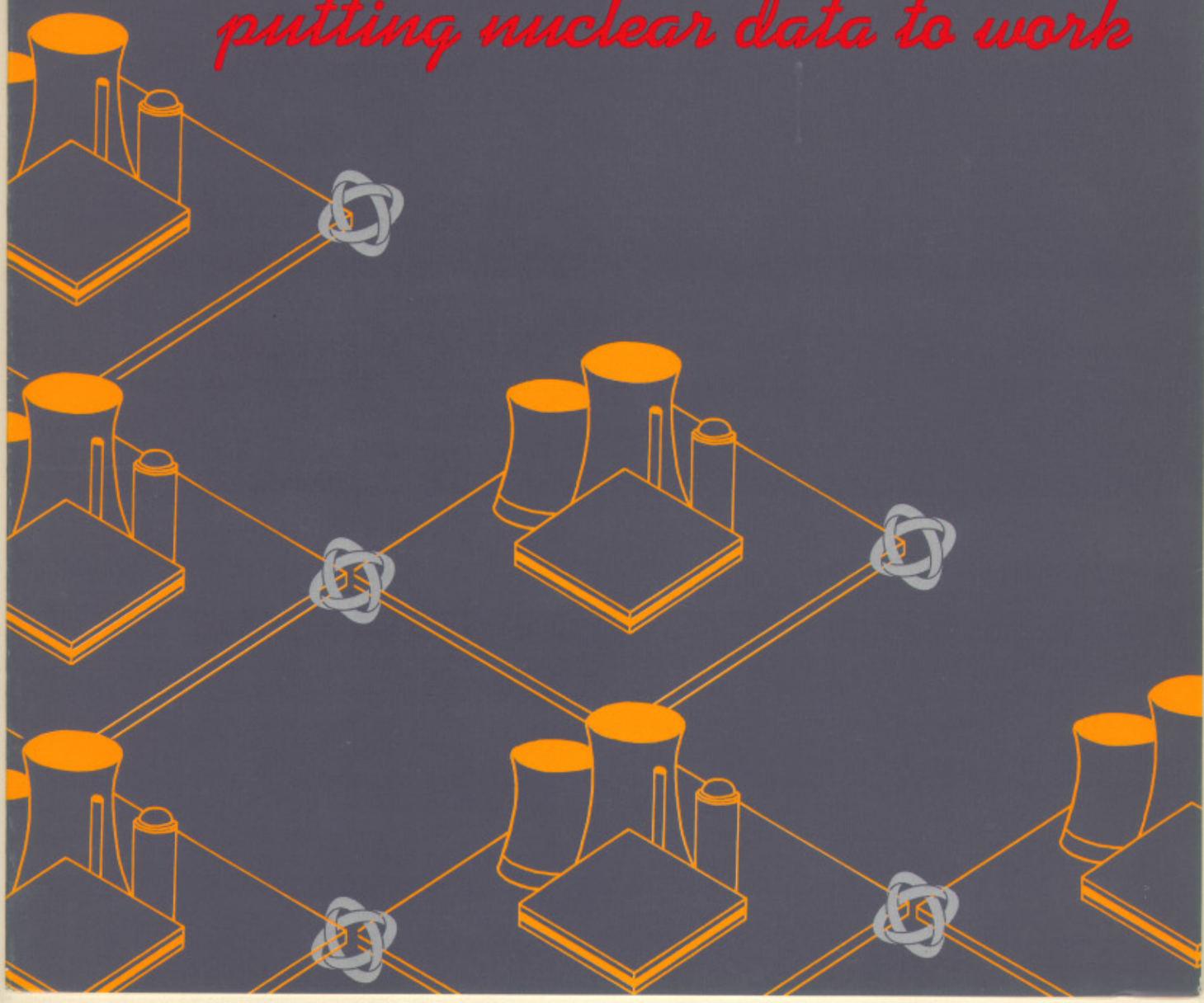
OECD

Nuclear Energy Agency

The Data Bank

putting nuclear data to work



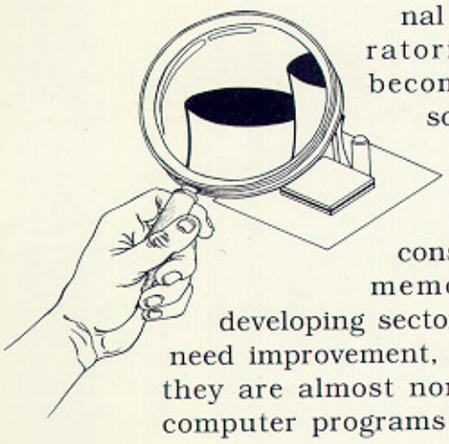
The NEA Data Bank

TO MASTER THE TECHNOLOGY and economics of nuclear energy we need increasingly deep insight into the physical phenomena at work in nuclear reactors and fuel cycle facilities. Scientific knowledge must be constantly updated and new fields explored in order to improve the safety of existing installations and anticipate possible problems, to design and optimise future installations, and to develop satisfactory techniques for radioactive waste storage. The basis of this knowledge is nuclear data, the physical constants which characterise the nuclear behaviour of the fuel and all other components of a reactor. Researchers must have access to these data to be able to carry out their work. They also need access to computer programs, the mathematical tools for computer simulation of reactor or plant component operation, without which no effective research can be done today.

Scientific data and computer programs form the basis for the research needed in present and future management of nuclear power.

A reference source for scientists

IN ITS COMPUTER the Data Bank stores a compilation of the data and computer programs which are supplied by national research laboratories. This has become a reference source for scientists who use it, but it also acts as a constantly updated memory. In many developing sectors nuclear data need improvement, while in others they are almost non-existent. The computer programs which use the data are constantly evolving to follow progress in computer science; this allows closer simulation of the actual operation of nuclear installations. In the safety field for instance, the updated software can be used to assess operating margins with even greater precision. As in all advanced technologies, the body of nuclear science is continuously developing.

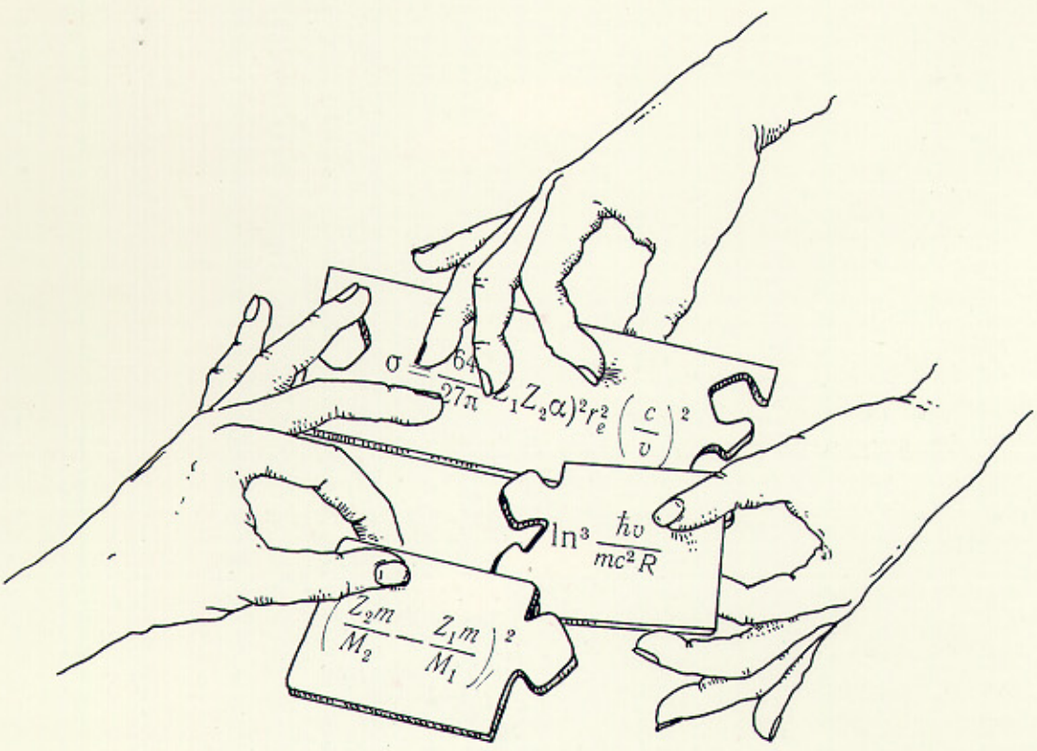


As a reference source, the Data Bank brings its information store to life.

The result of international co-operation

BY CONCENTRATING SKILLS and co-ordinating national efforts through the Nuclear Science Committee and its working parties, the Data Bank has become a centre for highly valuable scientific projects. It provides the best forum for experts in nuclear data assessment to review jointly the results of experiments conducted in Member countries and to select internationally recognised data. The files created in this way have considerable scientific value, and have even achieved universal recognition as in the case of the Joint Evaluated File (JEF). International co-operation is taking on special importance in the current context of reductions in the resources allocated at national level to some nuclear research sectors. This state of affairs has worrying implications for the maintenance of qualified personnel and the availability of experimental facilities. In the case of nuclear data, care must be taken to prevent any irreversible loss of expertise. Through its central synthesising role for national activities, the Data Bank helps to make the most of limited resources.

By strengthening international co-ordination around the Data Bank even further, knowledge will be preserved and also best use will be made of available technical and financial resources.

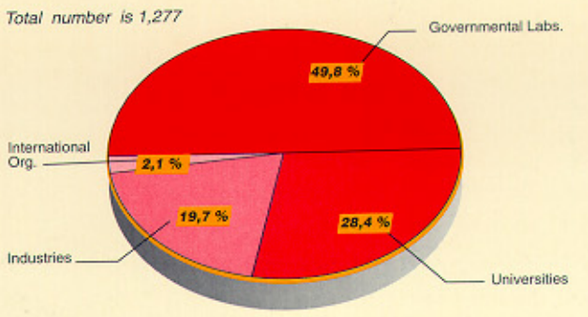


A modern tool at the disposal of Member countries

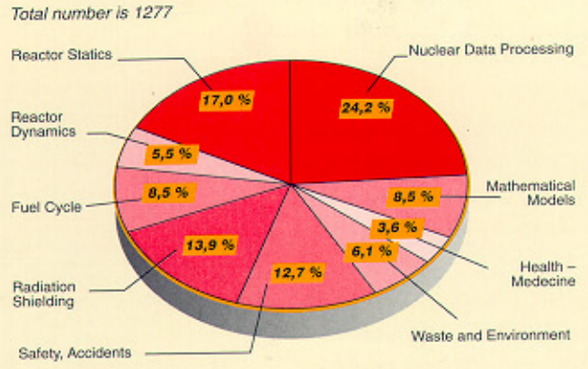
IN ORDER to make best use of the resources allocated nationally for research from public funds, Member countries have entrusted different scientific projects to the Data Bank, and have charged it with tasks such as the collection of nuclear data and computer programs, which are more economically centralised internationally. As a result, most countries have been able to dispense with a national centre in this field.

Over the years, the Data Bank has built up outstanding scientific assets since it concentrates nearly all available information relating to reactor physics at one single point. This sum of knowledge is placed at the disposal of Member countries through direct services to users, supplying nuclear data and computer programs covering most research and development work in the nuclear sector. Based at Issy-les-Moulineaux (France), the Data Bank serves scientific users authorised by Member countries and belonging to almost 400 bodies from 18 countries: national laboratories, universities, safety authorities. The Data Bank's advanced computer facilities allow millions of data and about 1 500 computer programs to be sent out each year.

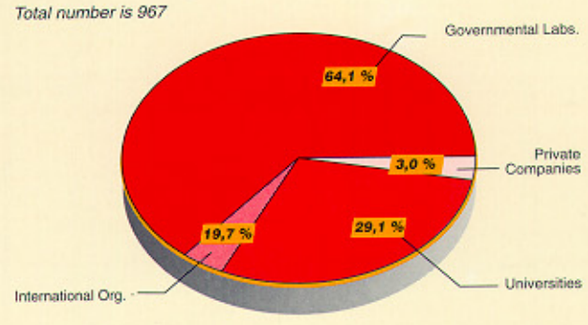
Program Dispatches by Origin of Request – 1992



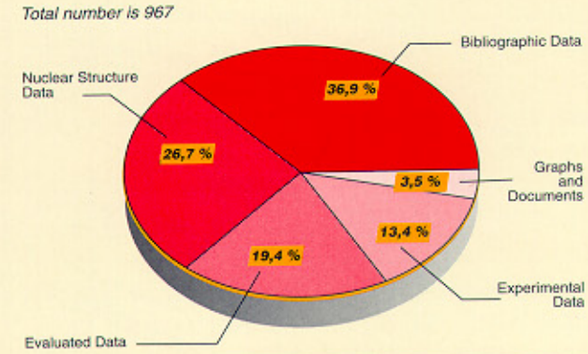
Program Dispatches by Subject Field – 1992



Nuclear Data Dispatches by Origin of Request – 1992



Nuclear Data Dispatches by Data Type – 1992



Looking to the future

THE DATA BANK tailors its objectives to future requirements:

– by giving priority to projects that best help international co-operation and are of strong scientific interest, such as the evaluation of nuclear data;

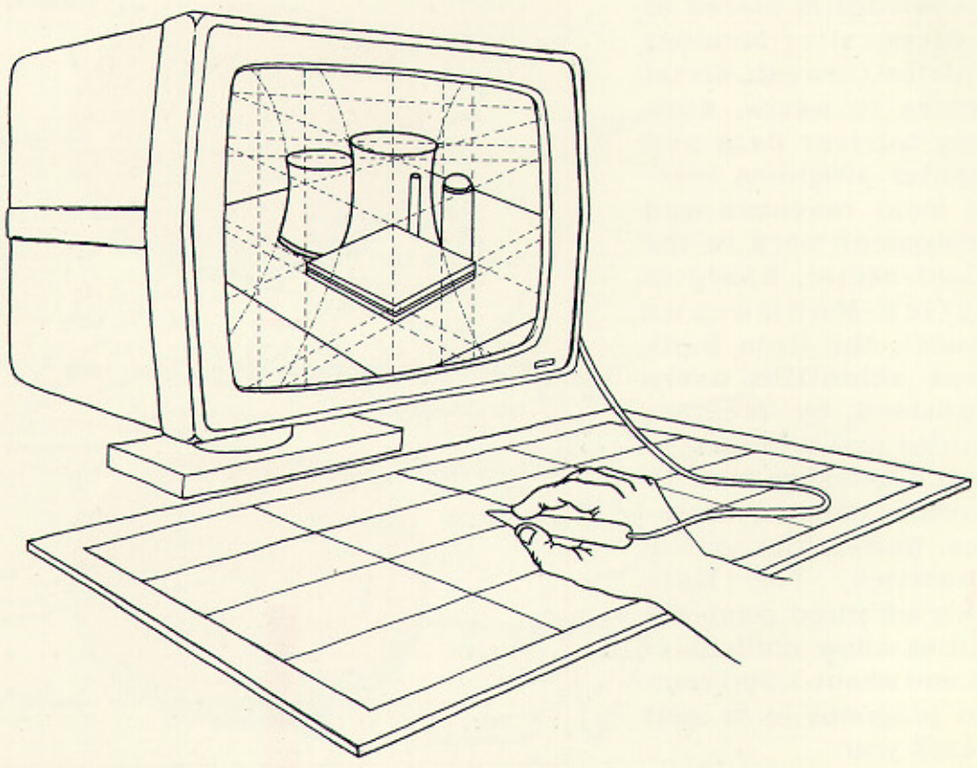
– by meeting increasing demand for the application of the Quality Assurance concept in nuclear data and computer programs;

– by helping to narrow down remaining discrepancies between the main data files;

– by exploring new fields, such as new computer technologies to improve the interface between man and nuclear facilities, or data needs in the study of actinide transmutation, a technique aimed at reducing the volume of long-lived radioactive waste.

At both functional and financial levels, the Data Bank takes advantage of the opportunities offered by new computer developments. In particular, with the improved performance of worldwide computer networks, it will increase the quality of its services by offering direct access to its data bases to users authorised by the Member countries.

The Data Bank keeps pace with new user requirements by modernising its facilities and skills and improving its performance and the quality of its services.



The Data Bank at the heart of the NEA

A QUARTER OF THE DATA BANK'S BUDGET is assigned to support of other NEA activities. For instance, it places its information and technical expertise at the disposal of most other scientific, technical or economic activities in the NEA. It backs up projects conducted by the safety or nuclear waste management committees. It also supplies to the other NEA sections the scientific data they need to evaluate new technology or to carry out studies on fuel cycle management strategy.

The Data Bank helps to develop horizontal co-operation between the various sectors of activity in the Nuclear Energy Agency.

Contacting the NEA Data Bank

By letter: NEA Data Bank
Le Seine Saint-Germain
12, boulevard des Iles
F-92130 Issy-les-Moulineaux

By telex: OCDE 620 160F
By telecopier: +33 (1) 45 24 11 10
By telephone: +33 (1) 45 24 10 71

By computer network:
Internet: staff-name @ DB.NEA.FR
Bitnet/Earn: staff-name @ FRNEAB51
X25/Transpac: (208/1) 921607751

Authorization procedures

The authorization to use one or more on-line services must be obtained by contacting the NEA Data Bank or the liaison officer of the user's establishment. In order to protect the Data Bank's collection of data and programs, users will be assigned a confidential password only through agreed nomination procedures.

NEA Member Countries

Australia (*), Austria, Belgium, Canada (*), Denmark, Finland, France, Germany, Greece, Iceland (*), Ireland (*), Italy, Japan, Republic of Korea, Luxemburg (*), Netherlands, Norway, Portugal, Spain, Sweden, Switzerland, Turkey, United Kingdom, United States (*).

(*)Countries not participating in the Computer Programme and Nuclear Data services of the NEA Data Bank.

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