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ABSTRACT

The purpose of the study was to define a world-wide machinery registering the essential characteristics of scientific periodicals and making them available to all interested individuals or organizations. The study is a combined feasibility study and preliminary system design. No attempt was made to identify individual organizations which might participate at the international or local levels; nor for the maintenance of the data base, or the production of publications and services. Chapters 2 to 10 of the report constitute a detailed study of the proposed International Serials Data System. In particular, Chapters 4 and 7 are concerned with the content of the computer data base, and detailed procedures for capturing and recording information for the system. Chapter 11 summarizes the authors' conclusions and recommendations. Supporting information is presented in a series of appendices including a brief survey of existing serials data systems. (Author/NH)

Report on the feasibility of an International Serials Data System, and preliminary systems design

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for

UNISIST/ICSU-AB Working Group on Bibliographic Descriptions

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CHAPTER 1: Scope and background of the study

1.1 Background

This report is the result of a study which was initiated by the UNISIST/ICSU-AB Working Group on Bibliographic Descriptions, and carried out under contract to the International Council of Scientific Unions, by members of INSPEC staff at the Institution of Electrical Engineers, London.

The Working Group on Bibliographic Descriptions was established in July 1968, and its terms of reference have been "to identify, describe and recommend the form and content of the elements of bibliographic data" [17]. At an early stage in its discussions, the Working Group recognized the need for an internationally acceptable coding system for periodical titles, supported by an effective machinery for capturing, recording and disseminating accurate information on the serial literature in science and technology. It therefore proposed that a study be carried out to determine the feasibility of an International Serials Data System (ISDS), and the extent to which such a system could be grounded on work which was already being done in this field.

1.2 Terms of reference

Terms of reference for the study were established by the Working Group on Bibliographic Descriptions, as follows:

1.2.1 Purpose

The purpose of the study was "to define a world-wide machinery registering the essential characteristics of scientific periodicals, and making them currently available to all interested individuals or organizations".

1.2.2 Suggested data elements

The following list of data elements was suggested for consideration as the minimum requirements to record a periodical title in the system:

a) Full title(s) in original language and characters
b) " " " " " , transliterated
c) Abbreviated title(s) in original language and characters
d) " " " " " , transliterated
e) Title code (subsequently referred to as International Standard Serial Number, or ISSN)

f) Place of publication and address

g) Year of initial publication

h) Subject coverage

i) Example of citations according to UNISIST recommendations

j) Language(s) of original publication

k) Abstracting services coverage

1.2.3 Scope of the study

The study was to cover the following aspects:

a) Existing systems relevant to ISDS

b) Subject fields to be included

c) Structure, organization and detailed functioning of ISDS

d) Establishment of ISDS

e) Costs and financing

The study was to be regarded as a combined feasibility study and preliminary system design (and in many respects the two have proven to be inseparable). It was agreed that no attempt would be made to identify individual organizations which might participate at the international or local levels; nor for the maintenance of the data base, or the production of publications and services.

1.3 Definition of a "serial"

These terms of reference did not define the scope of an International Serials Data System as regards the types of literature which it should include. The most commonly accepted definition of a serial is "a publication issued in successive parts with a collective title and, normally, intended to be continued indefinitely".

In practice, there are many publications which are borderline cases and may require a subjective decision, e.g., in library cataloguing, to determine whether they should be treated as serials or monographs.

In keeping with the philosophy adopted in this study, it has not seemed desirable - if indeed it were possible - to draw any restrictive definition of a serial. ISDS is assumed to cover any title which any of the participants in the system sees fit to process as a serial.

1.4 The "network" concept

From the very beginning, ISDS has been visualised as a network, including an International Centre and a number of national or regional centres (referred to hereafter as

Local Centres). A major part of the study has been to define the respective functions of the International and Local Centres, and as will be seen in more detail in Chapters 2 and 6, it has seemed right that the functions of code assignment and control of bibliographic data should be located wholly at the International Centre, rather than being decentralised to a number of regions.

Nevertheless, the "network" concept remains of fundamental importance to the ISDS. Local Centres are essential for the effective dissemination of information and to establish and maintain links between ISDS and the primary producers of serial literature.

It should be made clear, however, that in referring to an "International Centre" and "Local Centres" this report does not envisage the creation of new organizations, but rather the identification of existing units in the information field which could provide the facilities and expertise to support ISDS.

1.5 Content of the report

The study carried out for this report has involved two kinds of activity:

a) Through published and unpublished literature, and direct contact with individuals and organizations in the information field, an analysis of existing and proposed serials data bases, and of the user requirements which should be met by ISDS.

b) The preliminary design of a data base, and the methodology for creating and maintaining the data base and providing a number of possible products and services (including a first-order approximation of the costs that might be involved).

Chapters 2 to 10 of the report constitute a detailed study of the proposed International Serials Data System. In particular, Chapters 4 and 7 are concerned with the content of the computer data base, and detailed procedures for capturing and recording information for the system, and are less relevant to an overview of ISDS. Chapter 11 summarizes the authors' conclusions and recommendations.

Supporting information is presented in a series of appendices. A brief survey of existing serials data systems is included as an appendix rather than in the body of the report, but certain existing systems are referred to extensively at other points in the discussion. It is considered that, although a number of machine-readable files of serial titles are already in existence, it may be facile to suppose that they could readily be used as a basis for ISDS. The CODEN system and the US National Serials Data Program are, however, of great significance for the present study.

1.6 Why an International Serials Data System?

In studying this report, the reader should have in mind these three objectives for ISDS:

a) To develop and maintain an internationally accepted code for serials titles.

b) To record and make available timely and accurate bibliographic data on serial publications.

c) To establish a network of communication between publishers of serial literature, secondary information services, major libraries, and national and international organizations in the information field. Such a network might in due time be used to promote bibliographic standards and information exchange in areas far beyond those studied in this report.

These are the reasons for proposing an International Serials Data System at this time.

CHAPTER 2: General principles of ISDS

2.1 Introduction

The contents of this chapter represent the detailed conclusions drawn from studying existing serials data bases and from discussions with potential participants in or users of an International Serials Data System.

Two conclusions are worth stressing immediately:

a) The difficulty of maintaining an accurate serials data base. All experience shows that the population of serial titles is complex, inhomogeneous, and subject to frequent change. Many publications which are undoubtedly serials do not follow any regular pattern; many publishers of serials operate on a somewhat casual basis. Any attempt to develop an ISDS is doomed to failure, or at least only a very partial success, if it does not begin with an awareness that the system will have to handle some extremely complex and difficult problems, and will require a high level of bibliographic expertise in its day-to-day operations.

b) The timeliness of the present proposal for an ISDS. It is clear that within the library community and among secondary information services there is beginning to be a real demand for an accepted coding system for serials, and for the creation of machine-readable files of serials data. This demand is related on the one hand to the growing interest in the mechanisation of library processes, and on the other hand to the development of secondary information exchange on magnetic tape and other media. A significant number of organizations have already constructed their own computer files of serial titles.

2.2 Responsiveness to user needs

The most important characteristic of ISDS is that it must be so designed and operated that it will efficiently and effectively satisfy the real needs of the user community throughout the world. It must above all else be practical.

Certain classes of potential user of the ISDS and its products are easily identifiable:

a) Libraries

b) Abstracting and other information services

c) Periodical publishers

d) Subscription agencies and wholesale distributors

Publishers of periodicals would be significant contributors of information to ISDS, as well as potential users. Their interests, and those of subscription agencies and wholesalers, have been considered in the present study, but have not been found to involve any features which do not arise from the more general requirements of the library and information community. Subscription agencies might be expected to apply the ISSN to their ordering and accounting procedures in much the same way as book wholesalers are now applying the International Standard Book Number. Primary journal publishers would be able to make good use of ISDS files in standardising both the bibliographic descriptions of papers which they publish and those of papers which are cited in their publications.

Libraries would find applications for the ISSN in cataloguing and accessions procedures, particularly where these are being mechanised. The eventual use of ISSN in citations would sometimes be of value in unambiguously identifying reference sources. Except for special discipline-oriented libraries, the library community would not be adequately served by any numbering system which was not all-embracing in its subject coverage. This is the major respect in which its interests in ISDS differ from those of abstracting and other information services.

For secondary information services, the main importance of the ISSN will be as an unambiguous identification of a periodical in a machine-readable bibliographic record, with particular significance in information exchange or provision of tape services. It will also have the same application to accessions procedures as in libraries.

Both libraries and information services - and indeed any significant 'consumers' of information - will benefit substantially if the design of ISDS is such as to speed the dissemination of accurate information about new periodical titles, or changes of title, in sufficient detail to enable any item to be ordered without additional research.

Above all, and for all users, it must be possible for the system to provide a new ISSN on request, with a minimum response time; which is taken to mean by return of post, or within not more than forty-eight hours if telex or similar facilities are used, perhaps with an extra charge to the user.

2.3 Organic growth

The growth of ISDS should be flexible and organic in at least four respects:

a) Movement from an initial file in the field of science and technology towards comprehensive coverage of periodicals (see Chapter 9).

b) Growth from a basic machine record to a system carrying more detailed information (see Chapter 4).

c) Growth in the range of products and different kinds of information available from the system (see Chapter 5).

d) ISDS should be hospitable to the widest possible range of users and participants (see Chapter 6).

2.4 Primary and secondary objectives

The concept of ISDS emerged from the recognition that it was vitally important for the international interchange of bibliographic information that there should exist an agreed code for each uniquely identifiable periodical title, and that an effective system would be needed to create and maintain the code.

It is considered that the maintenance of a file of periodical titles, with ISSN's and standard abbreviated titles, should be the primary objective of the system. This objective includes the administration of an effective system, with minimum response time, for assigning new ISSN's and recording changes.

Any other activities of ISDS are to be regarded as secondary objectives. A number of worthwhile and attractive by-products are identified later in this report, but none is in itself sufficiently valuable to be allowed to divert attention from the primary objective for which the system is proposed.

2.5 Comprehensive subject scope

ISDS has been conceived within the framework of UNISIST. It is nevertheless essential that its coverage should be in principle universal: there can be no justification for an ISSN system which is confined to 'science'. One of the main criticisms of the CODEN system has been due to the limitations of its subject scope. Libraries in particular have an immediate need for a code which is completely general in application.

2.6 'Exhaustivity'

The concept of an exhaustive World Register of Periodical Titles is attractive, and has an important place in proposals for ISDS. Two points are worth making, however. In the first place, complete exhaustivity will never actually be achieved in dealing with a large, complex and constantly changing population of titles. Moreover, when a user looks at the system what he usually means by 'exhaustivity' is complete coverage of the set of titles in which he is interested, not complete coverage of the total world population of titles. Thus, a library considering a mechanised system for its own periodicals receipts will look for coverage of the set of titles to which it subscribes; an abstracting service will look for coverage of the set of titles which it scans. These also are dynamic, not static, sets, but they are more easily definable, and the user may have a real interest in defining them.

Over a period of time, the union of many such user-orientated sets may be expected to converge at least as near to global 'exhaustivity' as could be achieved by any technique based on an a priori attempt to reach this objective.

2.7 Users as participants in ISDS

It follows from 2.6 that every user of the system and its products is to be regarded as a potential participant in the work of data acquisition, and a major function of ISDS would be to act as an effective filter and a rapid channel for information obtained from users. Large libraries and abstracting and other information services may be expected to play a special part. The relationship between ISDS and publishers of periodicals is also regarded as particularly important.

2.8 Centralization of ISSN assignment

It is considered indispensable that the responsibility for assignment of ISSN, and for the maintenance of proper bibliographic standards in input to the data base, should rest with a single international centre.

The reasons for this recommendation are as follows:

2.8.1 Maintenance of bibliographic standards

The experience of other systems has shown that the usefulness of a serials data base stands or falls by the extent to which it is subject to a careful and expert control on the bibliographic accuracy of the input data.

In particular, when the CODEN system was first developed, codes were assigned on the basis of information supplied by users, without detailed scrutiny or adequate supporting details. This had the result that the first published list of CODEN contained numerous duplications and inaccuracies, and many entries where details given were inadequate for the unambiguous identification of the title concerned. Subsequently, a policy of rigorous central control was adopted, and the file was completely revised, so that early criticisms of CODEN now no longer apply.

ISDS will have to make decisions on the assignment of ISSN, on changes resulting from title changes, mergers, splits, etc., on the application of standards for transliteration and abbreviation. It is considered essential to the integrity of the data base that such decisions should be the responsibility of a single expert centre. This is particularly the case since there will be many problems which cannot be wholly covered by a rigorous set of rules, and where a partially subjective decision will be required.

2.8.2 Speed of response

In an on-going operation, demands for assignment of new ISSN may be divided into three classes:

a) Request from a publisher to his Local Centre

b) Request from a user to his Local Centre for an ISSN for a periodical published with the region.

c) Request from a user to his Local Centre for an ISSN for a periodical published elsewhere.

If the system were wholly decentralized, assignments of types (a) and (b) would be slightly quicker and cheaper in the first instance, but it would require more time and more careful control to enter them accurately into the central file and distribute them to other Local Centres. Assignments of type (c) would be considerably slower and less convenient, as they would require communication from the Local Centre via the International Centre to another Local Centre, and vice versa.

2.8.3 Titles not identifiable with a single origin

A small but significant minority of periodicals cannot be unambiguously identified with a single country of origin; double assignments of ISSN could be reliably avoided only by referral to a single central authority.

2.8.4 Errors in identification

Occasionally a genuine error may be made in identifying the 'country of origin' for an ISSN assignment. This would lead inevitably to delays if code assignment were decentralized. If it were centralized, an ISSN could be assigned as soon as the title had been verified as not previously recorded; the error would subsequently become apparent, but would not invalidate the code.

2.8.5 Dependence on Local Centres

A decentralized system would depend wholly on the effectiveness of the Local Centres. In the nature of things, certain centres might from time to time prove less efficient than others. In principle, it seems highly desirable to design ISDS so that, given an effective International Centre and a set of user/participants, the system can function successfully for the maintenance of the ISSN without relying on Local Centres.

It is therefore recommended that the assignment of ISSN should be the sole responsibility of a single centre, under international sponsorship and policy control.

2.9 Access to a serials collection

It is considered highly desirable that the International Centre should be based on an organization which either is itself a library with a major serials holding, or has access to such a library and its staff. This is likely to make the work of the centre more efficient and less costly in at least two respects:

a) By making available the bibliographic expertise required for 2.8.1.

b) By making it possible to capture detailed information on a large proportion of the serials population without the expense of referring to a Local Centre or to the publisher.

2.10 Decentralization of other information gathering

Apart from the provisions of 2.8 and 2.9 above, it is expected that the collection of other information required for ISDS would be decentralized and be based on engaging the active co-operation of Local Centres, libraries, secondary information services, and periodical publishers. Chapters 6 and 7 describe in more detail the relationships between these various participants, and the way in which the system might operate.

2.11 'Educational' role of ISDS

It is hoped that among the less tangible but potentially most valuable by-products of ISDS would be an increased awareness of the problems of bibliographic recording on the part of those who create the 'problems': namely, the publishers. A machinery would be set up whereby publishers could be actively encouraged to follow agreed standards in identifying their products; standards which would in the long run greatly simplify the work of librarians and others who have to create bibliographic records for mechanised systems.

CHAPTER 3: A proposed UNISIST International Standard Serial Number

3.1 Alternative formats for an ISSN

Three alternative approaches to the format of an ISSN have been considered:

3.1.1 CODEN

The CODEN system (see Appendix A) is the only serial code which at the present time has even a limited degree of de facto international recognition. It is administered by the Franklin Institute in Philadelphia, USA, on behalf of the original sponsors, the American Society for Testing and Materials (ASTM).

ASTM CODEN (for periodical titles) is a five-letter alphabetic code, to which a sixth check character may be added for computer use. The current files cover approximately 120,000 titles (including non-periodical items, which are, however, in the minority). The most active users of CODEN are to be found among large-scale secondary information services.

The major limitations of CODEN are that:

a) it is confined to the fields of science and technology (sometimes rather broadly interpreted);

b) its sponsors have not been able to publish revised lists sufficiently frequently, nor have supplementary lists been published on a regular basis, so that users must rely too much on direct application to the CODEN team in Philadelphia;

c) it has no real international status, nor is it supported by any 'agents' in other countries;

d) the amount of information recorded for each title is somewhat limited, so that the present files, although perfectly adequate for code registration, do not constitute a serials data base suitable for more general use;

e) the system has suffered in the eyes of the information community as a result of its early lack of bibliographic discipline.

However, the ASTM CODEN system has unquestionably pioneered the whole problem of recording and encoding serial titles, and now gives a very high level of user satisfaction.

3.1.2 ANSI Z39 proposed Standard Serial Number

The American National Standards Institute Committee Z39 has prepared a draft standard [2] for a Standard Serial Number (SSN),

and placed the draft before the International Standards Organization Committee TC46 in Stockholm in October 1969. At the time of writing, the draft has not been approved as an American Standard, but it seems likely to obtain final agreement in the near future.

The proposed SSN is a seven-digit number with a check digit, to be written in the form XXXX-XXXX. The number is envisaged as carrying no information content whatsoever; it is simply a unique label to identify a serial title. The check digit is calculated by the same method as is used for the International Standard Book Number.

The draft standard included as an appendix a proposed algorithm to relate SSN's to CODEN, so that a two-way conversion is possible by computer program. It appears, however, that this algorithm is not regarded as an essential part of the standard.

The draft also refers to the US Library of Congress as the authority to administer the SSN, subject to the availability of funding and resources. The request to ANSI for a standard for serial title codes came from the three US national libraries as a by-product of preliminary work on the National Serials Data Program (NSDP). At the present time, no definite plans have been made public concerning the timescale for NSDP or the likelihood that Library of Congress will in the near future assume responsibility for maintaining SSN.

3.1.3 An independently designed ISSN

It was expected that as part of this study an ISSN might be proposed which differed from either of the above codes. During the original discussions on terms of reference for the study, it was suggested that ISSN should carry an identification of the country of origin of the serial, and that its format might include a two-character country code, a five-digit number and a check character. It is felt that this kind of code carries certain problems with it, which are discussed in the next section; and it is not recommended.

More generally, there must be very strong reasons indeed to justify a proposal to introduce a new numbering system which is different from either of those which have already been introduced or proposed.

3.2 Format considerations

The following considerations arise in determining the format for an International Standard Serial Number:

3.2.1 Should the code carry any meaning, besides being a unique identification number?

As already mentioned, the original UNISIST concept was of an ISSN which included a country code. This had, in principle, much in common with the International Standard Book Number (ISBN). It was recognised from the beginning that serials differ from books in that certain of their essential attributes may change, without the identity of the publication changing. Thus the publisher code which is part of the ISBN was not regarded as an appropriate element in an ISSN, since a change of publisher does not affect the identity of the serial (also because there is a proliferation of 'casual' publishers in the serials field, often producing only a single title).

There is a minority of serials which are international in nature, and whose country of publication may change without any change in the identity of the title. It is therefore recommended that the country code should not form part of the ISSN; that the ISSN by itself should be a complete and globally unique identification of the serial; and that the country of origin may optionally be displayed at the head of the ISSN when the latter is printed on a serial issue or elsewhere.

There has been some demand (primarily from subscription agencies) for an ISSN which would give automatically an alphabetic sequence of titles. This is not considered feasible or advisable, since it would complicate the process of code assignment, and the usual technique for assigning codes of this kind has the effect of shortening the useful life of a coding system of a given size.

The ISSN should be regarded simply as a label which identifies a serial title, and should not carry any other meaning.

3.2.2 Should the character set be alphabetic, alpha-numeric, numeric?

The arguments over alphabetic and numeric codes have been very much rehearsed in this and other contexts, and are in any case inconclusive. The development of CODEN has shown that, unless the compactness of an alphabetic code is sacrificed, any mnemonic value is bound to be lost in dealing with a population as large as that of the periodical literature. Indeed, it is arguable that intermittent mnemonic relationships are likely to be misleading rather than helpful. A numeric code has the possible overriding advantage of worldwide applicability, regardless of differences of language and alphabet.

3.2.3 Size of code: how large a population of potential ISSN's must be allowed for?

It has been suggested that a cumulation of the world's serial population, dead or alive, would be of the order of 1.3 million titles. A code admitting up to 10 million unique titles would seem to be ample. The seven-digit numeric code (plus check digit) proposed by ANSI Committee Z39 will accommodate this number.

3.2.4 Error prevention and deletion

Numeric codes can legitimately be criticised on the grounds that observations have shown that human error rates are slightly higher with pure numbers than with letters or mixed codes. However, the ISBN is operating effectively in those countries where it has so far been introduced; and the check digit system proposed in the ANSI draft referred to above is identical in principle to that used for the ISBN.

It is a well-established principle that numbers (e.g., telephone numbers) are more accurately handled if they are broken into groups of up to four digits. The eight-digit SSN is written XXXX-XXXX in the current ANSI standard draft. It is suggested, however, that it might be preferable to use the form XXX-XXXX-X in order to separate the check digit from the number itself.

3.3 Relationship between 'title' and ISSN

Major problems arise in periodicals handling when the attempt is made to define what constitutes a change in the identity of a title. Certain kinds of minor changes in the title itself (e.g., 'Journal of the ABC Institute' to 'ABC Institute Journal') clearly do not represent changes in the identity of the publication. Nevertheless, it is impossible to find any other individual element which can be regarded as a better, more permanent, embodiment of the identity of a periodical than the full title.

It is therefore recommended that each ISSN should be regarded as inseparably associated with a particular title; more specifically, with the 'key' form of the title as defined in Chapter 4. The basic rule for defining a change of title which demands the assignment of a new ISSN is then as follows:

"A 'change of title' is any change in the full title which, in accordance with the rules for creating 'key' titles, would generate a new 'key' title which differed in any respect (however insignificant) from the previous 'key' title."

In practice, the application of this rule might have to be relaxed in situations where a literal interpretation would seriously offend commonsense. (The need for some flexibility in interpretation is, paradoxically, an added argument for centralising the assignment of ISSN: in a decentralised system, flexibility would be liable to degenerate into inconsistency - which is not necessarily the same thing. An example where good sense might suggest that the rule should not be rigorously applied is given in Appendix F: Charleroi-Jeumont appeared for two issues only, in 1947, under the title Jeumont-Charleroi)

Appendix C outlines some proposed rules and conventions for creating and sorting 'key' titles.

There is probably a need for further discussion on this recommendation. Certainly many workers in the field would prefer to maintain the same code number if (for example) a journal changes its title without any discontinuity in publication or any essential change in the nature of its contents. However, the ISSN will often be used in machine systems as a means of accessing an authority file in order to display a full title and other information. It is therefore considered preferable to maintain in general a one-to-one correspondence between ISSN and 'title'.

3.4 Recommendations

There are many organizational problems involved in considering the desirable formula for an ISSN, and rather than making a single recommendation, it seems best to list alternative courses of action, ranked in descending order of attractiveness:

a) The preferred course would be to adopt the ANSI draft standard, with the ISDS International Centre and the administration of the ISSN vested in the same organization.

b) Adopt CODEN as the ISSN, with the ISDS International Centre and the CODEN/ISSN administration vested in the same organization.

c) Adopt the ANSI draft standard, accepting that ISSN be assigned by a centre which is not the ISDS International Centre, so that ISDS becomes responsible for the maintenance of a serials data base, obtaining ISSN from an outside source.

d) Adopt CODEN as the ISSN, accepting that CODEN/ISSN be assigned by a centre which is not the ISDS International Centre, so that ISDS is responsible for maintaining a serials data base, with CODEN/ISSN supplied from an outside source.

e) Develop an independently designed and administered ISSN. This seems so undesirable, however, that no attempt is made in this report to suggest what other form the code might take.

In the event that course a, c or e were selected, it is considered essential that ISDS should provide a means of converting CODEN to ISSN and vice versa, to meet the needs of those organizations which have invested heavily in establishing files and developing systems which use CODEN.

This objective can in principle be achieved in one of two ways: either by using an authority list of ISSN and associated CODEN, and supplying it on tape to interested users, or by adopting the conversion algorithm proposed to ANSI. The latter seems at first sight the more attractive

approach, and certainly less costly in the short run. However, closer examination shows that it would place severe constraints on the assignment of new ISSN, and massively increase the difficulty of controlling the system and the probability of wrong assignments.

It is therefore recommended that ISDS should not adopt a system which involves the algorithmic conversion of CODEN to ISSN, but should include CODEN in its files and be prepared to supply conversion lists on magnetic tape. It is further recommended that ISDS should be developed as far as possible in co-operation with the CODEN administration at the Franklin Institute and at ASTM.

It should, however, be made clear that in the long run we envisage a single international code for serial titles, so that the period of time during which a new ISSN system would co-exist with CODEN would be strictly limited, and be related primarily to the period which must reasonably be allowed for CODEN users to convert their files.

CHAPTER 4: Information content of the system

4.1 Note on the 'preliminary systems design'

The study on which this report is based has included a systems design for the maintenance of a serials data base, carried out both to prove the feasibility of ISDS and to provide an outline system which might be adopted and extended by the body or bodies which eventually undertook to establish and administer the data base.

It has become increasingly apparent, however, that the present report might tend to the conclusion that no separate organization is required to assume responsibility for the data base; rather that, as with the International Standard Book Number, a national standard could be adopted, and the machinery which is set up nationally to administer it be extended through an international network to ensure that other countries both benefit from and contribute to it.

In this case, much of the content of this and subsequent chapters must be regarded as theoretical rather than essential and practical. Its principal value may be in defining some of the desirable features in any serials data base, and indicating both the problems and the benefits which are to be expected.

4.2 Multi-level approach

The preliminary systems design for ISDS was first approached at three different levels of information content in the main data base. Further study has suggested that at the most basic of the three levels several elements of information were omitted which are sufficiently important to justify inclusion in even the simplest machine file of serial titles. A fourth level has therefore been introduced.

The chart on page 4.6 shows the data elements which appear in each of the four levels.

Level 0 is the minimal machine file which was originally considered. It will not be discussed further in the present report.

Level 1 is the additional level which has been introduced at a later stage of the study.

Levels 1, 2 and 3 are discussed individually in greater detail below. In Chapter 8, certain proposals are made for setting up the system initially at Level 1, with the possibility of a planned growth to Level 3, depending on the cost factors involved.

4.3 Level 1

Level 1 is a basic computer file to identify a serial title, its publisher, and its "family relationships" (if any) within the total population of serials. At Level 1 the file contains the following data elements (code numbers refer to Appendix D):

D2 Date of entry of most recent amendment
D3 International Standard Serial Number
D4 CODEN
D5 Publication status: current or discontinued
D9 Alphabet of original title
D11 'Key' title
D12 Added title words
D13 Alternative title: 'key' form
D16 Standard abbreviated title
D17 Former title: ISSN
D18 Successor title: ISSN
D19 Other language edition of: ISSN
D20 Has other language edition: ISSN
D21 Inset in or supplement to: ISSN
D22 Has inset or supplement: ISSN
D23 Other related title: ISSN
D24 Publisher's name and address
D25 Country of origin

This is regarded as a minimum set of data elements to enable the ISDS file to support the primary objective of assigning and maintaining ISSN, and to facilitate communication with Local Centres and publishers.

At Level 1 problems of different alphabets are largely ignored, and all data elements use only a basic Roman alphabet.

4.4 At Level 2 the machine file is supported by a so-called Microform Reference File (MRF), which is the main repository of information about serials and their relationships. The machine file is regarded primarily as a control and administrative tool, giving access to the MRF by means of computer-generated indexes. The data elements in each machine record are therefore reduced to the following subset:

D2 Date of entry of most recent amendment

D3 ISSN

D4 CODEN

D5 Publication status: current or discontinued

D9 Alphabet of original title

D11 'Key' title

D12 Added title words

D13 Alternative title: 'key' form

D16 Standard abbreviated title

D24 Publisher's name and address

D25 Country of origin

D29 Address of current record in MRF

D30 Address of historical record in MRF

The Microform Reference File is envisaged as being published on 16 mm. roll microfilm. Each entry contains three frames:

a) Facsimile of cover page

b) Facsimile of title page

c) Data sheet containing at least all the additional information which at Level 3 is included in the machine file

The MRF thus provides a relatively inexpensive means of storing very extensive and detailed information about each title. It would be updated only by adding new records sequentially to the end of the file. When a major change took place in the format of a periodical without a change of title and ISSN, an extra record could be created on microfilm, and the address added to the machine record, which by preserving previous addresses would also constitute a life-history of the title.

By including facsimiles of the periodical itself, the MRF might also be of some value in tracing and identifying more obscure publications, particularly those in non-roman alphabets.

Level 2 thus provides a potentially very valuable reference tool, but permits only very limited computer manipulation of the data which are stored in the system.

4.5 Level 3

Level 3 is a direct extension of Level 1 to increase the information content of the machine file. Additional data elements might cover the following kinds of information:

Life span of the title (D6, D7)

Frequency of publication (D8)

Language(s) (D10)

Title in original alphabet, where suitable for machine encoding (D14, D15)

Subject coverage (D26)

Abstract services coverage (D28)

A general 'notes' field is also added so that the machine record can include any information which might be required to supplement that which can be formally entered in terms of the more strictly defined data elements.

The Microform Reference File described above does not form part of Level 3.

4.6 Complete list of data elements

The table at the end of this Chapter shows the complete list of data elements proposed at each level, together with some 'optional extras'. More detailed specifications appear in Appendix D. Reasons for the inclusion of certain elements and other special points, are noted in 4.7.

In the right hand columns of the table, 'X' indicates 'included in the machine record', 'M' indicates 'included in the MRF', 'O' indicates 'optional'. At Level 2, items coded 'X' would in almost all cases also appear on microfilm.

While for the purposes of this study three specific 'levels' have been chosen, it should be stressed that there is no reason to regard these as immutable. In practice, a different line might be drawn to define what should or should not be included in the data base.

4.7 Special notes

a) D1 (Record status) is included for system housekeeping purposes only.

b) D2 (Date of entry or most recent amendment) is regarded as an essential piece of information, to be included not only in the machine record but also in each entry in printed publications, to indicate the reliability of the record.

c) D11 ('Key' title) is the original title if it was given on the piece in basic roman alphabet; otherwise it is a transliterated title, in accordance with standards adopted for transliteration to roman alphabet without diacritics. For the machine-readable system it is felt that a distinction between 'key title' and 'original title, if different, is more useful than a distinction between 'transliterated title' and 'original title'.

d) D14 (Full title in original alphabet) can only be applied to titles in alphabets for which it is reasonable to develop special encoding in the computer system, and which can be displayed on the output device used for producing publications.

e) D25 (Country of origin) is assumed to provide an implicit indication of the Local Centre responsible for the title.

4.8 Subject coverage

No recommendations are made in this report as to the precise nature of the subject classification which should be included under D26. This will require specialist consideration. It is considered, however, that the subject notation should be kept broad and simple, since it will rely on information collected from a number of sources. A possible approach to the collection of information would be to supply the organization which is providing information to the network with an approved list of broad subject headings, and ask for one or more of these to be assigned; together with a free indication of more detailed subject content, if and only if the coverage of the periodical is rigorously limited to a highly specialised subject. Control of the detailed subject notation might then be exercised by the international centre.

In relation to periodicals, however, a very detailed subject analysis is not considered likely to repay the cost and difficulties involved.

4.9 Coverage by abstracting services

It is recommended that the inclusion of this information at Level 3 should be based on the co-operation of the services concerned. Chapter 8 indicates the role which they might be expected to play in setting up the system. Thereafter, the maintenance of the information in the machine record must depend on the willingness of the abstracting services to provide updating material to ISDS, preferably in machine-readable form.

TABLE OF DATA ELEMENTS

No	DESCRIPTION	Level 0	Level 1	Level 2	Level 3
D1	Record status: provisional or confirmed				X
D2	Date of entry or most recent amendment	X	X	X	X
D3	ISSN	X	X	X	X
D4	CODEN	X	X	X	X
D5	Publication status	X	X	X	X
D6	Start Date			M	X
D7	End date				X
D8	Frequency			M	X
D9	Alphabet of original title	X	X	X	X
D10	Language(s) of main contents			M	X
D11	'Key' title	X	X	X	X
D12	Added title words	X	X	X	X
D13	Alternative title: 'key' form		X	X	X
D14	Full title in original alphabet			M	X*
D15	Alternative title in original alphabet			M	X*
D16	Standard abbreviated title	X	X	X	X
D17	Former title: ISSN		X	M	X
D18	Successor title: ISSN	X	X	M	X
D19	Other language edition of: ISSN		X	M	X
D20	Has other language edition: ISSN		X	M	X
D21	Inset in or supplement to: ISSN		X	M	X
D22	Has inset or supplement: ISSN		X	M	X
D23	Other related title: ISSN		X	M	X
D24	Publisher's name and address	X	X	X	X
D25	Country of origin	X	X	X	X
D26	Subject coverage			M	X
D27	Notes			M	X
D28	Coverage by abstracting services				X
D29	Address of current record in MRF			X	
D30	Address of historical record in MRF			X	
D31	Language(s) of summaries			O	O
D32	Sponsoring organization			O	O
D33	Type of publication			O	O
D34	Holdings data			O	O

*Where the alphabet of the original permits encoding in the computer file.

CHAPTER 5: Products derivable from ISDS

5.1 General

This chapter describes some of the outputs which could be derived from an International Serials Data System. They are grouped under three headings:

a) Printed and microform publications

b) Magnetic tape services

c) Other outputs

Certain of the suggested products would depend on the level at which the ISDS data base was maintained. It is recognised also that there are already several well-known publications which wholly or partly overlap those which are proposed in this chapter: for example, New Serial Titles [3], British Union Catalogue of Periodicals (BUCOP) [4], Ulrich's International Periodicals Directory [5], World List of Scientific Periodicals [6]. Serials listings which perform the functions of a union catalogue for a particular country or group of libraries would not be superseded by ISDS - indeed the existence of the ISDS data base might be expected to make their production cheaper and easier. However, a few existing publications would find themselves in 'competition' with the products of ISDS. The machinery established for collecting and disseminating information within ISDS should make its products more timely and comprehensive (if not, the system would have failed in one of its main objectives); this would be the justification for encroaching upon existing publications. Where these are produced internationally or in the public sector, it is recommended that ISDS should seek to co-operate with the organizations concerned.

5.2 Printed and microform publications

5.2.1 Media

Given a master file which is maintained on a computer, the following media and production techniques may be used to produce publications from the system:

a) Printed books: produced by a computer-controlled filmsetting and offset-litho printing.

b) Printed books: produced by listing on a computer line printer with an extended character set, and photo-reducing the printout for offset-litho reproduction.

c) Printed books: produced by direct recording on to microfilm from magnetic tape, photo-enlargement, and offset-litho printing.

d) Roll microfilm: produced by direct recording from magnetic tape, and reproduced photographically.

e) Microfiche: produced by direct recording from magnetic tape, and reproduced photographically.

In relation to the needs of various classes of user, the cost factors involved (see Chapter 10) and the desirability of frequent updating and cheap, rapid worldwide distribution, it is recommended that certain of the products derived from the network should be published only in the form of 16 mm roll microfilm, reproduced from a master copy recorded directly from magnetic tape.

A printed ISDS Register of Periodicals should be produced at intervals of not more than two years. Consideration should also be given to the production of periodic updating bulletins (here referred to as New & Amended Titles) in printed form; but microfiche could be produced and distributed more quickly and cheaply, and might be preferable if it were accepted by the user population.

For printed publications, it is likely that a decision between methods a, b and c would have to be taken on the basis of cost versus quality of visual appearance.

5.2.2 Suggested publications

The table below shows a list of suggested publications, and the media recommended for them, in relation to the level at which the file is maintained. Individual publications are discussed in subsequent paragraphs. It is not necessarily envisaged that a logical 'product line' would include all the items proposed here at each particular level.

Key:

P	Printed publication
M	Microfilm
F	Microfiche

TITLE	MEDIUM		
	Level 1	Level 2	Level 3
Titles Index	M, P	M, P	M
ISSN Index	M, P	M, P	
ISDS Register of Periodicals ('Register')			M, P
Classified Titles Index ('CTI')			M, P
New & Amended Titles ('N&AT')	P/F	P/F	P/F
Cumulated New Titles ('CNT')			M
Permuted Index	M	M	M
Microform Reference File ('MRF')		M	

5.2.3 General considerations for microfilm products

a) The amount of computer time and recording time required to produce an updated index on microfilm is not such as to demand rigorous scheduling of production jobs over a long period. It is therefore recommended that the basic microfilm indexes (Titles Index and ISSN Index) should be published at irregular intervals determined only by the actual volume of changes and new material, and other practical considerations.

b) For scanning lists and indexes, it may be preferable to record on to microfilm in such a way that frames follow one another sequentially from top to bottom, rather than from left to right. This makes it possible to scan uninterruptedly from one frame to another.

c) The use of computer generated microfilm in a large airline reservation system has been studied. The character density and print quality was found to be far superior to computer printout, and the ease of scanning when film was recorded as described above was better than handling a book - infinitely better than handling computer printout.

d) The major disadvantage of microfilm indexes is that the searcher cannot use an index side by side with the material to which it refers, marking his place in one while he consults the other, as he would do with a printed book. However, the cost of recording additional information in each entry is low by comparison with the cost in computer time of sorting and converting the computer file - which must be done regardless of the elements to be selected. The strategy to be followed in designing microfilm indexes may therefore tend towards the inclusion of more detailed information in the index entry than would be normal in a printed publication.

5.2.4 Titles Index

a) Description

The Titles Index is a listing of the complete file of periodicals arranged in alphabetical sequence of 'key' titles, with cross-references (at Level 3 only) from alternative forms of the title (i.e., main entries based on fields D11 and D12, cross-references based on field D13). This index is an indispensable product at all levels and is the basic means of enabling a user to obtain ISSN without reference to any unit in the Network. 'Provisional' records should be included, with special flagging.

b) Medium

At Levels 1 and 2 the Titles Index is produced in printed form as a partial substitute for the full-scale Register, and on microfilm at intermediate intervals. At Level 3 it is published on microfilm only.

Levels 1 and 2: printed publication: every two years.
All Levels: microfilm: irregular.

d) Data elements

The data elements required in an entry in the Titles Index will be as follows:

Main entry

D11	'Key' title	
D12	Added title words	
D16	Abbreviated title	
D3	ISSN	
D29	Address of current record in MRF	Level 2 only
D30	Address of historical record in MRF	Level 2 only

Cross-reference

D13	Alternative title (in 'key' form)
D11	'Key' title
D12	Added title words
D16	Abbreviated title
D3	ISSN

Note that none of these elements requires any special character set beyond a basic upper and lower case roman alphabet, numerics and punctuation.

e) Specimen entries

Annales de l'Institut Oceanographique (Paris). Ann.Inst. Oceanogr. (Paris) 134-5051-4

Bioenergetics see Comprehensive Biochemistry. Compr.Biochem. 137-2431-2

Boletin de la Sociedad Matematica Mexicana. Bol. Soc.Mat.Mex 170-4504-5

5.2.5 ISSN Index

a) Description

The ISSN Index is a listing of the complete file of periodicals arranged in numerical sequence of ISSN. This index, together with the Titles Index, is an indispensable product at Levels 1 and 2. It is not produced at Level 3.

b) Medium

The ISSN Index is produced in printed form, and together with the Titles Index provides a substitute for the full-scale Register at Levels 1 and 2. It is also produced on microfilm at intermediate intervals.

c) Frequency

Printed publication: every two years.
Microfilm: irregular.

d) Data elements

The data elements required in an entry in the ISSN Index will be as follows:

D3	ISSN	
D4	CODEN (if possible)	
D11	'Key' title	
D12	Added title words	
D16	Abbreviated title	
D24	Publisher's name and address	
D25	Country of origin	
D5	Publication status	
D17-23	Related titles (ISSN)	
D29	Address of current record in MRF	Level 2 only
D30	Address of historical records in MRF	Level 2 only
D2	Date of entry or last amendment	

Again, none of these elements requires any special character set beyond a basic upper and lower case roman alphabet, numerics and punctuation.

e) Specimen entries

128-3251-0 Accounts of Chemical Research. Acc.Chem.Res. ACHRAy American Chemical Society, Washington DC, USA (US) 12/1967

144-1371-X Acta Salmanticensia, Serie de Ciencias, Acta Salmanticensia Ser.Cienc. ASALAp Universidad de Salamanca, Salamanca, Spain. (SP) *144-4382-1 04/1968

5.2.6 ISDS Register of periodicals

a) Description

The Register contains (a) a listing of the complete file of periodicals in ISSN sequence, in which virtually all the information available in the machine record is displayed in each printed entry; (b) a listing in alphabetical sequence of titles which is essentially identical to the Titles Index.

The full entry is placed in the ISSN list rather than the titles list in order that cross-references can be handled using only ISSN; this is done for the sake of compactness and to avoid ambiguities. It has the disadvantage that if the title is used as the initial lead-in, two searches are required to find the full entry; but thereafter any related entry can be found with a single search.

b) Medium

The Register appears both as a printed publication and on microfilm.

c) Frequency

Every two years

d) Data elements

The data elements required in an entry in the Register will be as follows:

Entry in the ISSN list:

All elements in the Level 3 record

Main entry in the titles list:

D11	'Key' title
D12	Added title words
D16	Abbreviated title
D3	ISSN

Cross-reference in the titles list:

D13	Alternative title (in 'key' form)
D11	'Key' title
D12	Added title words
D16	Abbreviated title
D3	ISSN

5.2.7 Classified Titles Index

a) Description

CTI is a rather broadly classified list, in which entries appear in alphabetical order of titles within each subject area, defined by the contents of data element D26. CTI can only be produced at Level 3.

It is felt that, if subject classification is included in the ISDS data base, it would be desirable to produce some form of classified list. CTI as proposed here is not the only way of doing so. An alternative might be to publish the Register as an ISSN list together with a classified titles list, rather than simply an alphabetical titles list.

b) Medium

CTI could appear both as a printed publication and on microfilm.

c) Frequency

Simultaneous with the publication of the Register.

d) Data elements

The data elements required in an entry in CTI might be as follows:

D26	Subject coverage
D11	'Key' title
D12	Added title words
D3	ISSN

5.2.8 New & Amended Titles

a) Description

N&AT is visualised as a regular bulletin noting additions and alterations to the file as soon as possible after they have occurred. It is arranged under broad subject headings, and in title sequence within subject. Provisional records should also be included, with special flagging.

b) Medium

Printed bulletin, or microfiche.

c) Frequency

Monthly?

d) Data elements

At whatever level the system was operated, N&AT should carry the maximum information available in the machine record.

5.2.9 Cumulated New Titles

a) Description

In the system operating at Level 3, CNT is a cumulation of new records and amendments since the latest edition of the Register. It is arranged in ISSN sequence.

b) Medium

Microfilm only.

c) Frequency

Irregular; simultaneous with issues of the Titles Index at Level 3.

d) Data elements

As for the Register.

5.2.10 Permuted Index

a) Description

Since minor variants of the title are not included in the machine record, and since librarians frequently have to work from fragmentary or inaccurate references, there might be some value in a Permuted Index based on titles. This would require careful study, but the ISSN file does present the possibility of a ready-made solution to some of the problems of keeping a permuted index down to reasonable proportions: the abbreviated title has, by definition, had most non-significant words removed. By using the abbreviated title and the full title together, it might be possible to create a manageable permuted index without having to apply other controls to the input data.

b) Medium

Microfilm only.

c) Frequency

If produced at all, it should be at fixed and relatively infrequent intervals; every two years?

d) Data elements

Only the following data elements would be required:

D11	'Key' title
D12	Added title words
D3	ISSN

5.2.11 Microform Reference File

a) Description

The MRF is used only at Level 2, as a means of recording full details of a periodical title without the expense of creating and maintaining a more extensive machine record.

Each entry in the file contains up to three frames: a facsimile of the cover page and of the title page, and a reproduction of a data sheet on which most of the elements of information listed in Appendix D are entered.

The MRF is issued in the form of an initial file and irregular supplements, whose timing depends solely on the growth of the ISDS data base. Records are entered in sequence of their accession, and no significance is attached to this sequence. No entry is ever deleted or amended (except that an entry found to be incorrect could be 'lost' by removing its address from the machine record). The only updating is by adding new entries to the end of the file; and a machine record may be lined to several entries in the microform file if the publication has undergone significant physical changes without change of title.

Access to an entry in the MRF is obtained from either the ISSN Index or the Titles Index.

b) Medium

16 mm roll microfilm

c) Frequency

The complete file to date is issued to a user when a subscription is entered, and supplementary reels of microfilm are added thereafter on an irregular basis.

5.3 Magnetic Tape Services

5.3.1 Description

It is envisaged that only one kind of regular magnetic tape service would be provided, although the supply of other tape files might be considered, so long as their true costs were taken into account.

At all levels of operation of the ISDS, the basic service will consist of:

a) The supply of a complete copy of the current master file, in ISSN sequence, as at the date on which a subscription starts.

b) A regular updating tape, also in ISSN sequence, containing new and amended entries. For simplicity, it is recommended that amendments should take the form of complete replacement at record level only. By definition, there is no such thing as deletion from the master file, except perhaps in order to correct a wrong assignment (for which, of course, provision must be made; but even in this case corrective action might involve inserting a cross-reference to the correct assignment rather than deleting the record). The periodic supply of complete up-to-date copies of the master file could also be offered at extra cost.

5.3.2 Medium

It is recommended that the medium should be industry-compatible 9-track magnetic tape recorded at 800 bits per inch in NRZI mode. For the foreseeable future, this is likely to be the most widely acceptable standard.

5.3.3 Format

The record format for exchange tapes could most reasonably be an implementation of the standard for bibliographic records which is currently proposed by the ANSI and BSI, and has been presented to ISO for consideration as an international standard. This standard is basically a generalisation of the Library of Congress MARC II record format.

5.3.4 Frequency

Monthly?

5.3.5 Data elements

All data elements present on the master file should be included in the tape service. The content is therefore solely dependent on which of the suggested Levels is in operation.

5.3.6 Specimen entries

See Appendix F for examples of records on the machine file.

5.4 Other products and services

5.4.1 Special printed products

a) Subset publications and lists "on demand"

Given the existence of the ISDS data base, it would be relatively easy to produce specialised listings, either as computer printouts, microfilm or printed publications. These could include subsets selected on a geographical, subject or language basis, for example.

b) Listings in non-roman alphabets

Since a code indicating the "alphabet of original title" has been suggested for inclusion as an element in the data base, it would be possible to produce separate indexes of serials with non-roman titles by a wholly or partly mechanised process: wholly mechanised, in the case of a major non-roman alphabet such as Cyrillic, where it should be feasible to encode the original title in the machine record at Level 3; partly mechanised with those alphabets which it is not feasible to encode. In the latter case, the ISDS data base could be used to select and print a list of all titles which use a particular alphabet (perhaps on to cards). The co-operation of the competent ISDS Local Centre or other organization could then be sought to supply the expertise required to add original titles and to order the index in the correct sequence.

5. .2 SDI and retrieval from the data base

Given an appropriate alerting bulletin (N&AT) and the wide availability of a variety of indexes, it is considered unlikely that in the short term there would be any justification for ISDS as such to provide SDI or retrieval services. Interrogation of a serials data base is much more likely to be required if the files include holdings data; and for the time being, this would probably best be organized on the basis of national or regional initiative.

5.4.3 Analyses

The ISDS data base clearly has considerable potential for the production of analyses of the serials population, and in particular for the analysis of changes in the population. An "ISDS Annual Report" carrying such analyses would be a valuable publication which might attract a wide circulation among libraries and other information centres.

5.4.4 Mailings

An important function of ISDS is the organization of mailings to serials publishers to promote the use of ISSN and to maintain the accuracy of the data base. The "mailing lists" embodied in the data base could also be used to promote bibliographic standards developed internationally by UNISIST or other relevant authorities. The lists, or special subsets of them, would also have a "commercial" value which could (if ISDS administrative policy allowed) be exploited as an additional source of revenue to support the system.

5.4.5 Design strategy

It is worth noting that the feasibility of any specialised by-products from the ISDS data base would depend to a large extent on the production costs involved. In establishing the files used in the system, it will be advisable to examine ways in which they can be constructed to embody an interface with standard computer software packages for report generation, retrieval, statistical analysis, etc.

CHAPTER 6: Structure of the International Serials Data System

6.1 General

The main organizational units in ISDS would be as follows:

a) The sponsoring agency (or agencies).

b) The International Centre, to maintain the ISDS data base.

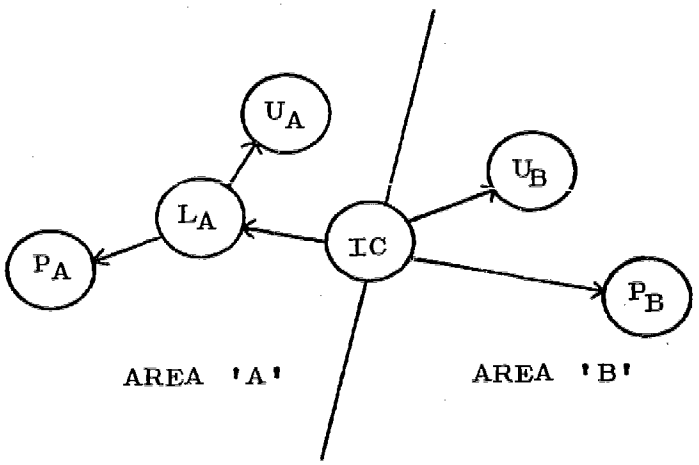
c) Local Centres.

d) 'User' organizations (libraries, information centres, abstracting services, etc.).

e) Publishers.

ISDS is envisaged as a network which would be highly flexible in operation. Local Centres may be based on individual countries, or on wider regional groupings. Some areas of the world may not be serviced by Local Centres, but directly from the International Centre; particularly during the early stages of establishing the network.

Basic information flow in the network is shown schematically below:

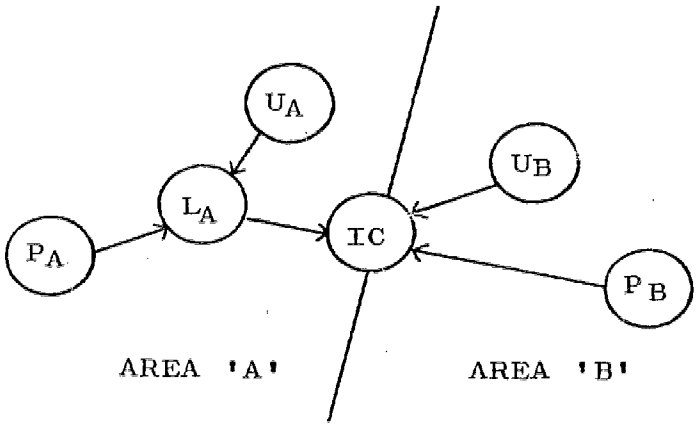


a) Outward distribution of information:

Area 'A' has a Local Centre LA, and users and publishers U_A and P_A.

Area 'B' has no Local Centre, but has users and publishers U_B and P_B.

Outward distribution from the International Centre 'IC' is strictly as shown.



b) Inward flow of information

Under the same conditions as shown in the first diagram, lines of communication inwards to the International Centre would be as shown. There would be sufficient flexibility to permit users in Area 'A' to communicate directly with the International Centre, but procedures would be so designed that it would usually be more efficient to pass through the Local Centre. It is likely that during the growth of ISDS towards more comprehensive subject coverage, there would be a number of major incremental steps based on requests for ISSN from an abstracting service or a large library. In such cases it would be desirable for the International Centre to have direct contact with the specialist user concerned.

6.2 Role of the Sponsoring Agencies

The role of the Sponsoring Agencies would include the following major functions:

a) To identify and appoint an international Steering Panel of experts which could exercise a broad policy control over the development and operation of ISDS.

b) Through this panel, to identify and to work with an appropriate centre which would undertake the maintenance of the ISDS data base and the assignment of ISSN, and act as the International Centre for ISDS.

c) To identify and enlist the co-operation of appropriate organizations to act as Local Centres on a world-wide basis.

d) To engage the co-operation of governmental or other agencies to ensure appropriate funding for Local Centres.

e) To ensure effective co-operation between ISDS, other elements of UNISIST, and other international bodies active in the field of documentation.

f) To assist in funding those aspects of the work carried out by the International Centre on behalf of ISDS which are not supported by revenue derived from the supply of publications and services.

6.3 Role of the International Centre

6.3.1 The International Centre as a functional unit is expected to be quite distinct from the Sponsoring Agencies. It is visualised as located in an organization which possesses a high level of expertise in the day-to-day handling of bibliographic problems, and which might have a contractual relationship with the Sponsoring Agencies.

6.3.2 The role of the International Centre would include the following major functions:

a) To carry out the final system design of ISDS and thereafter any maintenance and improvement of the system.

b) To create the initial data base.

c) To have sole responsibility for assigning International Standard Serial Numbers.

d) To maintain the data base and any associated microform files.

e) To produce and distribute all publications and other services, using the Local Centres as an exclusive distribution network wherever they exist.

f) To respond quickly and effectively to requests for ISSN assignment and notifications of title changes.

g) To produce, and distribute to Local Centres, notices to be sent to publishers to (a) inform them of ISSN assignments to their publications and (b) seek their co-operation in keeping the file up to date.

6.3.3 The International Centre would need to satisfy the Sponsoring Agencies and Steering Panel that it possessed, or had access to, expertise in:

a) Dealing with the practical problems of handling and cataloguing periodicals.

b) Computer systems design and operation.

c) Microform systems.

d) Production of printed publications.

6.4 Role of the Local Centres

6.4.1 The term Local Centre has been consistently applied throughout this report regardless of whether the region served by the centre is in fact a single country or a group of countries or any other geographical entity. The ISDS network would be completely flexible in this respect.

6.4.2 The role of a Local Centre would include the following functions:

a) To carry out data acquisition work within its region.

b) To distribute products and services within the region.

c) To receive requests for ISSN assignments, carry out initial processing, and submit them to the International Centre if no ISSN already exists.

d) To transmit notifications of ISSN assignment to the originator of the request and/or to the publisher of the periodical.

e) To maintain liaison with publishers with a view to encouraging the display of accurate, standardised title identification on their journals, and prompt notification of new titles or title changes.

f) To carry out local distribution of notices and collection of returns in periodic mailings to publishers, to check the accuracy of the file.

g) To provide special services based on the ISSN file, on strictly non-profit terms and subject to the approval of the Sponsoring Agencies. (It is envisaged that some Local Centres might wish to enrich the ISDS data base with additional information to permit its use for special applications.)

6.4.3 There is no reason to suppose that Local Centres should follow any standard pattern. At the simplest level, an effective centre would require:

a) part-time services of a staff member qualified and experienced in bibliographic work;

b) clerical and secretarial facilities, for mailing and receiving returns;

c) A reader for 16 mm roll microfilm.

These basic requirements may be augmented by Telex facilities, access to a computer system, and increased staffing in relation to the extent of periodical publishing and secondary information processing in the region or in relation to the extent to which the Local Centre may adopt a more active role in ISDS.

It is worth stressing, however, that the minimum requirements to ensure that a less developed region derives full benefit from ISDS are both inexpensive and, hopefully, fairly easily available within existing libraries in many parts of the world.

6.5 Users of ISDS

6.5.1 The relationship between users (here defined as excluding publishers, which are dealt with in 6.6) and the ISDS network is primarily through the Local Centres, who would act as non-profit-making agents and distributors for all publications and services and as the channel for requests to assign new ISSN.

6.5.2 A special relationship is envisaged with certain users, primarily abstracting organizations and large libraries or information centres, who could play a major part in initiating the system (see Chapter 8) and in expanding its subject coverage by a series of incremental steps based on user demand (see Chapter 9).

6.6 Relationship with publishers

6.6.1 During this study it has been suggested from a number of sources that one of the greatest benefits to be derived from the ISDS network would be a more speedy dissemination of information about new titles and changes to existing titles. In particular, science libraries often receive their first indication of the existence of a title when a scientist sends in a request for it. Frequently, the reference on which the request is based does not indicate where the title originates or how it can be obtained. In such cases it can be extremely difficult for the library to trace the item back to its publisher. Existing 'new titles' bulletins sometimes appear too late to solve this problem.

Every effort should therefore be made to ensure that periodical publishers are drawn into an awareness of and active participation in ISDS, so that eventually it may become normal for a publisher to inform his national or regional centre in advance of producing a new title or making changes to an existing one. (It must be recognised, however, that success in this area is likely to be confined to regular publishing organizations, and it may be difficult to achieve the co-operation of the small, informal group - such as a university faculty - which publishes a single title; these are often the titles which cause most problems to a librarian.)

6.6.2 The interaction of ISDS with periodical publishers should be in three areas. All liaison would be channelled through the Local Centre.

a) When a new ISSN is assigned the publisher might be asked to confirm or provide full information on the title concerned, if it is not physically available to the International Centre.

b) At the time of assignment he would, in any case, be requested to display a 'Title Identification Panel' (see 6.6.3) in an appropriate position in the journal and to use the ISSN and standard abbreviated title as elements in the running heads on each page.

c) Periodically, a mailing would be made to publishers in each region to ask them to check and update the ISDS records. This mailing would be produced by computer at the International Centre and distributed to individual publishers by the Local Centres.

Local Centres would be expected to seek funding for their own costs in support of ISDS. They would receive one copy of the basic publications and other products (for their own use) without payment.

6.6.3 The Title Identification Panel might include the following elements:

a) 'Key' title (i.e., transliterated into basic Roman).

b) Standard abbreviated title.

c) ISSN.

d) Country code.

In relation to other bibliographic standards which are being developed internationally at the present time, it might be possible, and would be very desirable, to extend the Title Identification Panel to include a standardised representation of the volume and issue numbers and date of issue which apply to the individual issue. This would be particularly valuable for library accession procedures.

Apart from the value of this identification to the library and information community, its gradual acceptance as a normal feature of a periodical title page might be the best means of making 'informal' publishers (of the kind referred to in 6.6.1) aware of the existence of ISSN, and of encouraging them to feed information to ISDS.

CHAPTER 7: Procedures for maintaining the ISDS data base

7.1 General

This chapter is intended to give an indication of the detailed procedural 'mechanics' that might be required for the assignment of ISSN and the maintenance of a serials data base, after the initial data base has been constructed and ISDS is properly in operation.

It is assumed that the main processes involved are as follows:

a) ISSN assignment in response to a user request.

b) ISSN assignment in response to advance notice of a new title, supplied by the publisher.

c) Updating the ISDS data base as a consequence of a and b.

d) A periodical mailing to publishers to check the up-to-dateness of the data base.

The production of specific printed or microfilmed lists is regarded as separate from the maintenance of the data base, but the processes involved are described briefly at the end of the chapter.

7.2 ISSN assignment in response to a user request

As indicated in the preceding chapter, a user request should normally be sent to the Local Centre responsible for the region in which the user is located, but the possibility of direct contact between users and the International Centre is not necessarily ruled out. Only the former case is here considered.

It is expected that all users would have copies of the most recent printed lists of ISSN; that a substantial minority of users would hold copies of microfilmed lists, which would be considerably more up-to-date; and that each Local Centre would have the most recent microfilmed list.

The procedure for ISSN assignment in response to a user request would then be as shown in the flowchart on page 7.3.

At step 1, requests would normally be made on a data sheet (see Appendix E), if possible supported by copies of the cover and title pages of the piece.

At step 3, requests could be sent to the International Centre by airmail except where the urgency justified the use of Telex - a charge which might reasonably be borne by the user.

At step 4, the International Centre must check its files of new assignments and amendments which have been made since the last

published (microfilm) list. It might be advisable at this stage for a double check to be made on the microfilm list as well, although it would have been searched by the Local Centre staff.

At step 8, the International Centre would have access to its own library holdings, as well as to the data supplied by the user, so that it is hoped that in a majority of cases steps 9, 10 and 11 would not be required.

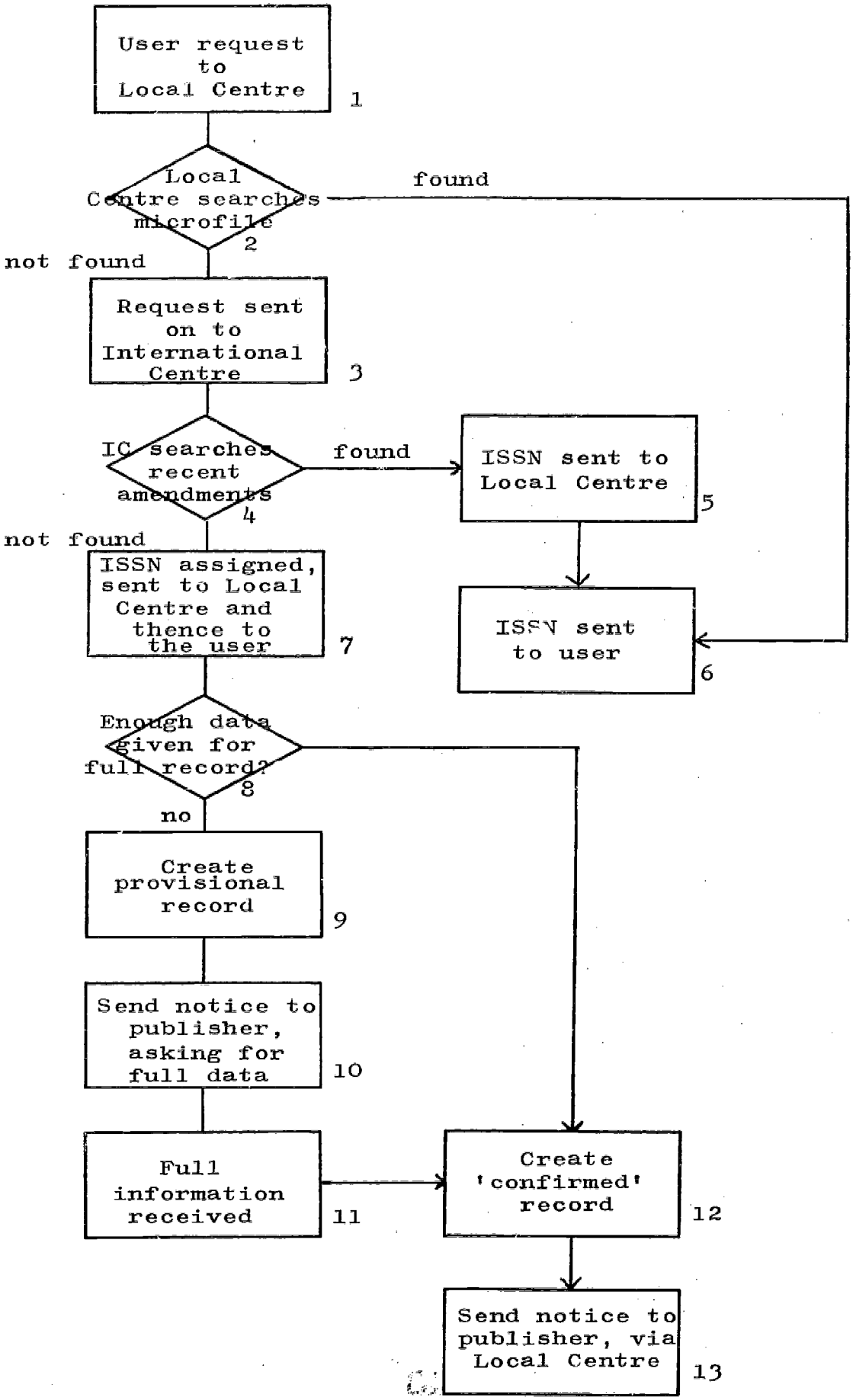
At step 10, communication with the publisher might be direct from the International Centre to save time, but at step 13 it would be desirable to pass through the Local Centre responsible for the region in which the publisher is located, since that Centre would subsequently have responsibility for maintaining liaison with the publisher.

7.3 ISSN assignment at publisher's request

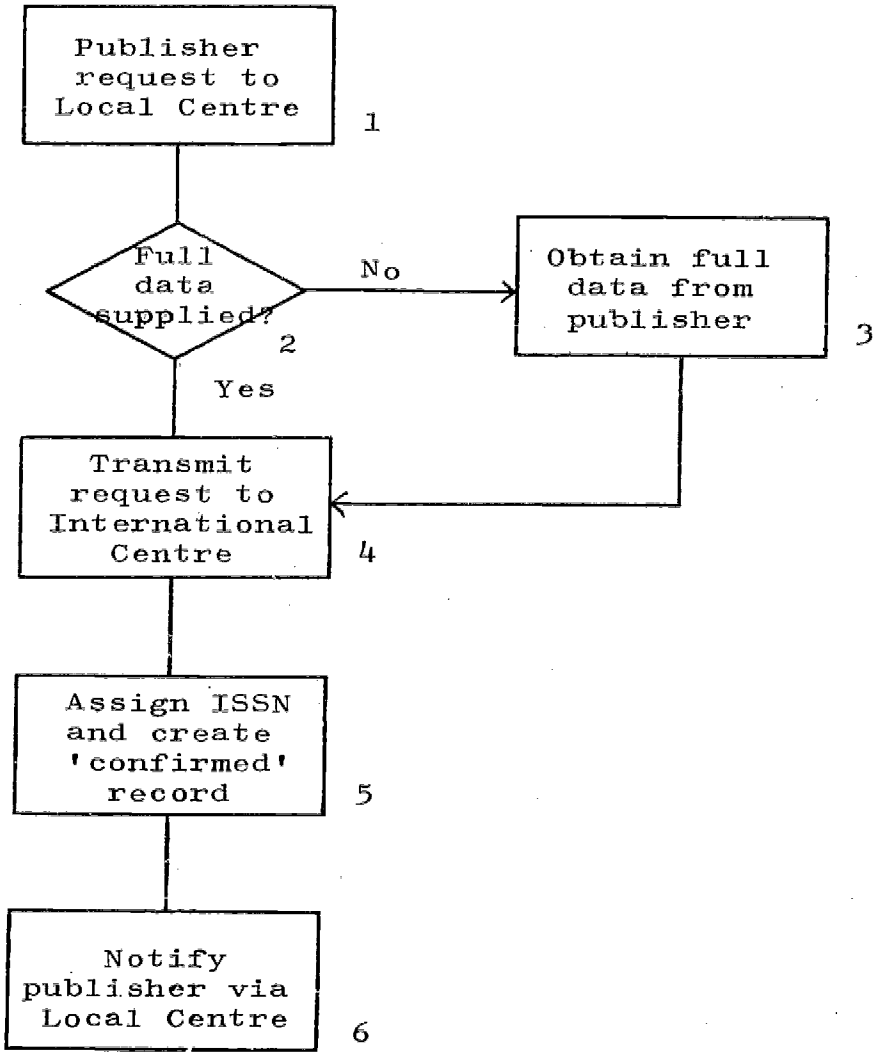
All requests from publishers for assignment of ISSN to a new or amended title should be processed via the appropriate Local Centre. Relations with primary publishers may be one of the problem areas for ISDS, particularly in respect of title changes. If a publisher has a journal on which he prints the ISSN, and the title is changed without any real discontinuity in form or contents, it will be difficult to ensure that the old ISSN is not perpetuated by default. This is an important argument for trying to persuade publishers to display an integrated 'Title Identification Panel' (see 6.6.3), including both the title and the ISSN, so that the panel must be updated if the title is changed.

The procedure for ISSN assignment at publisher's request would be as shown in the flowchart on page 7.4.

ISSN assignment in response to a user request



ISSN assignment at publisher's request



7.4 Updating the ISDS data base

7.4.1 Master file and amendment file

Probably the master file representing the ISDS data base would be a serial file held on magnetic tape. It would almost certainly be simpler and much cheaper to use microfilm files as the principal search tool, even at the International Centre.

The master file need be updated only at certain intervals, to be determined by the volume of additions and amendments to the system. It is suggested that at any point of time, the master file would represent the contents of the most recently published microfilm indexes, and that a separate amendment file would be maintained until it reached a size at which a master file update was required. It is this amendment file that the International Centre would need to search each time a request was received for ISSN assignment to an existing title, to ensure that no assignment had been made since the last published list.

Two alternative methods are suggested for the maintenance of the amendment file: by on-line keyboarding, and by manual filing of data sheets. It is not possible at this level of systems analysis to determine which would be most satisfactory and economic. The flowchart on pages 7.7 et seq., shows the two alternative approaches.

7.4.2 On-line file maintenance

It would be most attractive to maintain the current file of amendments and new records on direct-access storage in the context of an interactive computer system. In this case, a new title for which an ISSN was sought would be entered by on-line keyboard, and matched against the contents of the amendment file. The search strategy might involve displaying to the operator all titles with two or more 'significant' words in common with the new title. As a second check, a search might be carried out on the publisher's name, to eliminate the possibility of alternative forms of a single title being submitted from different sources.

If the new title had not already been assigned an ISSN, a full record could be created and validated at the console, and the ISSN assignment be made by the computer system. The notice to be sent to the publisher could be typed back from the computer on to the console, if a hard-copy device was used.

Periodically, the current file of amendments would be merged with the master file to create an updated master, at which point new lists would be published.

7.4.3 Manual file maintenance

The alternative would be to maintain current amendments in one or more manual files. Probably the principal file should be in title order, with a separate publisher file indexed to the main file. The same kinds of search as described in 7.4.2 would be carried out manually in order to check whether a new title had already been assigned an ISSN. Periodically, the amendments would be keypunched in order to update the master file.

The disadvantages of the manual system are as follows:

a) As the file of amendments grows, it would be much more difficult manually to check for alternative or inaccurate forms of a single title than by the on-line search procedure suggested above. However, a check on publishers' names should identify any such cases.

b) It may be necessary to keep multiple copies of the amendment record in order to maintain the publisher file and to ensure that when material is sent for keypunching a full record is still available for searching, so that the service of assigning new ISSN is not interrupted.

The only real argument in favour of a manual system would be one of cost, if it were in fact found to be significantly cheaper.

7.4.4 Publisher index

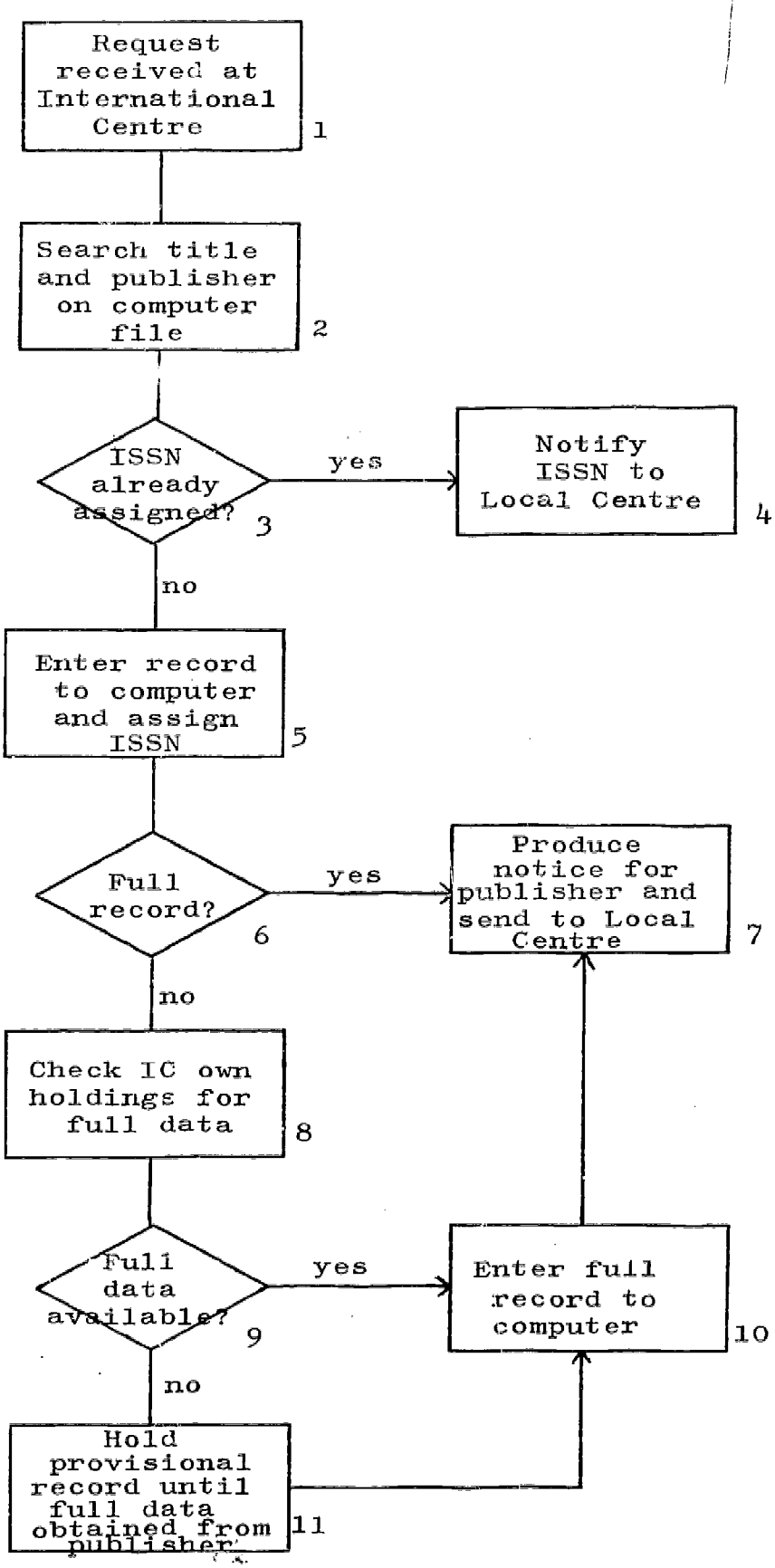
Although it may not be a general requirement for users of ISDS, it would be essential for the International Centre to produce for its own use an index of publishers represented in the data base, in order to check the consistency of names and addresses and to make it easily possible to enter changes of address, etc.

This index should be re-created each time the master file is updated, and would probably best be held for searching on microfilm. It is likely that there would be some demand for copies of such a file, either in machine-readable form or on microfilm.

It would also be desirable to consider introducing codes keyed to a separate publisher name and address file for at least a limited number of 'major' periodical publishers, to save space and input cost, and more importantly to ensure consistency and simplify the updating process.

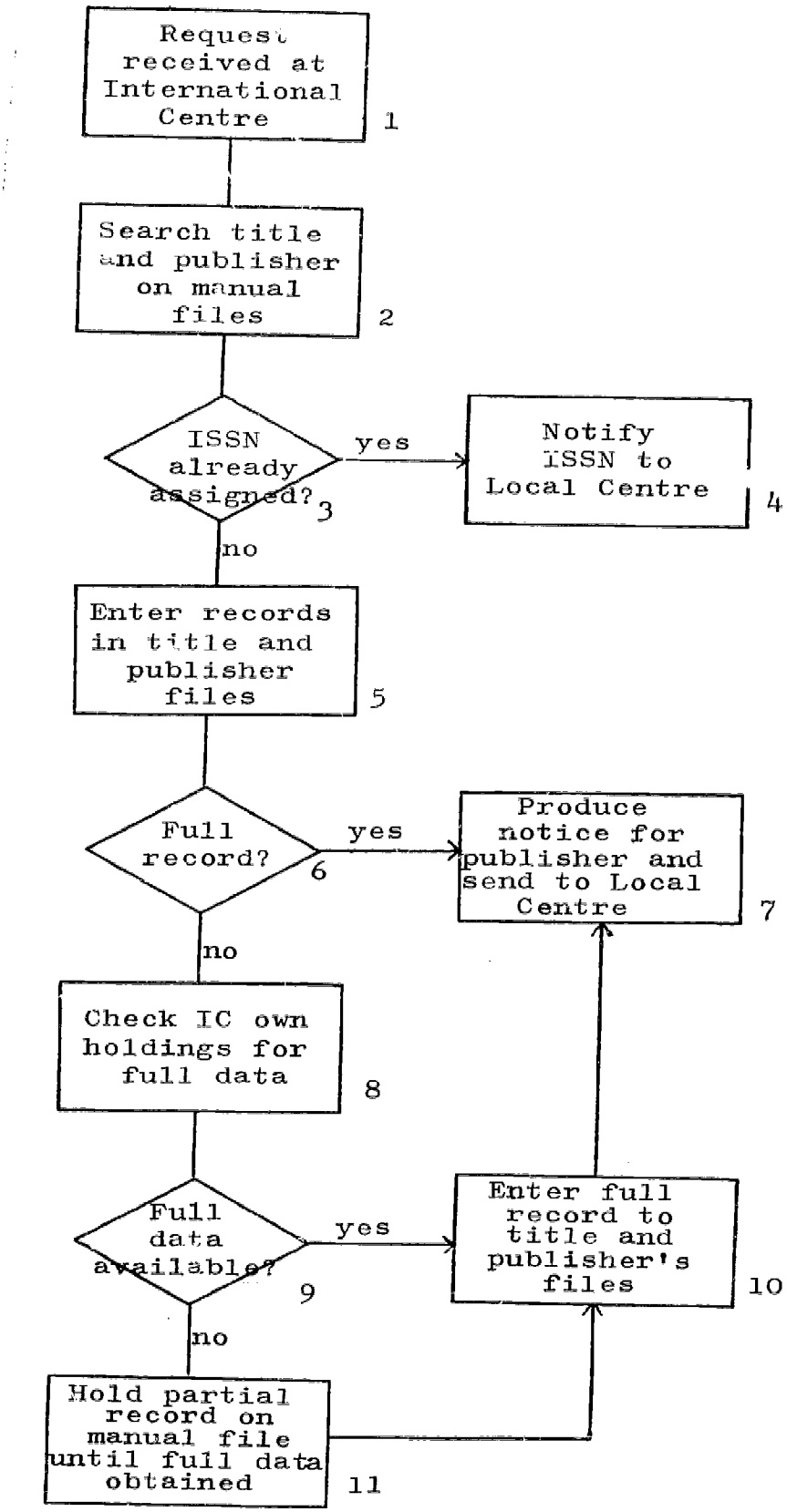
Maintenance of the ISDS data base - 1

On-linc amendments file

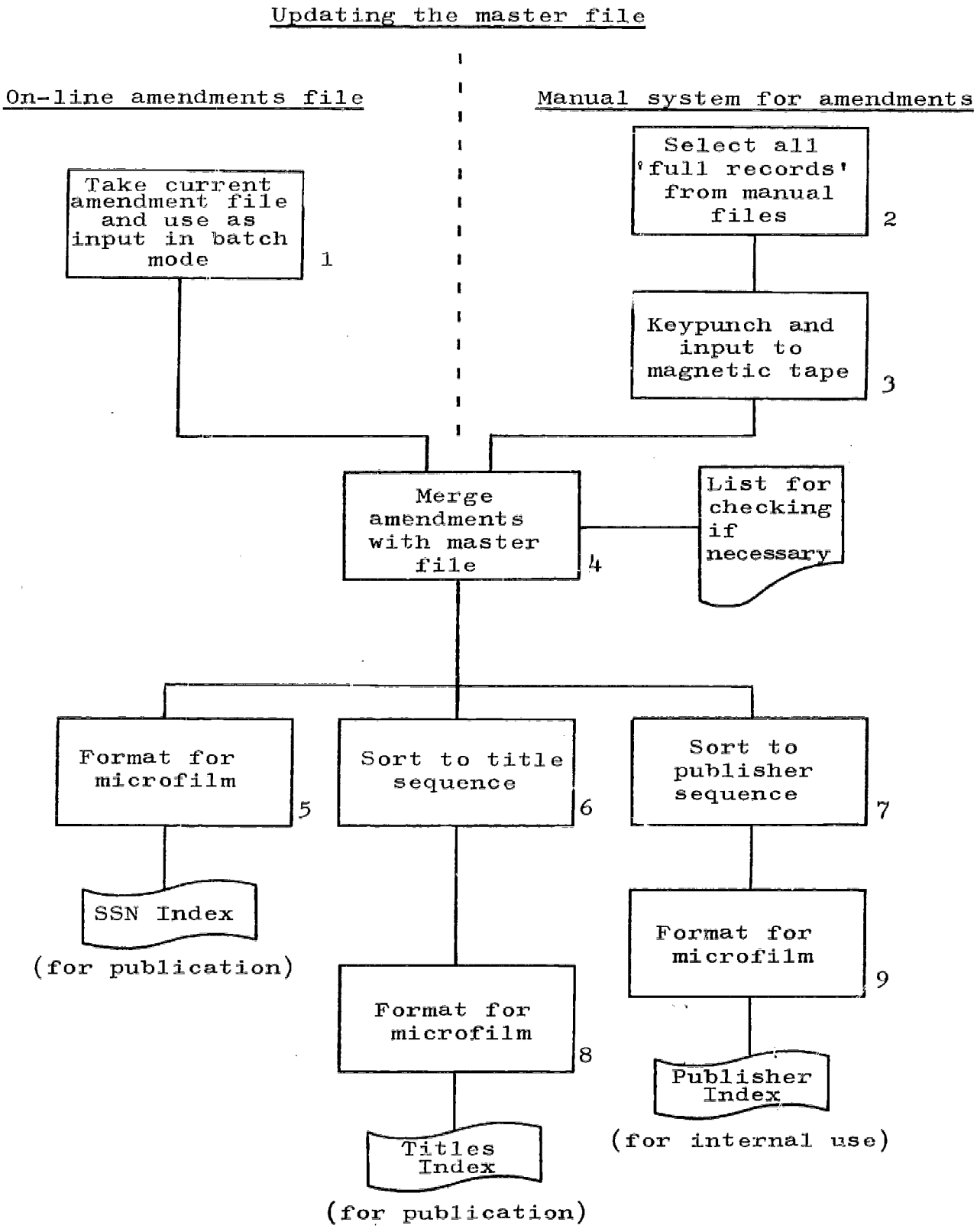


Maintenance of the ISDS data base - 2

Manual system for amendments



Maintenance of the ISDS data base - 3



7.5 Production of publications

The production of a printed or microfilm publication from the ISDS data base will typically involve the following stages:

a) Selection from the master file.

b) Sorting into the required sequence of entries.

c) Generation and/or checking of cross-references, if applicable.

d) Formatting for print or microfilm.

e) Production of film for platemaking and offset printing (via a high-speed magnetic tape driven filmsetter) or microfilm (via a magnetic tape driven microfilm recorder).

In connection with step d, there are now available a number of standard software systems related to particular filmsetters which will handle the conversion of a data file to a formatted print file.

For final output, basic microfilm recorders are the least expensive medium, but it should be borne in mind that certain high-speed filmsetters also have a microfilm facility. If a printed publication is to be produced in parallel with microform, it may be best to avoid repeating the formatting operation and take microfilm directly from the filmsetter.

CHAPTER 8: Establishment of ISDS

8.1 General

This chapter is to be read in association with the simple network diagram which appears at the end of the chapter, and which sets out what is considered to be a practical approach to the establishment of ISDS. It should be borne in mind that this is only one of a number of possible ways in which ISDS might come into operation, and in practice everything will depend on the selection of the International Centre.

The principle of this approach is that the first objective should be to set up a basic machine file of current titles in science, to be used to make a first block assignment of ISSN and to provide Local Centres with lists on which (where necessary) to base the acquisition of more complete and fully standardised information.

The advantages of the approach, as will be seen from the detailed description in subsequent sections of this chapter, are as follows:

a) ISDS can be 'open' and providing a real service before the process of initial data acquisition is complete.

b) Work on file building can begin before Local Centres have been identified.

c) Decisions on the level at which ISDS will operate in the short and long-term do not have to be made until some real 'field' experience has been gained.

Note that an essential pre-requisite for any activity beyond code A3 is that standards for transliteration, title-word abbreviation, country nodes, etc., should have been finalised.

8.2 Detailed description

In this section each activity in the network diagram is examined in detail, and is referred to by the codes used to label the nodes at the beginning and end of the activity. Note that in the diagram solid lines represent real activities; dotted lines are dummy activities indicating the interdependence of different parts of the work. Codes beginning with 'A', 'B' and 'C' indicate that the activity is the responsibility of the Sponsoring Agencies, the International Centre and the Local Centres respectively.

A1-A2: Identify Sponsoring Agencies and appoint Steering Panel

It is suggested that the first stage in the implementation of ISDS might be the appointment of an international Steering Panel composed of representatives of different kinds of user organisations, and other individuals with appropriate expertise in the bibliographic field. The function of the Steering Panel would be to advise on the overall policy of ISDS, as in the first instance to examine the possible choices for the location of the International Centre.

A2-A3: Appoint International Centre, and Co-ordinator

It is proposed that the Steering Panel should select and recommend the appointment of an appropriate organisation as the International Centre which would handle the assignment of ISSN, maintenance of machine file and production of publications and other services.

At the same time an individual with suitable qualifications and experience in serials handling should be appointed to act as the Co-ordinator of the activities of ISDS under the overall guidance of the Steering Panel.

A3-A4: Invite participation of major abstracting services.

It is proposed that the initial file should be based on (a) a comprehensive list of current scientific periodicals obtained from a major library or group of libraries; (b) lists obtained from as many science abstracting services as are willing to co-operate. List (a) would be used to create a file of Level 1 records including CODEN, title and publisher's name and address. From (b) a number of lists containing CODEN only would be created. These would be merged with list (a) and any records found to be not within (a) would be checked and completed by reference back to the list supplied by the abstracting service responsible.

Abstracting services would be asked in the first instance to supply a list of periodicals scanned (as at a specific date); they would be requested to assign CODEN before sending the list.

A3-A5: Identify and appoint Local Centres

The Sponsoring Agencies would be responsible for the appointment of Local Centres, working through governments, national and international standards organizations, or such other channels as might be appropriate. It is to be expected that many Local Centres would need to seek grant support from government agencies.

Activities B12-C1 and B12-B13 depend directly on the completion of this activity, although they can proceed effectively as soon as some Local Centres have been identified.

B1-B2: Obtain basic list

The basic list referred to as list (a) under activity A3-A4 above, would be developed by the International Centre. The essential characteristics of this list are that it should be confined as strictly as possible to current titles; it should be as comprehensive as possible in its coverage of scientific titles; it should contain most of all of the elements proposed for Level 1 (and must include publisher's name and address); it must be as reliable as possible. The size of such a list might amount to some 33,000 titles (the current level of receipts at the UK National Lending Library for Science and Technology).

B2-B5: Assign CODEN (to basic file)

The International Centre would be responsible for assigning CODEN to the basic list.

B1-B4: Place contract for initial file building

It is recommended that the initial data preparation and file creation might be best put out to contract to a suitable data-processing centre; it represents a one-time only load, of a kind which such centres are accustomed to handling. This course would free the International Centre's own computer staff to concentrate on preparations for the on-going system.

B5-B9: Convert basic file to machine-readable form.

B6-B7: Receive lists from abstracting services

Some of these might be already available in machine-readable form.

B7-B8: Convert resulting lists of CODEN to machine-readable form.

B9-B10: Merge files and investigate non-matching CODEN

Note that at this stage 'abstract service coverage' data can implicityly be entered into the file.

B10-B12: Assign initial block of ISSN to the completed file.

B1-B13: Final system design

During the process of file building described above, work would proceed in parallel on system design and programming for on-going operation of ISDS: file maintenance and production of various outputs. Activities B5-B9 and B7-B8 are dependent on at least part of the final system design having been completed.

B3-B11: Programming for ISDS operation

Activity B12-B13 depends on the completion of this activity.

B12-B13: Publish preliminary lists

These would take the form of a Titles Index and an ISSN Index, and would be made available strictly as provisional lists.

B13-B16: Network in partial operation

From this point on, ISDS can become an on-going operation, at least with regard to its primary objective: the assignment and maintenance of ISSN.

B12-C1: Distribute lists to Local Centres

At this point Local Centres will be asked to carry out, in respect of the initial set of titles, the tasks they would normally perform when new ISSN are assigned, and which are described in Chapter 7: namely, notification of publishers and collection of full data on any title for which adequate information is not available within the holdings of the International Centre. Before this activity can commence, the level at which ISDS is to operate for the time being must have been determined.

C1-C2: Notify publishers and obtain complete data

C2-B14: Return data to International Centre

B14-B15: Create augmented file

B15-B16: Produce first 'live' outputs

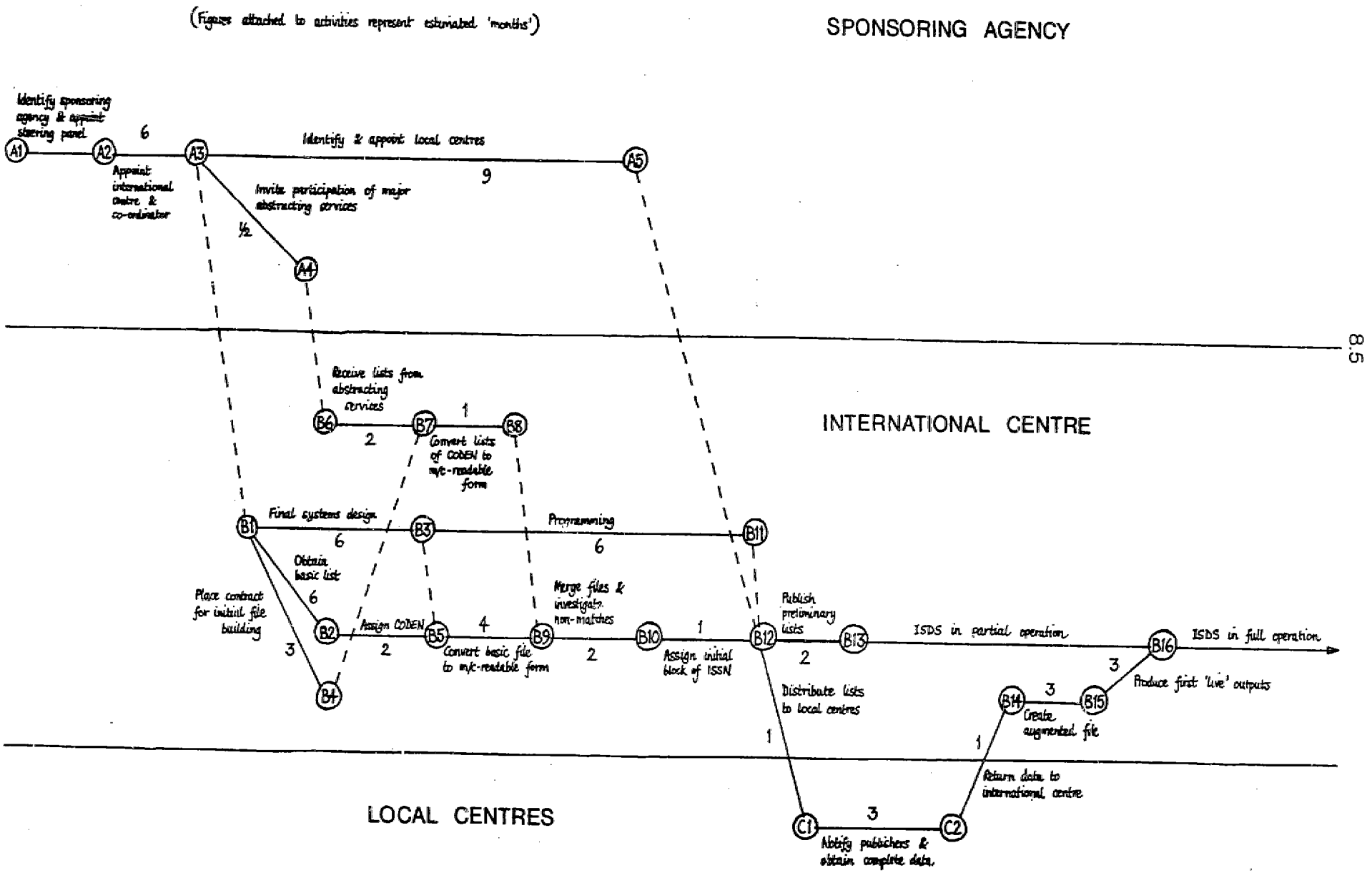
B16: ISDS in full operation

8.3 Suggested timescales

Any timescales suggested here must be taken only as an order of magnitude indication. It would be wrong to try to make firm estimates until the principal organizations who will be responsible for ISDS have been identified, and detailed planning has begun.

However, some approximate timings have been entered on the network diagram and the critical timings are as follows:

Availability of basic file with ISSN (B12):	21 months (ISDS in partial operation from here on)
ISDS in full operation (B16):	32 months


(Figures attached to activities represent estimated 'months')
SPONSORING AGENCY
Identify sponsoring agency & appoint steering panel
A1
6
A2
Appoint international centre & co-ordinator
A3
Identify & appoint local centres
9
A5
Invite participation of major abstracting services
½
A4
INTERNATIONAL CENTRE
Receive lists from abstracting services
B6
2
B7
1
B8
Convert lists of CODEN to m/c-readable form
Final systems design
B1
6
B3
Programming
6
B11
Obtain basic list
6
Place contract for initial file building
3
B4
B2
Assign CODEN
2
B5
4
Convert basic file to m/c-readable form
Merge files & investigate non-matches
2
B9
B10
1
Assign initial block of ISSN
B12
1
Publish preliminary lists
2
B13
ISDS in partial operation
B16
ISDS in full operation
3
Produce first 'live' outputs
B14
3
B15
Create augmented file
Distribute lists to local centres
1
1
Return data to international centre
LOCAL CENTRES
C1
3
C2
Notify publishers & obtain complete data

CHAPTER 9: Extension of coverage

9.1 The starting point

It is assumed that ISDS can be said to have commenced operation at the point in time at which an initial data base has been created, ISSN have been assigned, provisional indexes have been produced and distributed, and a referral centre for on-demand assignment of new ISSN has opened its doors.

There are rather good historical and practical reasons for supposing that the initial data base would carry primarily scientific and technological titles, since this has been the bias of both the CODEN system and the US National Serials Data Program pilot project, and since the large secondary information services in science and technology constitute the most coherent user group for ISDS, and perhaps the most advanced in the application of computer techniques in information work.

The basic premise of this chapter is that at a given point of time ISDS will start operation with an initial file which primarily consists of live scientific and technological serials. A policy, and practical guidelines related to available resources, will have to be laid down to govern the extension of the data base to other subject areas, and to retrospective coverage of dead titles.

9.2 Coverage of discontinued titles

It is axiomatic that once a record has been created and an ISSN assigned to a current title, the record will be preserved, and the ISSN will remain unalterably associated with that title, even after the serial has been discontinued or continued under another name. Thus, the ISDS data base will gradually become a historical as well as a current record of the world serials population. There is no question but that in this sense ISDS would cover discontinued titles. What might be in question is the policy to be adopted in respect of requests for ISSN assignment to titles which are already discontinued before ISDS comes into operation; those whose presence in the data base would be of strictly retrospective value.

It is not clear how large a demand there would be from users for this kind of 'historical' coverage. It is certain, however, that libraries would require codes for 'dead' titles in order to integrate record-keeping for their existing holdings with the systems used for processing newly-received material.

There are a number of alternative courses open for ISDS:

a) Exclude all titles which have been discontinued before ISDS begins operation.

b) Accept demands from users for retrospective assignment, and process, create records, and make entries in ISDS publications exactly as for 'live' titles.

c) Accept demands for retrospective assignment, but process them somewhat differently, e.g., by assigning ISSN from a reserved series, creating only a skeleton record, and excluding it from some or all of the publications.

As long as the volume of retrospective assignments is small, it is probably easiest not to differentiate between current and discontinued titles; but it will be important not to increase the cost of ISDS products by the inclusion of material of rather low usefulness.

It is therefore recommended that:

a) ISDS should accept requests for ISSN assignment to discontinued titles;

b) such assignments should be treated exactly as if they were current assignments, except that certain data elements could be regarded as optional, if they cannot easily be obtained;

c) consideration should be given to the possible exclusion of 'dead' titles from some or all of the publications, or the production of a separate, less frequent list;

d) consideration should also be given to the possibility that, if charges are made by ISDS, the user might be charged at a higher rate for ISSN assignment to a discontinued title, on the grounds that the value of the assignment for other users is likely to be lower than with current titles.

9.3 Subject coverage

As already suggested in 2.5 above, it is essential that the subject scope of ISDS should be fully comprehensive, from the earliest possible date.

In principle, the strictly planned progression from one subject area to another which was envisaged in the original terms of reference is not considered to be the most desirable approach.

Assuming that the ISDS data base is maintained at one of the world's major serials libraries, the receipts of that library will form the basis for much of the file building and allocation of ISSN. Within that context, there will have to be a planned programme of work over a period of several years, which might best be based on subject areas. During this period, however, it is considered indispensable that the ISDS International Centre should be prepared to accept and process user requests for the assignment of ISSN to titles which are not within the subset which has already been dealt with. In other words, there must from a very early stage be two parallel and interacting processes of code assignment and data recording; one aimed at broadening the scope of the main data base, and the other designed to meet the immediate and continuing demands of the user community. The ISDS International Centre may be able to

control the latter to some extent by making arrangements with major abstracting services, special libraries, etc., to phase the extension of the data base to the subject areas of interest to them; but it is important that, within the limits of resources, the use of ISSN should not be hindered by undue constraints on coverage.

CHAPTER 10: Costs, funding and pricing

10.1 General

Against a background of so much uncertainty about the form and organization of an International Serials Data System, and in a limited study such as this, it is not possible to do more than examine the likely costs of certain aspects of the system, and to offer some general guidelines as to how they might be shared. The figures given in this chapter must be treated with considerable caution, but it is believed that they represent a reasonable 'order of magnitude' indication of the cost of ISDS as it has been outlined in this report. Staff costs are assessed at European rather than US levels.

The version of ISDS which has been assumed here is one in which the file is created and maintained at Level 1 (see 4.3), which represents a formalization of the data elements recorded for the present CODEN file, with the addition of alternative titles, standard abbreviated titles, and the publisher's name and address in full. It is further assumed that the basic products of the system are a printed Titles Index and ISSN Index (see 5.2.4 and 5.2.5), produced biennially, together with microfilm editions of the same indexes produced quarterly.

This may reasonably be regarded as a 'bare minimum' system.

The following cost areas are treated below:

a) Establishment of an initial file of some 33-35,000 titles, as described in Chapter 8

b) Annual operating costs of the International Centre

c) Annual operating costs of a Local Centre

d) Production costs for printed indexes

e) Production costs for microfilmed indexes

f) Production costs for magnetic tape services

10.2 Cost of establishing an initial ISDS data base

This is estimated at between $155,000 and $181,000, spread over 2-2½ years.

The components of this figure are as follows:

a) Preparation of accurate, professionally vetted records ready for computer input: 20-30 minutes staff time per title: 12,000-17,000 hours, or 7-10 man-years -

$42,000-$60,000, including overheads

b) Costs of keyboarding and computer input, estimated at approximately $1 per record -

$33,000-$35,000

c) Systems design and computer programming, plus cost of computer time for development work and initial operational runs: 3-4 man-years -

$39,000-$47,000, including overheads

d) Management costs, including meetings of a Steering Panel -

$24,000

e) Other costs (travel, promotion, miscellaneous) -

$15,000

No component is included for the procurement of basic lists from abstracting services and other sources; it is assumed that these could be made available without cost to ISDS.

10.3 Annual operating costs of the International Centre

The annual operating costs of the International Centre are estimated to lie between $57,000 and $65,000.

The components of this figure are as follows:

Management (part-time 2 full-time professionals 2 full-time clerical staff 1 half-time computer programmer/analyst	$30,000-$35,000, including overheads
Computer usage for file maintenance	$12,000-$15,000
Annual meeting of Steering Panel	$5,000
Other costs	$10,000

These do not include any part of the production costs of published lists, which are treated separately below.

10.4 Annual operating costs of a Local Centre

The annual operating costs of a Local Centre are estimated at about $6,400.

The components of this figure are as follows:

¼-time professional	$1,800 (including overheads)
½-time clerical	$2,200 (" ")
Other costs	$2,400

10.5 Production costs for printed indexes

The production cost of a printed Titles Index (see 5.2.4) is estimated at between $9,600 and $12,000, for a print run of 3,000 to 4,000 copies.

The corresponding cost for a printed ISSN Index (see 5.2.5) is between $26,000 and $31,000.

These figures assume an A4 page, some 50,000 entries in each index, and double-column 7-point setting, to produce a Titles Index of some 300 pages and an SSN Index of about 1,000 pages.

10.6 Production costs for microfilmed indexes

The production cost of a microfilm master of the Titles Index is estimated at approximately $850; this would represent a single microfilm reel with a copying cost of some $6-$8.

The production cost of a microfilm master of the ISSN Index is approximately $1,300; this would represent two reels of microfilm with a copying cost of $12-$16.

(These figures are for computer output on to microfilm, via a service bureau. One page of typeset text for the printed indexes might require 3-4 frames on computer-produced microfilm.)

10.7 Production costs for magnetic tape services

Production of a copy tape of the main file, plus the tape reels and postage, would cost something of the order of $200. The marginal cost of quarterly updates, per subscriber, might be $250-$300 per year.

10.8 Consolidated costs and revenues of ISDS

The consolidated costs of ISDS, ignoring Local Centres, might therefore be as follows:

Initial set-up costs:	$175,000

These could be spread over some ten years, at (say) $20,000 per year

Consolidated annual costs:

Annual operating costs	$61,000
" publishing costs*	$19,000
" microfilm costs**	$12,600
" tape service costs***	$6,000
	$98,600

*One half of an estimated biennial printing cost of $38,000 (see 10.5)

**Assuming 50 copies produced, 20 of which are for free distribution to Local Centres

***Assuming 20 magnetic tape subscribers, including two new subscribers

Adding in a component of the initial set-up cost, these figures represent a total consolidated annual cost of about $118,600.

Revenues would be obtained from the sale of publications, microfilm indexes and magnetic tapes.

At price levels which are not unreasonable for the products involved, annual revenues might be as follows:

1,800* copies of printed indexes @ $60	$108,000
30 subscriptions to microfilm indexes @ $150	4,500
20 subscriptions to magnetic tapes @ $750	15,000
	$127,500

*assuming 3,600 sold over two years out of a biennial edition of 4,000

These figures seem to suggest that ISDS could be self-supporting, but a much deeper analysis would be needed to determine whether they are fully realistic. It must also be recognized that a major component has been omitted from the publications costs: namely, distribution and retail margins. The best conclusion that can be drawn at this stage is that, ignoring Local Centres, it is at least not impossible that an International Serials Data System might be able to cover its costs by sales of products and services.

Additional products could contribute further to ISDS revenue; and it should also be borne in mind that if ISSN were accepted universally as the basis for journal identification, the indexes might become mass circulation publications, held by every significant library, and thus could be produced at a much lower cost. It might be sound policy to bear a loss on the production of these indexes during the early years of the system in order to promote their wider acceptance and use.

10.9 Funding

In spite of the surprisingly encouraging figures suggested above, it is apparent that a substantial risk investment would have to be made in establishing an ISDS. It would be essential that both International and Local Centres should be underwritten by appropriate funding agencies, although over a period of time the amounts actually paid to ISDS might become very small, or non-existent.

The following are suggested as possible principles for financing ISDS:

a) That Local Centres be regarded as self-financing, and that appropriate agencies in the countries or regions concerned should take responsibility for underwriting them.

b) That no payment be made to the International Centre for products required by a Local Centre for its own internal use (i.e., one copy of each issue of the microfilm indexes, and perhaps two copies of the

printed indexes. In 10.8 above it has been assumed that 20 copies of each microfilm index are distributed free of charge to Local Centres). Probably in the long run this number would increase substantially.)

c) That no charge be made to a user or to a publisher for the supply of a new ISSN. This is contrary to CODEN policy, but is considered important to the growth and acceptance of ISSN, especially in relation to publishers.

d) That a search charge be made to users in respect of any request for ISSN which is met by scanning current published lists. The charge should be at such a level that it quickly becomes more economic for the user to purchase his own copies of the lists.

e) That the only transfer of funds between Local and International Centres should be in respect of publications sold by Local Centres as agents for ISDS (but in practice it might be more efficient for printed publications to be distributed through normal bookselling outlets; and microfilm and tapes should almost certainly be distributed direct from the International Centre to users).

f) That the International Centre be underwritten by appropriate international agencies. The initial set-up costs might be the subject of a grant, or a loan repayable in proportion to surpluses achieved in subsequent years, or as a combination of these. It might, for example, be reasonable for system development costs to be paid for by grant (approximately $70,000) and for other set-up costs ($105,000) to be regarded as an investment in the data base, to be repaid.

g) Overall, ISDS should be operated on a non-profit basis, and if in fact surpluses were achieved at the International Centre, ISDS could take over the financing of Local Centres from national agencies.

CHAPTER 11: Conclusions and recommendations

11.1 General

It has been extraordinarily difficult to draw together the conclusions of this study into a coherent picture. What began as a system study on the maintenance of a serials data base, with the implicit assumption that UNISIST or another appropriate international organization should develop and implement the system if it was proved feasible, has turned increasingly into an attempt to unravel and summarise the various activities that are already going on in this area and to suggest what steps the UNISIST/ICSU AB Working Group on Bibliographic Descriptions might recommend.

11.2 Summary of present position

The present position may be summarised as follows:

The ASTM CODEN system is in existence as an on-going system with some 120,000 titles already encoded. It has strong support from secondary information services, but has not found favour with large sectors of the library community. Its present files constitute an excellent register of titles and codes, but do not really form a serials data base capable of significant manipulation in a computer system. In some quarters, the alphabetic format of CODEN is regarded as less satisfactory for an international serial title identification.

The ANSI Committee Z39 has proposed an eight-digit Standard Serial Number, probably to be maintained by the Library of Congress. The draft standard is expected to win approval in the very near future. There seems to be some indication that funding will be available from the summer of 1970 for the standard to be applied, but this is by no means certain. The assignment of SSN would be closely linked with the National Serials Data Program pilot project and its extension towards an on-going system. It is not clear to what extent the procedure for assigning SSN at Library of Congress would meet the needs of the user community at large, by providing for SSN assignment in response to user request.

The ANSI draft standard has been laid before ISO TC46, and Working Group 1, which was responsible for the development of the International Standard Book Number, has been charged with examining it. A meeting will be held in Oslo on 22nd - 24th June 1970. The secretariat of this Working Group is held by the United Kingdom, and a new panel of the British Standards Institute is preparing for the meeting and developing a UK position: no doubt, other national standards bodies are similarly concerned.

In this national and international standards activity, it appears that most attention has been devoted to the form of

the code required for serial identification, and very little to the implications of the way in which it is assigned and maintained, and the need for effective distribution and active promotion, particularly with publishers.

11.3 Definition of ISDS

The name 'International Serials Data System' has been used throughout this report to represent a concept which has three essential components:

a) Machinery for the assignment and maintenance of an International Standard Serial Number.

b) The maintenance of a serials data base.

c) Machinery (an international network) for the collection and dissemination of serials data and the promotion of the ISSN and related bibliographic standards.

11.4 Conclusions and recommendations

11.4.1 Against this background, our conclusions and recommendations regarding the basic principles of an International Serials Data System may be summarised as follows:

a) An International Serials Data System is technically feasible. It is likely also to be expensive to establish and maintain, but the value of such a system would justify the anticipated level of cost.

b) The maintenance of the serials data base and the assignment of ISSN should be performed by a single international centre, having the capabilities described in 6.3, and preferably based on one of the world's major libraries, but with a real commitment to the international sponsorship of the system, and to satisfying the needs of all kinds of users.

c) The International Centre should be supported by a network of Local Centres, to promote ISDS, to handle requests for code assignment, and to liaise with the publishers of serials in each region.

d) One of the major functions of ISDS should be to promote the use of ISSN by primary publishers. A standard Title Identification Panel (or 'bibliographic strip') could be adopted, to include the ISSN and 'key' forms of the title and abbreviated title, and to be displayed on periodical covers and/or title pages (see 6.6).

e) The ISDS network should include the participation of national and international bodies which are already active in bibliographic standards work, so that the network can be used to promote agreed International Standards, particularly with primary publishers.

(Examples of specific areas where ISDS should have an important part to play in promoting standards other than the ISSN itself are:

i) standards for periodical title-word abbreviations. The Clearinghouse for Periodical Title-Word Abbreviations which has been established by ANSI Committee Z39, and which is already working with UNISIST to develop an internationally acceptable list, should at the very least be an important node in the ISDS network. The ISDS International Centre would have responsibility for applying the standard to individual titles, in creating records for the data base. It might even be appropriate and more efficient for the maintenance of this standard to be vested in the same organization as is responsible for maintaining ISSN, but this is a matter for the authorities concerned;

ii) standards for citing periodical contributions (volume and issue numbers, etc.);

iii) a standard document identification code. Several proposals are now being made for a structured code (including ISSN or its equivalent) to provide unique identification of a periodical contribution.

Obviously, there are many other areas where the existence of the ISDS network, with mailing capabilities and local participation, could be exploited in support of bibliographic standards.)

f) In general, it is essential to ensure that whatever emerges from the present standards efforts is really acceptable to the international community, and that the machinery for the maintenance of ISSN will serve the interests of all classes of user.

11.4.2 In this context, the most significant contribution that UNISIST can make may be in developing and promoting the network concept in support of ISSN and an internationally sponsored serials data base. We therefore recommend that:

a) UNISIST should lend its full support to efforts to develop an International Standard Serial Number.

b) This support should be conditional upon the arrangements for maintaining and promoting ISSN, which must be such as to ensure the satisfaction of the international user community.

c) UNISIST should support the development of an internationally sponsored serials data base, used not only for the maintenance of ISSN but also for the provision of a variety of bibliographic reference publications and machine-readable serials files.

d) That the organizations participating in UNISIST should seek actively to develop an ISDS network, in co-operation with standards organizations and other interested centres, to provide the support and communications which are needed to satisfy b above.

Report on the feasibility of an
International Serials Data System

APPENDICES

APPENDIX A: Survey of existing systems

A1 General

During recent years a quite large number of organizations have developed serials data bases in machine-readable form. These have been constructed usually with one of three applications in mind: to develop machine-based union lists of library holdings, to control acquisitions in a single library, or to record the serials coverage of a secondary information service. This last application has been extended to combine the control of acquisitions with the production of a holdings list, providing the user of a secondary information service with a guide to where he can find the source literature.

Only one sustained endeavour has been made to provide a serials code for general use, in the ASTM CODEN system. A major proposal has been made in the United States for a National Serials Data Program (NSDP), with which has been associated a proposed US Standard for a new serials code. These two systems have been studied with particular attention in the present study, and the Chemical Abstracts Service ACCESS file has also been examined as probably the best example of a more specialized and more complex data base which is already in operational use.

A2 ASTM CODEN

The use of a four-letter, partly mnemonic, code as an identification for a serial title in a bibliographic reference was proposed in 1953 by Dr.Charles Bishop [7], who developed an initial list of some 3,000 codes of this form. In 1961 the American Society for Testing and Materials (ASTM) assumed responsibility for CODEN, and a first edition of CODEN for Periodical Titles was published in 1963, containing 18,561 titles. A supplement was published in 1964, covering an additional 6,534 titles; and in 1966 the second (and current) edition of CODEN for Periodical Titles [8] appeared, listing 38,993 titles, and produced from a punched card file by IBM 1401 computer. Supplements published in 1968 [9] and 1969 [10] have added 24,877 and 22,544 to the published lists, and it is planned to produce a third edition of the master list during 1970, by which time total coverage is estimated to reach about 120,000 titles. Of these, some 7,000 are non-periodical titles.

The growth of CODEN has developed in two modes. The operating centre, first at Wyandotte Chemical Corporation (1961-67) and subsequently under contract at the Franklin

Institute, has acted as an open enquiry centre, assigning codes on demand to titles submitted by users, and charging at a rate of $3 for the first title and 50¢ for each subsequent title presented at the same time. In parallel with this process, and with funding both from ASTM and from the US National Science Foundation, the centre has regularly scanned New Serial Titles (published by the Library of Congress) and added those titles which carry Dewey Decimal numbers in the 500 and 600 series, together with titles in such fields as psychiatry, cybernetics, agricultural economics, etc., which relate closely to the pure and applied sciences. Within the terms of the funding agencies, the CODEN system has not in general been extended over the social sciences and humanities. On-demand assignments and regular scanning have each produced of the order of 350 new titles per month in recent months.

As CODEN grew, it became apparent that a four-letter code was inadequate, and a fifth letter was added. All existing codes were assigned the fifth letter 'A', and the system has since been extended into the 'B' series and (occasionally) beyond. Inevitably, the value of mnemonic relationships between title and CODEN has diminished. For machine systems, a (sixth) check character may be added.

CODEN assignments are recorded at the Franklin Institute in punched card files which are maintained by hand in both title and CODEN sequences [11]. The only data element which is always recorded is the title. The city of publication is added where available. The dates of publication are (very infrequently) used to distinguish between two similar journals. Cross-references are included to related titles (predecessors, successors, other language editions, supplements, etc.). These cross-references are added somewhat informally, but would be capable of machine analysis since only a limited set of relational terms is used. In general, however, the file has been developed only as a means of recording the relationship between CODEN and titles, and not as a serials data base for machine processing.

During the earlier years of the CODEN system, the only source of code assignment was from user requests, which frequently did not include adequate information to unambiguously identify the journal in question. Because there was little or no bibliographic checking of these assignments, the first published lists contained many errors and duplications, and the reputation of CODEN suffered heavily in the library field. More recently, proper bibliographic controls have been applied to new assignments, and existing entries have been methodically rechecked, so that earlier criticisms are no longer justified.

The main users of CODEN have been the large secondary information services, such as Chemical Abstracts Service, Nuclear Science Abstracts, Biological Abstracts, etc.

However, some 109 organizations are listed as having originated requests for new CODEN, and over 800 have purchased CODEN publications.

Currently, the future of CODEN is not altogether clear. A revised and integrated list will be published in 1970. The NSF grant period has ended, and funds will apparently no longer permit active scanning for new titles. Franklin Institute, however, will continue to provide a service on behalf of ASTM in response to user requests.

ANSI Committee Z39, which has prepared recommendations for a standard serial number, considered CODEN, but decided not to adopt the system as the basis for a national standard. In the event of the new standard being implemented, it is hard to see what independent role CODEN can play, although many existing users will be very reluctant to change.

A3 US National Serials Data Program

A National Serials Data Program (NSDP) was first proposed within COSATI in 1964 and was the subject of a feasibility study carried out by consultants in 1965, under contract to the National Science Foundation. In 1967, the three US National Libraries (Library of Congress, National Library of Medicine and National Agricultural Library) established a joint Task Force to develop a common approach to library automation. One of the goals stated at that time was 'the development of a national data bank of machine-readable information relating to the location of hundreds of thousands of serial titles held by American research libraries' [12].

Phase I of the National Serials Data Program was concerned with the exploration and definition of the set of data elements required for serials records. This was completed by the beginning of 1969. The proposed record is both complex and comprehensive, having some 36 fixed fields and 85 variable field types. It is designed to provide a very complete cataloguing record, together with holdings data.

Costs of NSDP for an initial ten-year period were estimated to vary between $20 million and $40 million, depending on the subset of data elements which was eventually chosen, and assuming a data base of 225,000 titles, to cover all current receipts at the National Libraries

Phase II of the program is taking the form of a pilot project which is being administered by the Association of Research Libraries, with funding from the National Agricultural Library. The immediate objectives of the pilot project are:

a) to create a machine-readable file of live serial titles in science and technology which are currently received at the National Libraries

b) to produce a union list and other preliminary listings

c) to report on the practical problems encountered and develop recommendations for growth of the system.

The initial file has been based on the National Science Library of Canada's Union List and the list of serials scanned for Index Medicus. These are being used to produce a check list of scientific titles which the libraries will be asked to use as the basis for providing data on their holdings. The result is not claimed to be a comprehensive list of scientific serials received at the libraries, nor will all the proposed data elements for NSDP be entered, but the MARC format for serials which has been developed in parallel with Phase I of NSDP will be used.

There has been a close connection between NSDP and the development of a US Standard Serial Number, which was initiated at the request of the National Libraries Task Force. It is envisaged that SSN may be applied to the preliminary file as part of the pilot project.

Phase II - the pilot project - is scheduled to be completed by September 1970. Nevertheless, it is still not at all clear what will be the immediate and long-term future of NSDP.

A4 Chemical Abstracts Service 'ACCESS' system

The 'ACCESS' file and the publications derived from it [137] were developed by the Library at Chemical Abstracts Service in order to produce a data base covering serial titles which have been or are scanned for Chemical Abstracts together with monographs in the same field. The file records not only detailed cataloguing data (including CODEN and standard abbreviated titles) but also holdings information for some 400 libraries, primarily in the USA but including many major libraries throughout the world.

ACCESS is published both as a printed publication, with quarterly supplements, and on magnetic tape. The publication includes a number of indexes, e.g., by publishers, by libraries and by abbreviated titles.

The set of data elements used in ACCESS is in many respects similar in scope to that proposed for NSDP, but different in detail. Over 100 field types are used. The coverage of the file includes some 10,000 current serials, some 5,000 serial titles which are now defunct and approximately 4,500 monographs (principally volumes of papers presented at scientific and technical meetings).

APPENDIX B: Assessing the size and movement of the serials population

B1 General

It is extremely difficult to obtain meaningful figures on the size and movement of the world population of serial titles. It has obviously not been possible within the scope of a study such as this to attempt any new work on this problem, but from a literature search and discussions with various organizations some interesting but somewhat unrelated figures have been obtained. These are here presented as a basis for estimating the likely size of an ISDS data base.

B2 CODEN

The number of titles to which CODEN have been assigned now stands at around 120,000. It is not known what percentage of these are live titles.

B3 US National Libraries

For the US National Serials Data Project, it was estimated that the total number of currently published serials received at the three National Libraries was 225,000. The number of new titles per year was about 15,000 and the number of discontinued titles about 7,500, giving a net growth of 7,500 per year (3.3%).

More recently, the Library of Congress estimated that of 318,000 'check-in' records, about 200,000 were no longer current, leaving a total of 118,000 currently received titles. This suggests that the combined figure of 225,000 is over-generous.

B4 UK National Lending Library for Science and Technology (NLL)

The NLL attempts to be fully comprehensive in its coverage of live titles in science and technology and some areas of social science. Its total receipts in 1969 were about 33,000 titles. A paper by Barr [14] puts forward convincing arguments for regarding the NLL list as a reliable pointer to the size of the current population in its subject field. His figures also show the mortality rate for the years 1963-65 to have been about 3% per annum, which is consistent with the NSDP estimate quoted above. No conclusions can be drawn from Barr's figures as regards the growth of the literature, since NLL was steadily increasing its coverage during the years concerned.

B5 Overlap between CAS 'ACCESS' and other disciplines

A study by J.L.Wood [15] of the CAS 'ACCESS' list of chemical and chemical engineering serials (containing 13,500 titles)

and lists of serials covered by twenty abstracting services in other disciplines showed a very substantial overlap, ranging from 27.2% to 82.2%, with thirteen out of twenty having more than 50% overlap with ACCESS. Assuming that there is a similar degree of duplication among the other disciplines, it would seem likely that the principal English language abstracting services in science and technology cover altogether some 20,000-25,000 serials.

B6 Other published sources

The most comprehcnsive attempt to assess the size and movement of the world's scientific and technical literature was in a paper by Gottschalk and Desmond [16], and a subsequent thesis by Gottschalk [17]. These estimated the number of current serials as 35,300±10% in 1961, but Barr in the paper cited above has suggested that this figure was significantly too high. Most other estimates have given even higher figures.

It is interesting that Gottschalk estimated a 33.6% increase in the population over the decade 1960-69, balanced by a 29.7% 'mortality rate', these figures being based on averages for the previous 10-20 years. This would appear to suggest either that the net growth estimated for NSDP in B3 above is somewhat exaggerated, or that the number of scientific and technical serials is increasing less rapidly than other sectors of the literature.

B7 Conclusions

It is concluded that an initial ISDS data base with comprehensive coverage of current scientific and technical serials would probably require some 35,000 entries (bearing in mind that the literature will not remain static during the period of constructing the data base!) Planning for ISDS must, however, take into account the need to handle files with some hundreds of thousands of entries in the relatively near future.

APPENDIX C: Identifying, recording and sorting serial titles

C1 General

This appendix attempts to offer brief guidelines for developing a 'key' form of a serial title as the prime entry in the ISDS data base.

The 'key' title is regarded as the single attribute with which each ISSN is identified, so that any change in the 'key' title would require a change in the ISSN (see section 3.3).

In preparing this appendix, we have drawn heavily on unpublished documents kindly provided by Chemical Abstracts Service and by the UK National Lending Library for Science and Technology.

C2 "Distinctive" and "non-distinctive" titles

Chemical Abstracts Service defines a "distinctive" title as one where the word or words given prominence on the title page are a unique identification of the journal (e.g., Chemical Abstracts). A "non-distinctive" title is defined as one which consists of a generic term, usually given prominence on the title page, to which an explanatory phrase must be appended in order to make the title complete. This explanatory phrase is normally the name of the institution responsible for the serial - (e.g., Journal of the American Chemical Society).

C3 Suggested rules for all titles

C3.1 The 'key' title should be selected from the title page of the piece, or from the cover page if no title page is present (or vice versa? Different sources disagree as to which of these is to be preferred).

C3.2 The word order of the original title should be preserved unchanged, except as defined below.

C3.3 The 'key' title should be entered in the original language, transliterated in accordance with UNISIST recommendations.

C3.4 If the most prominent title is a set of initials representing the full title, and the full title is also present, then the 'key' title should be taken as the full title, and the acronym entered as an 'alternative title'.

C3.5 If the title contains an acronym which represents only a part of the full title, the acronym should be retained as part of the 'key' title, but the expanded form should be entered as an 'alternative title'.

C3.6 An article (a, the, le, los, etc.) is omitted if it occurs as the first word of the title.

C3.7 Numbers in titles should be retained as printed, but a 'alternative title' may be entered with the number spelt out in the vernacular.

C3.8 There are certain problems associated with defining rules for capitalizing initial letters of words in a title, especially in an international system where the conventional orthography of different countries may need to be taken into account. Undoubtedly, the simplest approach would be to make it a rule that all initial letters should be capitalized, with the exception of words appearing in a 'stop word' list to be developed for ISDS.

C3.9 If the title is given in more than one language, then the 'key' title should be selected either as the 'most prominent' title, or, if all titles are given equal prominence, in accordance with the following descending sequence of preferences:

a) A Latin title, if present

b) A title in the language used for contributions (if only one language is used)

c) A title in the language of the linguistic region or country in which the serial is published

d) A title selected in accordance with a - perhaps somewhat arbitrary - precedence list of languages, to be developed for ISDS

All other titles should be entered as 'alternative titles'.

C3.10 A sub-title is not to be regarded as part of the 'key' title unless it is necessary for uniqueness. In some cases, a sub-title may be of such a form that it should be entered as an 'alternative title'.

C3.11 Where the 'key' title is non-unique, 'added title words' should be entered as a separate data element in the ISDS record of the title. These should normally consist of the name of the city and/or country of publication.

C4 Special rules for "non-distinctive" titles

C4.1 A "non-distinctive" title must consist of a generic term or terms (e.g., 'Journal') and the name of an organization (e.g., 'American Chemical Society'), which may or may not be joined by connective words (e.g., 'of the').

C4.2 If the title on the piece includes the generic term(s) followed by the name of the organization, this sequence is to be preserved in the 'key' title. There might be some merit, however, in adopting the NLL practice of eliminating connective words and replacing them by a suitable punctuation mark, (e.g., Journal - American Chemical Society), in order to produce more meaningful alphabetic listings.

C4.3 If the title on the piece includes the name of the organization followed by generic term(s), this sequence is to be preserved in the 'key' title (e.g., IME Proceedings).

C4.4 If the piece gives only the name of the organization, and does not specify the generic nature of the publication, then it is suggested that the 'key' title should consist of the name of the organization followed by the word 'Publications' in parentheses.

C4.5 It may often be necessary to add punctuation to a "non-distinctive" title (e.g., if it is spread over several unpunctuated lines on the original), and detailed guidelines would be required for ISDS.

C4.6 If there is no consistent order in the elements of a "non-distinctive" title as printed on the piece, then the sequence to be followed should be:

a) generic term(s) (e.g., Proceedings, Reports)

b) publishing organization defined as (1) the smallest unit which includes a proper name and is unambiguously locatable, followed by (2) any subdivisions of this unit (e.g., Harvard University, Soil Science Laboratory).

C5 Sorting rules for alphabetical lists of titles

It is strongly suggested that ISDS should adopt a straightforwardly mechanistic sorting strategy whereby titles would be sorted word by word (so that PUBLIC HEALTH precedes PUBLICATIONS), ignoring punctuation marks, and including all words which appear in the 'key' title. However, this strategy could be modified by using a stop word list to exclude prepositions and articles from the alphabetization.

C6 Conclusion

This appendix is not intended to be definitive, but rather it should point to the need for ISDS to develop a much more complete and exhaustive set of rules for handling periodical titles. This would be an essential part of a detailed system design.

APPENDIX D: Proposed data elements for the machine file

Note: items D1 to D28 are regarded as required elements for a full record at Level 3 (see Chapter 4). Items D29 and D30 are required for Level 2 only. Items D31 onwards are mentioned as optional elements. Their inclusion is not recommended, except in so far as indicated in the notes on D34.

At this stage of preliminary system design no proposals have been made regarding the tags to be used to identify each field, or other details of machine representation.

Under the headings 'average length' and 'frequency of occurrence' an asterisk has been used to indicate that the figure is an informed guess rather than being based on accurate statistics.

The various products of ISDS are referred to as follows:

Titles Index		see	section	5.2.4
ISSN Index		"	"	5.2.5
Register	(ISDS Register of Periodicals)	"	"	5.2.6
CTI	(Classified Titles Index)	"	"	5.2.7
N&AT	(New & Amended Titles)	"	"	5.2.8
CNT	(Cumulated New Titles)	"	"	5.2.9
Permuted Index		"	"	5.2.10
Tapes	(Magnetic tape services)	"	"	5.3

D1 RECORD STATUS

D1.1 This field is used strictly for housekeeping purposes to indicate whether a record on the machine file is 'provisional' or 'confirmed'. It consists of a single character: '0' = provisional, '1' = confirmed.

D1.2 Fixed length: 1 character.

D1.3 Frequency of occurrence: all records.

D1.4 Products for which the field is required: none: except that it might be thought desirable to include in any published list those records which were 'provisional' at the time of going to press, with suitable flagging.

D1.5 Notes:

The purpose of this field is to allow partial records to be input to the system when an assignment is made in advance of full information being received, e.g., in response to a Telex request.

In a final system design it might well be desirable to extend the range of codes in this field beyond a simple two-way choice.

D2 DATE OF ENTRY ON FILE (or most recent amendment)

D2.1 This field is used to store the date at which the record was last updated; and therefore by implication the last date at which it could be regarded as 'guaranteed' reliable. Only the month and year are given, in the form 'MM YYYY'

D2.2 Fixed length: 6 characters.

D2.3 Frequency of occurrence: all records.

D2.4 Products for which the field is required: (a) all magnetic tape distributions, (b) to be printed at the end of each entry in the 'Register'.

D3 INTERNATIONAL STANDARD SERIAL NUMBER (ISSN)

D3.1 This field is used to store the International Standard Serial Number, in the form of an eight digit number, of which the final digit is a check character. No hyphens or other separators are stored in the machine record.

D3.2 Fixed length: 8 characters.

D3.3 Frequency of occurrence: all records.

D3.4 Products for which the field is required: all products.

D4 CODEN

D4.1 This field is used to store the CODEN which corresponds to the ISSN. The CODEN is a five-character code plus a check character, which is also stored.

D4.2 Fixed length: 6 characters.

D4.3 Frequency of occurrence: all records (for as long as CODEN are maintained in parallel with ISSN).

D4.4 Products for which the field is required: Titles Index Register, N&AT, CNT, Tapes.

D5 PUBLICATION STATUS

D5.1 Description: this field is used to store a single character code indicating whether the title is 'current' or 'dead'. '0' = 'believed to be current', '1' = 'positively known to be dead or discontinued'.

D5.2 Fixed length: 1 character.

D5.3 Frequency of occurrence: all records.

D5.4 Products for which the field is required: ISSN Index, Register, N&AT, CNT, Tapes.

D5.5 Note:

A title is only to be labelled as 'dead' when positive information has been received that publication has ceased under that title.

D6 START DATE

D6.1 Description: this field is used to store the nominal date of issue of the first appearance of a given title. The date may take any of the following forms:

YYYY	(year only)
MM/YYYY	(month and year)
DD/MM/YYYY	(day, month, year)
Season YYYY	
YYYY/YYYY	
MM-MM/YYYY	

D6.2 Average length: variable: eight characters*

D6.3 Frequency of occurrence: all records.

D6.4 Products for which the field is required: Register, N&AT, CNT, Tapes.

D7 END DATE

D7.1 Description: this field is used to store the nominal date of issue of the last appearance of a given title. Format as in D6.

D7.2 Average length: variable: eight characters*

D7.3 Frequency of occurrence: the frequency of this field will grow rapidly as changes occur in the serials population, and no meaningful percentage can be assigned.

D7.4 Products for which the field is required: Register, N&AT, Tapes.

D8 FREQUENCY

D8.1 Description: this field is used to store the number of issues per year, with no account being taken of indexes or special supplements, etc. An asterisk indicates 'irregular', and may or may not be accompanied by a number, depending on whether the number of issues per year is known.

D8.2 Average length: variable: 2 characters*

D8.3 Frequency of occurrence: all records.

D8.4 Products for which the field is required: Register, N&AT, Tapes.

D8.5 Examples:

6	(six regularly spaced issues per year)
*4	(about four issues per year, irregular)
*	(irregular)

D9 ALPHABET OF ORIGINAL TITLE

D9.1 Description: this field is used to store a single character code indicating the alphabet of the original title, as follows:

0: Basic Roman (i.e., letters A-Z without accents, etc.)
1: Roman
2: Cyrillic
3: Japanese (Kanji) (?)
4: Other

(This list may, of course, be extended in a final system design.)

D9.2 Fixed length: 1 character.

D9.3 Frequency of occurrence: all records.

D9.4 Products for which the field is required: all printed products, as a means of controlling the selection of data fields and the typographic arrangement. It also acts as an aid to checking that all required versions of the title are included in the machine record.

D9.5 Note:

Further study is required to define the way in which this field should be applied.

D10 LANGUAGE(S) OF PAPERS (or other main contents)

D10.1 Description: this field is used to store one or more two-character codes representing the language or languages of the main contents of the serial.

D10.2 Average length: very slightly more than 2 characters.

D10.3 Frequency of occurrence: all records.

D10.4 Products for which the field is required: Register, N&AT, CNT, Tapes.

D10.5 Note:

An appropriate International Standard list of codes should be used for this field.

D11 'KEY' TITLE

D11.1 Description: this field is used to store the full title as given on the title page of the serial (or, in the absence of a title page, on the cover or elsewhere); transliterated into a basic Roman alphabet consisting of the letters A-Z without diacritics. All transliterations will follow rules adopted by UNISIST.

D11.2 Average length: variable: 35 characters (this figure is based on an actual count of over 1,000 titles scanned for INSPEC publications).

D11.3 Frequency of occurrence: all records.

D11.4 Products for which the field is required: all products.

D12 ADDED TITLE WORDS

D12.1 Description: this field is used to store, in basic Roman alphabet, any added words which are required in order to make the 'preferred' title unique. Normally these should be the name of the city, or city and state, where the serial is published.

The field is used only if the full title, in its 'key' form is not unique.

D12.2 Average length: variable: .....

D12.3 Frequency of occurrence: .....

D12.4 Products for which the field is required: all products.

D12.5 Note:

Whenever printed or otherwise displayed, this field is placed in parentheses; but it is stored without parentheses.

D13 ALTERNATIVE TITLE ('Key' form)

D13.1 Description: this field is used to store, in basic Roman alphabet, an alternative title which is not simply a variant of the main title. Principal examples are journals which carry a title in more than one language, and journals which genuinely have two apparently unrelated titles.

The field should not be used for minor variants, such as a spine title which is an abbreviated version of the full title.

The field may occur more than once in a single record.

D13.2 Average length: variable: 35 characters.

D13.3 Frequency of occurrence: .....

D13.4 Products for which the field is required: Titles Index, Register, N&AT, CNT, Permuted Index, Tapes.

D14 FULL TITLE (in original alphabet)

D14.1 Description: this field is used to store the full title as given on the title page (or cover, or elsewhere) in its original alphabet, providing that the following conditions apply:

a) The original alphabet is Roman or Cyrillic

b) If Roman, the original alphabet includes accented or other variant characters; i.e., field D11 does not contain the title exactly as given on the piece.

D14.2 Average length: variable: 35 characters.

D14.3 Frequency of occurrence: .....

D14.4 Products for which the field is required: Register

D14.5 Notes:

a) It is envisaged that all tape services and all the basic listings produced from the file will use the transliterated ('key') title.

b) It might also be feasible to encode other alphabets besides Cyrillic and extended Roman.

D15 ALTERNATIVE TITLE (in original alphabet)

D15.1 Description: this field is used to store an alternative title (see D13) in its original alphabet, providing that the following conditions apply:

a) The original alphabet is Roman or Cyrillic

b) If Roman, the original alphabet includes accented or other variant characters; i.e., field D13 does not contain the alternative title exactly as given on the piece.

D15.2 Average length: variable: 35 characters.

D15.3 Frequency of occurrence: .....

D15.4 Products for which the field is required: Register.

D16 STANDARD ABBREVIATED TITLE

D16.1 Description: this field is used to store the 'key title' (and added words if required for uniqueness) in an abbreviated form in accordance with international standards for periodical title word abbreviations. Only the 'basic Roman' alphabet is used.

D16.2 Average length: variable: 22 characters (this figure is based on a count of over 1,000 titles scanned for INSPEC publications).

D16.3 Frequency of occurrence: all records (even if the abbreviated title is identical to the full title).

D16.4 Products for which the field is required: Titles Index, ISSN Index, Register, N&AT, CNT, Tapes.

D17 FORMER TITLE: ISSN

D17.1 Description: this field is used to store the International Standard Serial Number of the latest previous title only. Two or more ISSN may appear in the field if the present title resulted from the merging of two or more previous titles. If a serial has changed title several times in chronological sequence, only the latest change is indicated. Notes on ISSN under D3 apply also to this field.

D17.2 Average length: variable, since two or more 8-character ISSN may appear in the field: average therefore very slightly more than 8 characters.

D17.3 Frequency of occurrence: .....

D17.4 Products for which the field is required: ISSN Index, Register, N&AT, CNT, Tapes.

D18 SUCCESSOR TITLE: ISSN

D18.1 Description: this field is used to store the International Standard Serial Number of the title under which this serial has continued publication. Two or more ISSN may appear in the field if the present title has given birth to two or more successors published concurrently. If several subsequent title changes have occurred in chronological sequence, only the first is recorded at this point. Notes on ISSN under D3 apply also to this field.

D18.2 Average length: similar to D17.

D18.3 Frequency of occurrence: .....

D18.4 Products for which the field is required: ISSN Index, Register, N&AT, CNT, Tapes.

D19 OTHER LANGUAGE EDITION OF (ISSN)

D19.1 Description: this field is used only if the given serial is a partial or cover-to-cover translation or other language edition, of another title. In such cases the ISSN of the parent title is stored here. See D3 for notes on ISSN.

D19.2 Fixed length: 8 characters.

D19.3 Frequency of occurrence: .....

D19.4 Products for which the field is required: ISSN Index, Register, N&AT, CNT, Tapes.

D19.5 Note:

The 'Notes' field (D7) could be used to give any further explanation of the relationship between the titles, e.g., cover-to-cover translation, selected papers, etc.

D20 HAS OTHER LANGUAGE EDITION(S) (ISSN)

D20.1 Description; this field is used only if the given serial is translated wholly or in part, under another title or titles. In such cases the ISSN of the other language editions are stored here. See D3 for notes on ISSN.

D20.2 Average length: similar to D17: no exact data available.

D20.3 Frequency of occurrence: .....

D20.4 Products for which the field is required: ISSN Index, Register, N&AT, CNT, Tapes.

D20.5 Note:

The 'Notes' field (D27) could be used to give any further explanation of the relationship between the titles, e.g., cover-to-cover translation, selected papers, etc.

D21 INSET IN OR SUPPLEMENT TO (ISSN)

D21.1 Description: this field is used to store the International Standard Serial Number of the parent, in the case where the given title is published regularly as part of, or as a supplement to, another title. See D3 for notes on ISSN.

D21.2 Fixed length: 8 characters.

D21.3 Frequency of occurrence: .....

D21.4 Products for which the field is required: ISSN Index, Register, N&AT, CNT, Tapes.

D21.5 Note:

The 'Notes' field (D27) could be used to provide any further definition of the relationship between the titles concerned.

D22 HAS INSET OR SUPPLEMENT (ISSN)

D22.1 Description: this field is used to store the International Standard Serial Number of any other title which is regularly published as part of, or as a supplement to, the given title. See D3 for notes on ISSN.

D22.2 Fixed length: 8 characters (but there may be a small number of serials which carry several regular and concurrent supplements, in which case several ISSN might be stored in this field).

D22.3 Frequency of occurrence: .....

D22.4 Products for which the field is required: ISSN Index, Register, N&AT, CNT, Tapes.

D22.5 Note:

The 'Notes' field (D27) could be used to provide any further definition of the relationship between the titles concerned.

D23 OTHER RELATED TITLE (ISSN)

D23.1 Description: this field is used to store the International Standard Serial Number of any other title which is related to the given title in a manner not specifiable in terms of D17-D22 above.

D23.2 Fixed length: 8 characters

D23.3 Frequency of occurrence: .....

D23.4 Products for which the field is required: ISSN Index, Register, N&AT, CNT, Tapes.

D23.5 Note:

The 'Notes' field (D27) would be used to provide a definition of the relationship between the titles concerned.

D24 PUBLISHER'S NAME & ADDRESS

D24.1 Description: this field is used to store the name and address of the 'publisher' of the serial: here defined as the source from which the serial is obtainable. The name and address are given in full, in 'basic Roman' alphabet, in the original language transliterated, but not translated.

D24.2 Average length: variable: 60 characters (this figure is based on a count of over 1,000 titles scanned for INSPEC publications).

D24.3 Frequency of occurrence: all records.

D24.4 Products for which the field is required: ISSN Index, Register, N&AT, CNT, Tapes.

D24.5 Note:

Probably 'name' and 'address' should be separate fields to facilitate the preparation of listings by publisher/sponsor.

The system designer responsible for the operational system should consider the possible use of codes and an authority file for the names and addresses of more prolific publishers. This has the advantage that only one stored version of the publisher's address need be kept up to date, as well as saving storage space and input costs for one of the longest data fields.

D25 COUNTRY OF ORIGIN

D25.1 Description: this field is used to store a code indicating the country of origin of the serial.

D25.2 Average length: fixed: to be determined.

D25.3 Frequency of occurrence: all records.

D25.4 Products for which the field is required: ISSN Index, Register, N&AT, CNT, WRTS.

D25.5 Note:

The actual set of country codes used in the system should be selected in co-operation with ISO TC/46 WG2: 'Standardisation of Abbreviation of Names of Countries'.

It is assumed that the country code can be regarded as an implicit indication of the Local Centre responsible for the given title (although of course a single centre may serve several countries). Otherwise, a separate field would be needed to identify the Local Centre.

D26 SUBJECT COVERAGE

See section 4.8 for a discussion of this field.

D27 NOTES

D27.1 Description: this field is used for any additional explanation which may be thought necessary or desirable; e.g., with reference to changes of title, mergers, translations, supplements, etc. Depending on the policies adopted for ISDS, the notes might be repeated in each of a small number of 'official' languages. Other serial titles should be referred to by ISSN only, for brevity and ease of cross-reference.

D27.2 Average length: variable: .....

D27.3 Frequency of occurrence: .....

D27.4 Products for which the field is required: Register, N&AT, CNT, Tapes.

D27.5 Note:

Some standard forms of words could be developed to handle common situations such as cover-to-cover translation, translation of selected papers, journals merged, etc.

D28 COVERAGE BY ABSTRACTING SERVICES

See section 4.9 for a discussion of this field. It is assumed that a suitable set of codes would be drawn up to represent each abstracting service which participates in ISDS.

D29 ADDRESS OF CURRENT RECORD IN MRF

D29.1 Description: this field is used (at Level 2 only) to store the address of the most up-to-date microform record which corresponds to this machine record.

D29.2 Average length: fixed: depends on the microfilm address

D29.3 Frequency: all records.

D29.4 Products for which the field is required: ISSN Index, N&AT, CNT, Tapes.

D30 ADDRESS OF HISTORICAL RECORD IN MRF

D30.1 Description: this field is used to store the address of a microform record which corresponds to this machine record, but which has been superseded by a more up-to-date entry.

The field is in three parts:

a) Sequence number (as each microform record is superseded it is assigned a number, 1, 2, 3, etc.)

b) Address in the microform file.

c) Date at which the record was superseded (month and year only).

D30.2 Average length: fixed: depends on the microfilm address system adopted.

D30.3 Frequency: .....

D30.4 Products for which the field is required: ISSN Index, N&AT, WRTS.

D30.5 Note:

This field may be repeated, with different sequence numbers, as successive changes occur.

NOTE: THE FOLLOWING ADDITIONAL FIELDS HAVE BEEN CONSIDERED, BUT ARE REGARDED AS NON-ESSENTIAL

D31 LANGUAGE(S) OF SUMMARIES

This field would be used to store the language or languages in which summaries are regularly printed in the periodical. The same codes would be used as for D10.

D32 SPONSORING ORGANIZATION

This field would be used to store the full name of a sponsoring organization which is not the publisher as defined in D24.

D33 TYPE OF PUBLICATION

A code or set of codes indicating the nature of the regular contents of the periodical (e.g., abstracts of other primary literature, indexes, book reviews, bibliographies, etc.)

D34 HOLDINGS DATA

It is proposed that provision should be made in the design of the machine record for a field or fields to be assigned for holdings information, but that no attempt be made to include it in the setting-up of the system. This kind of record can almost certainly be better dealt with at a national library level. ISDS could provide machine files of serial titles as a basis for union lists of holdings, and could encourage national centres who created such lists to make them available to be merged, using ISSN as the key, to provide an international union list - if this proved worthwhile.

APPENDIX E: Specimen data sheets

E1 This appendix contains a set of data sheets and associated questionnaires to be used in collecting information for the ISDS data base. They should be regarded only as suggestions, and need not inhibit the final system design.

E2 We have followed the principle that the instructions for completing each data sheet should be separate from the sheet itself: thus Questionnaire 1 is associated with Data Sheet 1, etc. This will permit the same data sheets, in the official language adopted by the International Centre, to be used throughout the ISDS network, while the questionnaires would be translated into the local language.

E3 Questionnaire 1 and Periodical Data Sheet 1 are directed at user organizations (other than publishers) wishing to request an assignment of ISSN to a title which has come to their notice. If the user submits his request informally, the Local Centre would complete items 0, 1 and 2 without reference back to him; but the use of the data sheet would be encouraged wherever possible.

Questionnaire 2 and Periodical Data Sheet 2 are directed at the publisher of the periodical. The Local or International Centre would normally be expected to add ISSN to items 9 to 14, or check the ISSN entered by the publisher.

Periodical Data Sheet 3 is strictly for the use of the Local or International Centre, and does not have an associated questionnaire. It is used to enter those elements which (a) can be derived from information supplied by external sources or from within the library resources of the International Centre and (b) must be entered in accordance with strict standards for transliteration, abbreviation, etc.

E4 Periodical Data Sheets 2 and 3 would in practice be 'punching documents' for computer input, and would be expected to carry the tags assigned for identification of each data field. These are not included at this stage.

E5 In drawing up these data sheets it has been assumed that the file contains elements D1 to D27 (see Appendix D), and no others.

QUESTIONNAIRE 1

Please answer questions 0, 1 and 2, and as many others as are relevant and to which you are able to give answers. Your replies should be entered on the accompanying PERIODICAL DATA SHEET 1, in the boxes whose numbers correspond to the numbers of the questions below. Ignore any questions to which you are unable to reply.

0. Please enter your name and address as item 0.

1. What is the full title of the serial for which you require an ISSN?

   Please indicate, by ticking in the appropriate box, whether you have entered the title in its original alphabet as on the piece (A), or in transliterated form (B), or whether the source of your information is such that you are unable to tell (C).

2. What is the name of the publisher, and full postal address?

3. Does the serial carry any alternative forms of title (including translations into other languages)? If so, please enter them here.

4. Is the publication current (A)? discontinued (B)? continued under another title (C)? Tick whichever applies.

5. What was the date of the first issue of the serial under this title?

6. What was the date of the last issue of the serial under this title (if applicable)?

7. How many issues are published each year (ignoring indexes and special supplements)? If the serial is irregular, enter * (asterisk), with or without an approximate number of issues per year.

8. In what language or languages do contributions regularly appear?

9. Is this title a translation of another serial? If so, enter the title.

10. Does this title also appear, wholly or selectively, in translation? If so, enter the title of the translation journal.

11. Is this title issued as an inset to another serial? If so, enter the title of the parent publication.

12. Does this title carry a regular supplement or inset which has its own separate title? If so, enter the latter title here.

13. If this serial was previously published under another title, enter the former title here, if known.

14. If this serial has been continued under another title, enter the new title.

PERIODICAL DATA SHEET 1 (Information obtained from user)

0. Source of information/organization requestion ISSN assignment:

1. Full title:

(A) Original alphabet ☐ (B) Transliterated ☐ (C) Not known ☐

2. Publisher's name and address

3. Alternative titles:

4. Publication status: (A) Current ☐ (B) Discontinued ☐
(C) Continued under another title ☐

5. Start date

6. End date:

7. Frequency (no. of issues per year):

8. Language(s) of contributions:

9. Translation of (title):

10. Translation published as (title):

11. Issued as inset to (title):

12. Carried inset (title):

13. Former title:

14. New title:

Office use only	DATE	CENTRE	PROVISIONAL ISSN

QUESTIONNAIRE 2

Please answer all questions, entering 'n/a' for those which do not apply. Your replies should be entered on the accompanying PERIODICAL DATA SHEET 2, in the boxes whose numbers correspond to the numbers of the questions below.

1. What is the full title of the periodical in the original language and alphabet, as printed on the piece?

2. What is the name and full postal address of the publisher? 'Publisher' should be understood here to mean the organization from which the periodical is obtainable.

3. Does the serial carry any alternative forms of title (including translations into other languages)? If so, please enter them here, in the original language and alphabet, as printed on the piece.

4. Is the publication current (A)? discontinued (B)? continued under another title (C)? Tick whichever applies.

5. What was the date of the first issue of the serial under this title?

6. What was the date of the last issue of the serial under this title (if applicable)?

7. How many issues are published each year (ignoring indexes and special supplements)? If the serial is irregular, enter * (asterisk), with or without an approximate number of issues per year.

8. In what language or languages do contributions regularly appear?

9. Is this title a translation of another serial? If so, enter the title, and ISSN if known.

10. Does this title also appear, wholly or selectively, in translation? If so, enter the title of the translation journal, and ISSN if known.

11. Is this title issued as an inset to another serial? If so, enter the title of the parent publication, and ISSN if known.

12. Does this title carry a regular supplement or inset which has its own separate title? If so, enter the latter title here, and its ISSN if known.

13. If this serial was previously published under another title, enter the former title here, and ISSN if known.

14. If this serial has been continued under another title, enter the new title, and ISSN if known.

15. Enter here the subject coverage of the periodical, in accordance with the guidelines set out in..... (attached).

PERIODICAL DATA SHEET 2 (Information obtained from publisher)

DATE:	CENTRE:	ISSN:

1. Full title (in original language and alphabet)

2. Publisher's name and address

3. Alternative titles:

4. Publication status: (A) Current ☐ (B) Discontinued ☐
(C) Continued under another title ☐

5. Start date:

6. End date:

7. Frequency (no. of issues per year):

8. Language(s) of contributions:

9. Translation of (title):

ISSN:

10. Translation published as (title):

ISSN:

11. Issued as inset to (title):

ISSN:

12. Carries inset (title):

ISSN:

13. Former title:

ISSN:

14. New title:

ISSN:

15. Subject coverage

PERIODICAL DATA SHEET 3 (Information added by centre)

DATE:	CENTRE:	ISSN:

1. 'Key' title

Original alphabet ☐ Transliterated ☐

2. Added title words

3. Alternative title(s) (in 'key' form)

Original alphabet ☐ Transliterated ☐

4. Alphabet of original title

5. Full title in original alphabet (if different from 1)

6. Alternative title(s) in original alphabet (if different from 3)

7. Abbreviated title

8. Country of origin

9. Subject coverage

10. Notes

APPENDIX F: A 'case history' of a periodical title traced through the ISDS data base

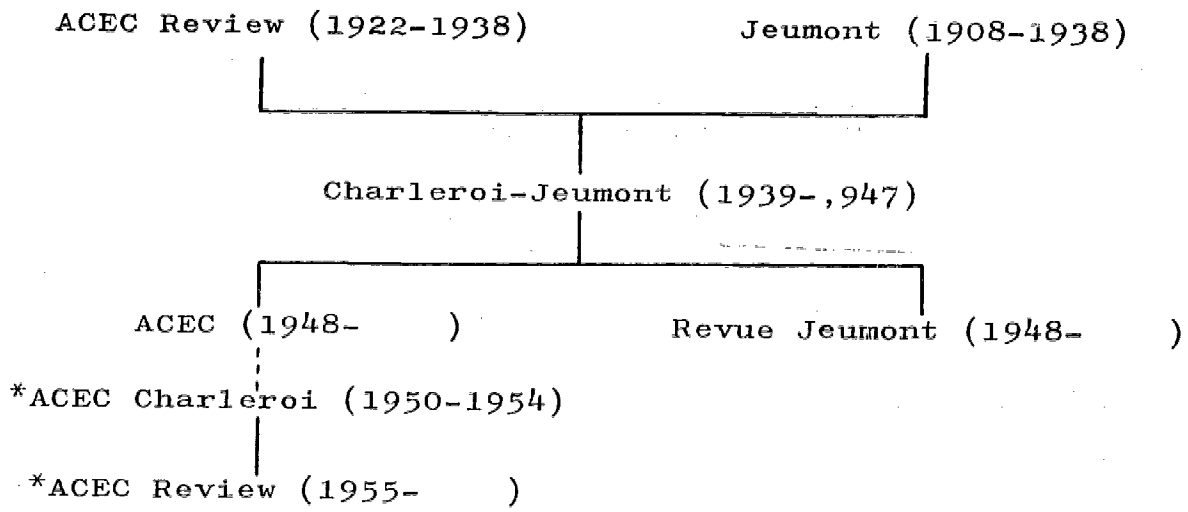
F1 This appendix gives the hypothetical state of the machine records for a family of linked journals in existence in one form or another since 1908. It has been assumed that ISDS has been in existence since before that date and changes have been made to the records at points in time since the 'birth' of the earliest member of the family.

F2 All the suggested data fields have been included except D26 (Subject coverage), D27 (Notes), D27 (Coverage by abstracting and indexing services). The CODEN and ISSN assigned are fictitious although valid.

F3 This family of journals has been chosen because of the problems encountered in tracing its history. Indeed, it was necessary because of discrepancies between sources used to make some assumptions about the history, and we hope that the publishers of the journals concerned will be indulgent to us in this respect.

F4 In order to provide an explanation of the records, we give now in tabular form the history of the family as derived from two major sources of periodical information as well as out interpretation of it. The discrepancy between the interpreted history and the two source versions of the history is due mainly to examination of copies of such issues as could be obtained.

TABLE F1 Source 1



*English translations of ACEC

TABLE F2 Source 2

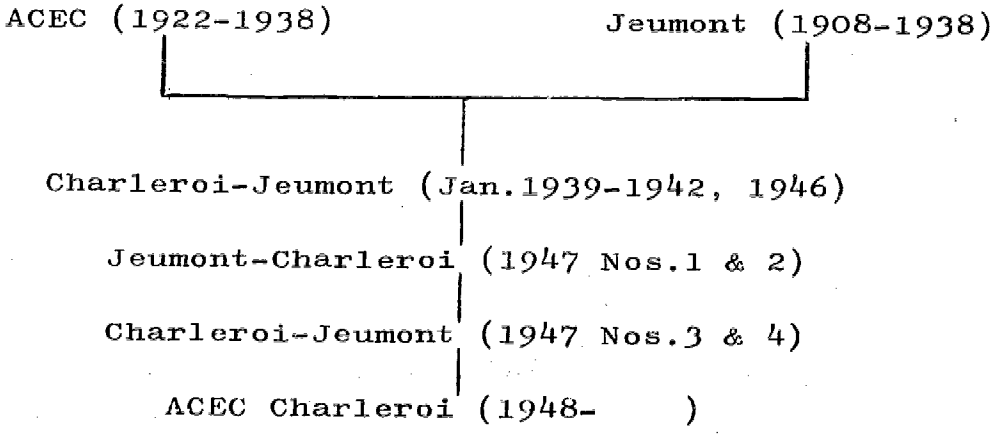
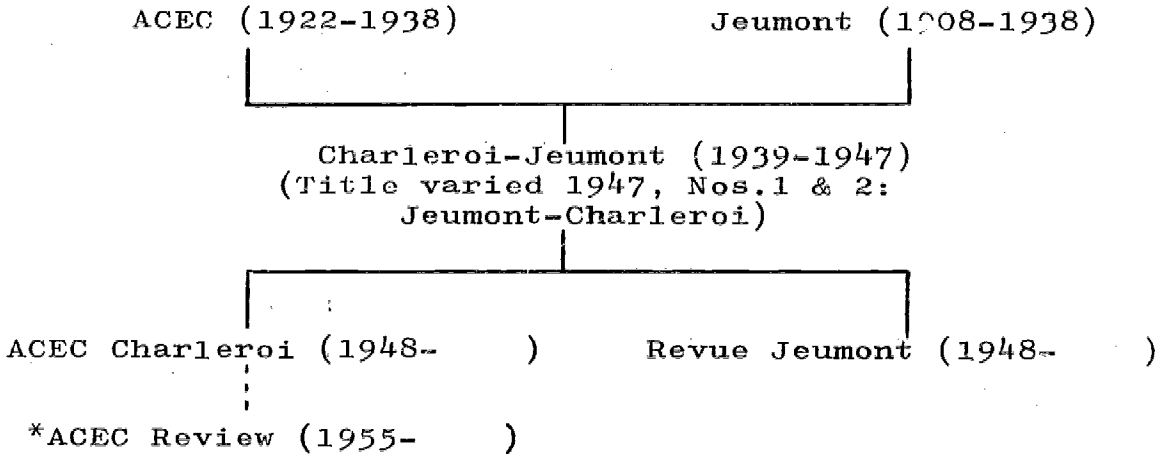


TABLE F3 History as interpreted for purposes of illustration



*English edition of ACEC Charleroi

F5 The last six pages of this Appendix show a schematic representation of the contents of the machine record for each of the six titles given in Table F.3. Page F.5 is the machine record for Jeumont. It contains a link, in field D18, to its successor title Charleroi-Jeumont (Page F.7) which was created by a merger with ACEC (Page F.6). Charleroi-Jeumont is linked to its two parent titles by the ISSNs in field D17 and in field D18 to its two successor titles ACEC-Charleroi (Page F.8) and Revue Jeumont (Page F.9). In addition to the link with Charleroi-Jeumont, ACEC Charleroi is linked to ACEC Review (Page F.10), its English language edition.

F6 The machine record fields are fully explained in Appendix D. However, some of the field contents deserve explanation here.

F6.1 D1 (Record status): '1' = confirmed

F6.2 D2 (Date of entry) contains month and year in the form MMYYYY. In each case the month is notional. In the case of record number 4 (ACEC Charleroi) it should be noted that the date given is the date when the record was amended to include, in field D20, the ISSN for the translation or other-language edition which was 'born' in 1955.

F6.3 D5 (Publication status): '0' = live or currently published
'1' = dead or ceased publication

F6.4 D9 (Alphabet of original title): '0' = basic Roman

F6.5 D10 (Language(s) of contributions): 'FR' = French

F6.6 D24 (Country of origin): 'FR' = France, 'BE' = Belgium

F6.7 The change of title noted in Tables F2 and F3 for Charleroi-Jeumont has not been included in the sample records. If it had been observed retrospectively by the International Centre, it would probably have been added as a note to the record. However, it is conceivable that a new provisional record might have been created for Jeumont-Charleroi, but it is to be hoped that liaison via the Local Centre would have brought to light the nature of the aberration.

F6.8 This example has been given to illustrate some of the links within the file, but it also illustrates some of the problems which might arise in ensuring that the exact title is given and that title variants and links do in fact exist. Is there an ACEC Charleroi in English published between 1950 and 1954 as source 1 claims - see Table F1?)

MACHINE RECORD CONTENTS

D1	Record status:	1
D2	Date of entry or last amendment:	121938
D3	ISSN:	36465860
D4	CODEN:	JEUMFw
D5	Publication status:	1
D6	Start date:	02 1908
D7	End date:	12 1938
D8	No. of issues per year	4
D9	Alphabet of original title:	0
D10	Language(s) of contributions:	FR
D11	'Key' title: Jeumont	
D12	Added title words	
D13	Alternative title ('key' form):	
D14	Full title (in original alphabet):	
D15	Alternative title (in original alphabet):	
D16	Abbreviated title: Jeumont	
D17	Former title (ISSN):	
D18	Successor title (ISSN):	18536468
D19	Translation of (ISSN):	
D20	Translated as (ISSN):	
D21	Issued as inset to (ISSN):	
D22	Carries inset (ISSN):	
D23	Other related title (ISSN):	
D24	Publisher's name and address: Forges et Ateliers de Construction de Jeumont, Jeumont (Nord), France	
D25	Country of origin:	FR

MACHINE RECORD CONTENTS

D1	Record status:	1
D2	Date of entry or last amendment:	12 1938
D3	ISSN:	12823260
D4	CODEN:	ACECFd
D5	Publication status:	1
D6	Start date:	04 1922
D7	End date:	12 1938
D8	No. of issues per year	4*
D9	Alphabet of original title:	O
D10	Language(s) of contributions:	FR
D11	'Key' title: ACEC	
D12	Added title words	
D13	Alternative title ('key' form):	
D14	Full title (in original alphabet):	
D15	Alternative title (in original alphabet):	
D16	Abbreviated title: ACEC	
D17	Former title (ISSN):	
D18	Successor title (ISSN):	18536468
D19	Translation of (ISSN):	
D20	Translated as (ISSN):	
D21	Issued as inset to (ISSN):	
D22	Carries inset (ISSN):	
D23	Other related title (ISSN):	
D24	Publisher's name and address: Ateliers de Constructions Electriques de Charleroi, Charleroi, Belgique	
D25	Country of origin:	BE

MACHINE RECORD CONTENTS

D1	Record status:	1
D2	Date of entry or last amendment:	031948
D3	ISSN:	18536468
D4	CODEN:	CHJEF4
D5	Publication status:	1
D6	Start date:	03 1939
D7	End date:	12 1947
D8	No. of issues per year	4*
D9	Alphabet of original title:	O
D10	Language(s) of contributions:	FR
D11	'Key' title: Charleroi-Jeumont	
D12	Added title words	
D13	Alternative title ('key' form):	
D14	Full title (in original alphabet):	
D15	Alternative title (in original alphabet):	
D16	Abbreviated title: Charleroi-Jeumont	
D17	Former title (ISSN):	12823260 36465860
D18	Successor title (ISSN):	12818569 57268169
D19	Translation of (ISSN):	
D20	Translated as (ISSN):	
D21	Issued as inset to (ISSN):	
D22	Carries inset (ISSN):	
D23	Other related title (ISSN):	
D24	Publisher's name and address: Ateliers de Constructions Electriques de Charleroi, Charleroi, Belgique	
D25	Country of origin:	

MACHINE RECORD CONTENTS

D1	Record status:	1
D2	Date of entry or last amendment:	03 1955
D3	ISSN:	12818569
D4	CODEN:	ACCHFi
D5	Publication status:	O
D6	Start date:	03 1948
D7	End date:	
D8	No. of issues per year	4
D9	Alphabet of original title:	O
D10	Language(s) of contributions:	FR
D11	'Key' title: ACEC Charleroi	
D12	Added title words	
D13	Alternative title ('key' form): Revue ACEC	
D14	Full title (in original alphabet):	
D15	Alternative title (in original alphabet):	
D16	Abbreviated title: ACEC Charleroi	
D17	Former title (ISSN):	18536468
D18	Successor title (ISSN):	
D19	Translation of (ISSN):	
D20	Translated as (ISSN):	1285896X
D21	Issued as inset to (ISSN):	
D22	Carries inset (ISSN):	
D23	Other related title (ISSN):	
D24	Publisher's name and address: Ateliers de Constructions Electriques de Charleroi, Ave.Emile Rousseau, Marcinelle-Charleroi, Belgique.	
D25	Country of origin:	BE

MACHINE RECORD CONTENTS

D1	Record status:	1
D2	Date of entry or last amendment:	031948
D3	ISSN:	57268169
D4	CODEN:	REVJFe
D5	Publication status:	O
D6	Start date:	031948
D7	End date:	
D8	No. of issues per year	4
D9	Alphabet of original title:	O
D10	Language(s) of contributions:	FR
D11	'Key' title: Revue Jeumont	
D12	Added title words	
D13	Alternative title ('key' form):	
D14	Full title (in original alphabet):	
D15	Alternative title (in original alphabet):	
D16	Abbreviated title: Revue Jeumont	
D17	Former title (ISSN):	18536468
D18	Successor title (ISSN):	
D19	Translation of (ISSN):	
D20	Translated as (ISSN):	
D21	Issued as inset to (ISSN):	
D22	Carries inset (ISSN):	
D23	Other related title (ISSN):	
D24	Publisher's name and address: Forges et Ateliers de Construction de Jeumont, Jeumont (Nord), France	
D25	Country of origin:	FR

MACHINE RECORD CONTENTS

D1	Record status:	1
D2	Date of entry or last amendment:	031955
D3	ISSN:	1285896X
D4	CODEN:	ACRVFx
D5	Publication status:	O
D6	Start date:	031955
D7	End date:	
D8	No. of issues per year	4
D9	Alphabet of original title:	O
D10	Language(s) of contributions:	EN
D11	'Key' title: ACEC Review	
D12	Added title words	
D13	Alternative title ('key' form):	
D14	Full title (in original alphabet):	
D15	Alternative title (in original alphabet):	
D16	Abbreviated title: ACEC Rev.	
D17	Former title (ISSN):	
D18	Successor title (ISSN):	
D19	Translation of (ISSN):	12818569
D20	Translated as (ISSN):	
D21	Issued as inset to (ISSN):	
D22	Carries inset (ISSN):	
D23	Other related title (ISSN):	
D24	Publisher's name and address: Ateliers de Constructions Electriques de Charleroi, Ave.Emile Rousseau, Marcinelle-Charleroi, Belgique.	
D25	Country of origin:	BE

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