may find it difficult to determine whether or not they are a biotechnology firm or find it difficult to allocate their expenditures between biotechnology and other types of research. Two examples are as follows:

- i) A start-up firm active in pharmaceuticals uses a few biotechnology techniques to assist its discovery process for small molecule drugs. Although the majority of its research expenditures do not involve the use of biotechnology techniques, biotechnology plays a central role in the discovery process.
- ii) A research firm uses biotechnology techniques such as Polymerase Chain Reaction techniques and genetic markers to speed up a breeding program for new crop varieties, but none of the varieties are based on genetic modification (GM) and most research expenditures are for the cost of conventional trials of non-GM crops.

For both of these firms, biotechnology plays a significant conceptual role in research, but does not account for the majority of research expenditures. These firms may or may not define themselves as biotechnology firms.

In order for the new class 7211 to provide comparable data, it would help if ISIC 4 provided guidelines for assigning firms to this class, in recognition of the fact that it creates special problems for firm assignment. There are two possible options, both of which will influence the interpretation of the results:

1. Include all firms where biotechnology plays a ‘significant’ conceptual role in the firm’s research. This would include both of the two examples given above. A definition of ‘significant’ that is not limited to R&D expenditures would need to be developed. This method would provide data on ‘biotechnology active’ firms, but linked data on employment, revenues and R&D could not be assigned entirely to biotechnology. One advantage of this approach is that the results could be used to identify firms that should be included in a specialized biotechnology survey.
2. Only include firms with a majority of their activities (in terms of research expenditures or employees) directly involved in biotechnology. This method would identify ‘core biotechnology’ firms.

Both methods have advantages and disadvantages, but the worst outcome for international comparability is to have a mix of methods, both between countries and possibly within the same country, as when the decision is left to self-designation without guidance.

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<sup>4</sup> As an example, the American industry association, BIO, includes many firms with only minor activity in biotechnology. Self-designation as a biotechnology firm could help to raise venture capital.

### *Definition of biotechnology activities*

OECD would like to point out that the definition of biotechnology in 7211 is a provisional definition from the OECD's Biotechnology Framework. The Framework is in the last stage of development and will be completed by May 2005. At this time the definition varies slightly from the provisional definition. The updated provisional definition is as follows:

#### **The single definition**

The provisional single definition of biotechnology is deliberately broad. It covers all modern biotechnology but also many traditional or borderline activities. For this reason, the single definition should always be accompanied by the list-based definition which makes operational the definition for measurement purposes. The single definition is:

The application of science and technology to living organisms, as well as parts, products and models thereof, to alter living or non-living materials for the production of knowledge, goods and services.

#### **The list-based definition**

The following list of biotechnology techniques functions as an interpretative guideline to the single definition. The list is indicative rather than exhaustive and is expected to change over time as data collection and biotechnology activities evolve.

#### **The list-based definition of biotechnology techniques:**

***DNA/RNA:*** Genomics, pharmacogenomics, gene probes, genetic engineering, DNA/RNA sequencing/synthesis/amplification, gene expression profiling, and use of antisense technology.

***Proteins and other molecules:*** Sequencing/synthesis/engineering of proteins and peptides (including large molecule hormones); improved delivery methods for large molecule drugs; proteomics, protein isolation and purification, signaling, identification of cell receptors.

***Cell and tissue culture and engineering:*** Cell/tissue culture, tissue engineering (including tissue scaffolds and biomedical engineering), cellular fusion, vaccine/immune stimulants, embryo manipulation.

***Process biotechnology techniques:*** Fermentation using bioreactors, bioprocessing, bioleaching, biopulping, biobleaching, biodesulphurisation, bioremediation, biofiltration and phytoremediation.

***Gene and RNA vectors:*** Gene therapy, viral vectors.

**Bioinformatics:** Construction of databases on genomes, protein sequences; modelling complex biological processes, including systems biology.

**Nanobiotechnology:** Applies the tools and processes of nano/microfabrication to build devices for studying biosystems and applications in drug delivery, diagnostics etc.

### **C. Comments on Options discussed in the background**

A. Agree creation of 7211 “Research and experimental development in biotechnology”

An economically important and growing economic activity, this will provide a useful if imperfect indicator of that activity.

B. Collapse classes 7211 and 7219 into 721.

Currently the number of firms engaged in biotechnology research and development in some countries is too small, and the means of classification too uncertain to justify the creation of a useful separate class.