ownership, and exports were all statistically significant . . . variables" in explaining the likelihood of receiving AIRDIS support (Volume 1, p. A50). This is surely an interesting and important result that cries out for some interpretive analysis. No such analysis is offered. A fairly assiduous search failed to find any sign that these results had been incorporated and analysed in the main text.

It needs to be stressed that despite these deficiencies the report is the most thorough evaluation of AIRDIS that has yet appeared, and it is well worth reading for its many detailed observations on the determinants of industrial R & D in Australia. The overall result is a report built on good conceptual foundations and supported by much worthwhile statistical material, but which in the final analysis has not really used to best effect the opportunity to provide definitive evidence on the quantitative impact of AIRDIS.

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The Use of Information in a Changing World *edited by A Van der Laan and A.A. Winters*
(North-Holland, Amsterdam, 1984) pp xii + 470, $US 53.75
ISBN 0 444 87554 9.

The way in which various groups gather and use information has been studied in increasing detail for at least the last 40 years. J.D. Bernal probably started the current trend by his analysis in 1946, of the different types of information needed by scientists and applied scientists, and this was followed in the sixties by the Bath Study in Britain and by T.J. Allen's pioneering work on information-gathering in a US research laboratory, in which he used what is now called the 'critical incident' technique. These types of studies have continued to increase in number and variety throughout the world, and have been supported in some cases by special centres for user studies.

This book represents another step along the same road, composed as it is of papers presented at the 42nd Congress of the FID (Fédération Internationale de Documentation) held in The Hague in 1984, the theme of which was the use of information in a changing world. In view of the history of the FID, which was founded in 1895 to foster international co-operation and research in documentation, it is not surprising to find that many of the authors have a strong documentalist background and come from a total of 23 different countries.

This gives the book an international flavour but also means that many of the papers are written from the perspective of the user himself. For instance, many writers interpret the term 'information user' as 'user of a library or information service', which is not the same thing. The papers on non-use of information therefore, tend to dwell on the non-use of libraries and information services. This only highlights the conceptual differences between the information provider for whom the information is the end product by which he/she earns a living, and the information user who may be an industrial manager, viewing information as something instrumental to his company's goals. These two world views are difficult to coalesce and it is the intellectual struggle to do so that seems to be the unwritten message emanating from this collection of papers.

One writer who has successfully married the two views, is Michael Hill, Director of the UK Science Reference Library, who pointed out that a middle manager (MM) in a typical company (the type of person who might be described as a non-user by information providers) is actually processing information all the time in his function as decision-maker. His information is largely gathered orally, either at meetings or by the telephone and this information gathering/processing activity is estimated to take two-thirds of an average MM's time. In these activities, personal contacts are most highly valued. Hill claims that this decision-making input is something which must be called 'information' but cannot be universally or evenly available, because it is assembled out of disparate sense perceptions and may even be incommunicable. He points out that this type of highly-personalised information is nonetheless the basis of flair, which distinguishes decisions at the higher level from those at the lower. At the same time, Hill admits that there must be some way in which the MM can be helped in his information-processing and this subject is discussed by Cronin.

Cronin examines the role of the future corporation information manager who will use current computer technology to cut across departmental lines in order to integrate the handling and processing of operational, managerial and strategic information, thereby acting as a 'coalescence planner'. This concept has attracted considerable interest in the US.

Small and medium-sized industries (S&MI) may not however, be able to install this type of information management system and since encouragement to this section of industry is considered by many to be imperative for the national economic health, govenment and other information and library services in all countries have devoted considerable attention to techniques for assisting the S&MIs. Margaret Thatcher, for instance, is quoted as saying that S&MIs "are vital to survival and expansion".

But despite the dramatic increase in interest in S&MIs, this section of industry has not always proved to be easy to help. As mentioned above, most of a manager's information input is obtained orally and there is also a reluctance to become entangled with the government that he associates with the imposition of taxes and regulations. Kennington, following a 200 firm survey of S&MIs by the Capital Planning Information (CPI), says: "The type of entrepreneur who sets up a small firm is generally the complete antithesis to the bureaucrat and as such, in the main, wishes to avoid entanglement with government at any level".

Nevertheless, delegates to the congress from some other countries, particular those from behind the Iron Curtain, did not appear to have had the same problems in communicating with S&MIs. Fotev from Bulgaria says: "STI (scientific and technical information) is considered a national property and has become a major factor in the economic and social development of Bulgaria. This is the basis of a national information policy, directed to the accelerated adoption of leading technical developments . . . and providing an 'information comfort' to every Bulgarian user of STI".

Chavdarov, also from Bulgaria, reported on the integrated approach taken to STI by his country, in combining both formal and informal means of information transfer to industrial users. This involved a centralised formal service encompassing computer-based services, bulletins and surveys tailored to users' requirements, which was complemented by an informal, decentralised industry extension service located at 20 sectoral centres, with further sub-sectoral STI departments based at research institutions. These extension services employed mainly oral techniques using visits, meetings and discussions to establish communications with the users, who could be managers but could also be production engineers or others on the factory floor. All Bulgarian STI is co-ordinated at the national level but extended to firms through decentralised services. Chavdarov says: "In this way undesirable duplication of effort is prevented".

Similar reports came from the Polish, Hungarian and also the Singaporean delegates. Singapore, for instance, is part of an 11-country S&MI Technical Information Network called Technonet, a network that has once again, a heavy reliance on the 'human element'. Chico reports: "Some 5000 industrial extension officers roam the countrysides to diagnose S&MI problems on-site at the 'grass roots' level. They are generally young engineers or business graduates whose major expertise is the ability to diagnose and identify problems and seek solutions. Technonet relies heavily on this labour-intensive type of delivery mechanism".

The countries which reportedly have the most success in communicating with the S&MIs are those which have been able to combine technical with economic information and which have decentralised extension services manned by staff who can 'speak the same language' as those on the factory floor. Some of these systems may be well worth studying by Australians who are interested in the establishment of a national scientific, technical (and economic) information service.

This book has endeavoured to show that the pendulum is swinging away from a concentration on the documentation and the supply of information, to the user and the demand for information, and this swing is notable in papers on the under-utilisation of libraries and the search for new ways to entice the user back to the fold. It has drawn attention to the need for using the techniques of the market place to target information directly to user needs. Other themes are the increasing trend to regard information and documentation centres as profit rather than cost centres and a shift from centralised to decentralised information provision. These themes are underpinned by the philosphy that information is an economic good and may be seen as a national resource.

Due to this broad coverage, the book will be of interest to all who are involved in the so-called information industry, which covers a wide spectrum

of disciplines such as education, communications, cybernetics, economics and documentation, although not all will want to read all the papers. The book is a *pot-pourri* of reports on a multi-faceted subject in which an increasing number of people have an interest.

On the debit side, while not questioning the intellectual content of the book, this reader found that it had serious physical defects which affected the pleasure of reading it. To cut costs and to save time, the book was printed from camera-ready copy sent in by the authors. This meant that after reduction, the type was very small and often very faint. In addition, 'no linguistic corrections' were made to the texts, so that the standard of translation differed markedly from author to author, with the three papers by the French delegates not translated at all. As a result, in certain papers the rather rough translations made reading jerky and slow.

This being said, the book contains many important papers which throw a new light on information use in our changing world and will be well worth reading (by those with good eyesight), who may come from a wide range of information-oriented professions.

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