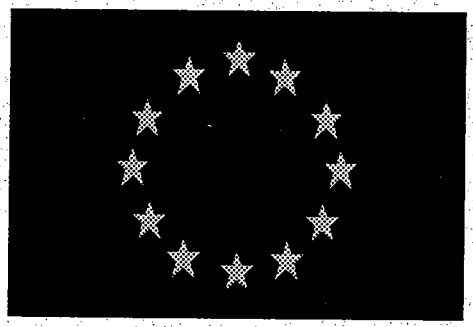
Cranfield UNIVERSITY

Eurilia (European Initiative in Library and Information in Aerospace)

An audit of aerospace information needs in five European countries



John Blagden, John Harrington and Heather Woodfield
Cranfield Information and Library Service

COA report No.9405
November 1994

College of Aeronautics
Cranfield University
Cranfield, Bedford MK43 0AL, England

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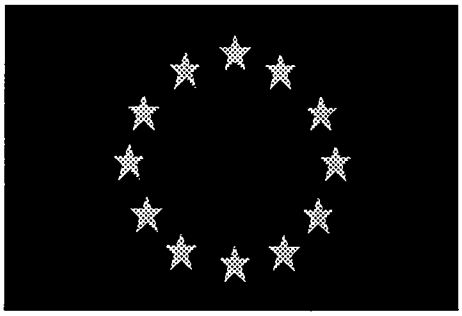

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INTRODUCTION

The study reported here is part of the Eurilia (European Initiative in Library and Information in Aerospace) project, the aim of which is to enhance the Libraries' R&D and education process which underpins the aerospace sector by establishing a new service based on a standardised pan-European system for information access, retrieval, image browsing and document delivery. This will in turn extend the access and availability of major aerospace collections.

The partners in this project are:

University of Limerick
Delft University of Technology
Digital Equipment Corporation
Sup'Aero, ENSAE - Ecole National Supérieure de l'Aéronautique et de l'Espace
Instituto Nacional de Tecnica Aeroespacial
Cranfield University

The work for this study was largely undertaken by Cranfield University, but all partners have provided useful input and comments particularly in terms of the interviews conducted in each Eurilia country. The University would also wish to thank the EC European Action Programme for Libraries for the support for Eurilia in general and this phase of the project in particular.

This report was originally submitted to the EC as Eurilia (European Initiative in Library and Information in Aerospace), Pre-project Audit, Project LIB-EURILIA/3-2083 funded by the European Action Programme for Libraries, EURILIA/WP1/DR1/CU/JB/941014/V1.0, October 1994.

1 The pre-project audit in context

The results presented here should be set in the context of the two earlier reports emanating from the Eurilia project[1,2]. The results also have to be related to the extensive work being undertaken under the framework of the Aerospace Diffusion Research Project (sponsored by the National Aeronautical and Space Administration and the US Department of Defense), in which one of the partners (Cranfield University), has recently participated. This participation involved a survey of a sample of Cranfield's 300 postgraduate aerospace students and the results of this study are reviewed in the two earlier Eurilia reports[1,2].

2 The audit methodology: approach to the audit

It was agreed by the Eurilia project team that ten interviews would be conducted in each country: Spain, Holland, Ireland, France and the United Kingdom. It was accepted from the outset that these interviews could not be regarded remotely as representative of the aerospace sector, but the purpose of the exercise would be to provide a snapshot of attitudes towards information in the aerospace sector. It was also agreed that the project participants would aim to include in each country five respondents from industry and five from academia.

It is intended to repeat these interviews involving the same, or a similar set of questions, on the same respondents, at the end of the project. This will give an indication as to the impact that Eurilia has had on these fifty plus respondents. It is also intended to invite these respondents to the national workshops which will be held in each country and, whenever possible, involve the respondents in the testing of the system as it develops. It is, however, recognised that there is a danger here of the respondent starting off as an objective non-participating observer and ending up as a non-observing participant.

3 The audit methodology: piloting

The interview schedule was developed at Cranfield University and was based on the large number of questionnaires that have been used on the Aerospace Diffusion Research Project to which reference has already been made. It was encouraging to learn from this project that telephone interviews had been successfully conducted in a number of studies and it was decided that this mode would be adopted in the Eurilia study.

The schedule was pilot tested on Cranfield's aerospace students and staff and the final English language version of the schedule is reproduced in Appendix B, together with accompanying guidance notes for the interviewers Appendix A. The schedule was translated and an example of the French version is given in Appendix C.

It was agreed that all of our respondents should have a high degree of aerospace information awareness and the check list used to assess this is given in Appendix D. We did not wish to use respondents who were unfamiliar with the key information resources as this perhaps would show a misleadingly dramatic change in perceptions at the end of the project when the interviews were repeated. By selecting respondents

with a high degree of 'information literacy' we expect to obtain better judgements on the strengths and weaknesses of the existing system and to obtain more informed assessments of the Eurilia system as it develops. It was agreed that more than 50% negative answers, i.e. a lack of awareness of more than half key aerospace information sources, would disqualify the potential interviewee.

4 Audit results

4.1 Overall analysis

Although the aim was to obtain ten responses from each country (5 academic and 5 industrial), the final total of respondents was in excess of the 50 target figure and the breakdown was as follows.

Table 1: Distribution of responding organisations

UK	11 (19.6%)
Ireland	11 (19.6%)
Holland	13 (23.3%)
France	11 (19.6%)
Spain	10 (17.9%)
Total	56 (100.00%)

These returns were analysed using the Statistical Package in Social Sciences (SPSS)

4.2 Employing organisation

Table 2: Type of organisation

Academic	31 (55.4%)
Industrial	25 (44.6%)
Total	56 (100.00%)

There was a slight imbalance in that six additional responses were obtained from academia, but it was decided to incorporate these into the results as it was felt they still provided useful input to the study.

4.3 Academic qualifications

Table 3: Academic qualifications

First degree	48 (85.7%)
Masters degree	36 (64.3%)
Doctoral degree	18 (32.1%)
Other qualification	12 (21.4%)

Despite the instructions to tick all appropriate boxes, many of the interviewers only ticked one box. For the purpose of this study we have made the not unreasonable assumption that any respondent with either a doctorate or a masters degree would also hold a first degree. The high level of academic qualifications of our respondents reflects not only the high demands of the sector, but also the high degree of information literacy that we required from our respondents to which Appendix D refers.

4.4 Work Activity and Functional Specialism

Table 4: Work activity

	Academic	Industrial	Total
Academic/teaching/research	28	8	36 (64.3%)
Design and development	6	20	26 (46.4%)
Manufacturing production	1	4	5 (8.9%)
Engineering maintenance	1	4	5 (8.9%)
Air transport	2	3	5 (8.9%)
Other work activity	2	5	7 (12.5%)

It is interesting to note here that 8 industrial respondents were involved in academic teaching and research and 3 academic respondents claimed **not** to be involved in either teaching or research! It is also interesting to note the significant minority of academics involved in design and development. This table perhaps suggests that it is difficult to draw sharp distinctions between academia and industry.

Table 5: Functional specialisation

Design	11 (19.6%)
Structures	7 (12.5%)
Aerodynamics	10 (17.9%)
Avionics	2 (3.6%)
Materials	2 (3.6%)
Space sciences	8 (14.3%)
Other work activity	16 (28.5%)

A number of respondents characterised their work activity and specialisms as outside the classification presented in tables 4 and 5. A wide variety of answers were given including engine integration, product support simulation, control, computational fluid mechanics, navigation, vibration and acoustics, propulsion, management, maintenance and air transport operations. In such a small sample the diversity of activity is considerable, reflecting the complexity of the aerospace sector.

4.5 Importance of information access

A simple five point scale was employed on this and other attitudinal questions throughout the study. In this case 5 was 'of critical importance' and 1 'of no importance' for both tables 6 and 7.

Table 6: Importance of scientific and technical information

	UK	Ireland	Holland	France	Spain	Total
Of no importance						
	1	1	3	1		6 (10.8%)
	3	2	4		2	11 (19.6%)
Of critical importance	7	8	6	10	8	39 (69.6%)

Table 7: Importance of scientific and technical information

	Academic[1]	Industrial[2]	Total
Of no importance			
	1 (3.2%)	5 (20.0%)	6 (10.8%)
	4 (12.9%)	7 (28.0%)	11 (19.6%)
Of critical importance	26 (83.9%)	13 (52.0%)	39 (69.6%)

[1] Percent of academic respondents [2] Percent of industrial respondents

Given that we had deliberately selected respondents with a high degree of information awareness, it was not surprising that most respondents regarded access to information as being of critical importance. Very similar sets of responses were obtained from each country, reinforcing the point made in the review[(1)] that users have similar views, irrespective of their nationality. It should also be noted that respondents' nationalities did not necessarily coincide with the country from which the responses were obtained - again reinforcing the genuinely international nature of the sector.

Table 7 does show significantly less enthusiasm for the importance of scientific and technical information with 20% of industrial respondents registering a neutral view (score 3), as compared with only one respondent from academia registering a '3' score. Given the small numbers of respondents overall, clearly not too much weight can be given to this finding. It should be noted here that each set of data for most questions was analysed by both country and respondent, but two sets of analyses are presented only on those occasions where significant differences are revealed.

4.6 Recall last occasion when information used

Table 8: Last occasion use of information recalled

	UK	Ireland	Holland	France	Spain	Total
Yes	11	2	12	11	10	46 (82.1%)
Recalled in general terms		9	1			10 (17.9%)

Generalisations about information seeking can often give a misleading picture and it was encouraging to note that almost all respondents could recall the last occasion when they used information except almost all the respondents from Ireland. This reinforces the validity of the answers in tables 9, 10, 11 and 12, except in the case of 9 Irish and 1 Dutch respondent.

4.7 Sources used on that occasion

Table 9: Sources used on that occasion*

	UK	Ireland	Holland	France	Spain	Total
Colleagues	5	6	7	4	2	24 (10.9%)
Material in own office	8	11	6	4	3	32 (14.7%)
Library	2	9	9	6	8	34 (15.5%)
Databases	5	8	1	6	8	28 (12.8%)
Books	3	11	5	9	7	35 (15.9%)
Periodicals	3	8	4	6	7	28 (12.8%)
Reports	2	8	7	6	5	28 (12.8%)
Other sources	3	6	1			10 (4.6%)

*Totals and percentages based on ticked responses, not respondents

Although these were all 'information literate' respondents, it was somewhat surprising that so many sources were used in a specific search. It was also surprising how important books and libraries appeared to be in this search process.

4.8 Ease of identification of relevant information

Table 10: Ease of identification of relevant information on that occasion

	UK	Ireland	Holland	France	Spain	Total
Very difficult			1			1 (1.8%)
	1		1	1	1	4 (7.1%)
	1	3	2	2	2	10 (17.9%)
	4	3	6	5	6	24 (42.8%)
Very easy	5	5	3	3	1	17 (30.4%)

It was encouraging here to find that the majority of respondents did not appear to encounter much difficulty in identifying information.

4.9 Ease of obtaining information

Table 11: Ease of obtaining information on that occasion

	UK	Ireland	Holland	France	Spain	Total
Very difficult					1	1 (1.8%)
	1	2	1		2	6 (10.6%)
	1	4	5	3	2	15 (26.8%)
	2	2	5	5	3	17 (30.4%)
Very easy	7	3	2	3	2	17 (30.4%)

The picture here is not quite so encouraging, suggesting perhaps that aerospace information and document delivery systems have not matched the dramatic improvements in computerised information access.

4.10 Sources in meeting information needs

Table 12: Success in meeting information needs on that occasion

	UK	Ireland	Holland	France	Spain	Total
Hardly any use	1					1 (1.8%)
			1		1	2 (3.6%)
	1	2	5	5	3	16 (28.6%)
	5	6	7	2	5	25 (44.6%)
Extremely useful	4	3		4	1	12 (21.4%)

Given the wide variety of sources used and the high degree of satisfaction expressed with information identification systems, it was disappointing that around a third of all respondents registered a degree of dissatisfaction with the final outcome of the process.

4.11 End user and mediated searching

Table 13: End user and mediated searching

	UK	Ireland	Holland	France	Spain	Total
Most done by self	8	8	8	3	8	35 (62.5%)
Half and half	1	3	3	7	2	16 (28.6%)
Most through intermediary	2		2	1		5 (8.9%)

This general question reflects the reality that most searches are conducted without any help from the intermediary. What it would have been interesting to explore is whether the proportion of mediated to non-mediated searches changes when the search is of critical importance.

Nevertheless over a third of respondents used an intermediary, either partly or wholly, and it would also have been interesting to assess the level of mediated searching where electronic sources were used.

4.12 Published information sources used

Table 14: Published information sources used*

	UK	Ireland	Holland	France	Spain	Total
Online databases	8	9	4	8	7	36 (14.9%)
CD-ROM	4	9	1		1	15 (6.2%)
Printed indexes	5	10	6	4	5	30 (12.4%)
Library catalogue	9	8	10	3	8	38 (15.8%)
Books	11	10	8	8	6	43 (17.8%)
Reports	10	10	11	5	4	40 (16.7%)
Dissertations	7	7	5	6	1	26 (10.8%)
Other sources	6	5	1	1		13 (5.4%)

*Totals and percentages based on ticked responses, not respondents

Again a very wide spread of sources used with CD-ROM services hardly being used at all in Holland, France and Spain. This could change dramatically with the launch of the CD-ROM version of the NASA database. The second least used source was dissertations and this may be due to a lack of an efficient means of access, to perceived doubts about their value and to a general lack of awareness of this information source.

4.13 Value of full text electronic services

Table 15: Value of full text electronic services

	UK	Ireland	Holland	France	Spain	Total
No help			1			1 (1.8%)
			2	1	1	4 (7.1%)
	4	1	1	1	1	8 (14.3%)
	3	2	3	5	4	17 (30.4%)
Very helpful	4	8	6	4	4	26 (46.4%)

As expected, approaching 80% of all respondents appear to be enthusiastic about having access to full text electronic services. However, given the respondents were highly information literate, it was somewhat surprising that the support was not nearer 100%.

4.14 Use of dissertations

Table 16: Use of dissertations

	UK	Ireland	Holland	France	Spain	Total
Yes	9	7	6	9	4	35 (62.5%)
No	2	4	7	2	6	21 (37.5%)

Table 17: User of dissertations by type of organisation

	Academic[1]	Industrial[2]	Total
Yes	22 (71.0%)	13 (52.0%)	35 (62.5%)
No	9 (29.0%)	12 (48.0%)	21 (37.5%)

[1] Percent of academic respondents [2] Percent of industrial respondents

In Holland and Spain it would appear that dissertations are not used so heavily as they are in France and the UK. The significant proportion of non-users of dissertations would appear to confirm one earlier finding in table 14 of the comparative perceived lesser importance of dissertations. Table 17 shows almost a majority of the industrial respondents not using dissertations. Many thousands of PhD and Master Degree dissertations on aerospace topics are produced around the world and perhaps points to a gulf between academic research and industrial relevance. Clearly low use could be caused by a lack of awareness of their value and difficulties in identifying and obtaining copies of these publications. It will be particularly interesting to see what impact the Eurilia project has on these views.

4.15 Value of dissertations in electronic form

Table 18: Value of dissertations in electronic form

	UK	Ireland	Holland	France	Spain	Total
No help		1	1	2		4 (7.1%)
	1		4	1	3	9 (16.1%)
	3	3	2	4	5	17 (30.4%)
	5	3	2	3	2	15 (26.8%)
Very helpful	2	4	4	1		11 (19.6%)

Table 19: Value of dissertations in electronic form by type of organisation

	Academic[1]	Industrial[2]	Total
No help	1 (3.2%)	3 (12.0%)	4 (7.1%)
	5 (16.1%)	4 (16.0%)	9 (16.1%)
	10 (32.3%)	7 (28.0%)	17 (30.4%)
	9 (29.0%)	6 (24.0%)	15 (26.8%)
Very helpful	6 (19.4%)	5 (20.0%)	11 (19.6%)

[1] Percent of academic respondents [2] Percent of industrial respondents

Fewer respondents are totally negative about dissertations in electronic form than the non-users of dissertations recorded in table 16. Is there an implication here that the availability of dissertations in electronic form might ensure a higher degree of utilisation? Interestingly table 19 shows that the views from academia and industry (with differing numbers of respondents) are remarkably similar where you would have expected some significant differences to emerge.

5 Conclusions

This pre-audit stage of the Eurilia project has not demonstrated significant differences between countries or, for that matter, significant differences in the views of academia and industry. This is perhaps a further reinforcement of the view that the aerospace industry is genuinely international and users all over the world have similar views and problems.

As expected, 'information literate' users regarded information access as of critical importance and the wide range of sources used seemed to provide further evidence in

support of this. However, there did appear to be a significant incidence of difficulty in obtaining items and this factor may have contributed to the comparatively poor outcome in around a third of the information seeking events reported. Of course, the results could be presented differently with two thirds of all searches appearing to be successful! However, it has to be remembered that all of these respondents were 'information literate' and, on the basis of their own replies, appeared to be engaged in extensive searches of literature and other sources. It could, therefore, be argued that if a third of these respondents were having difficulty, this may well mask a more serious situation in the sector as a whole.

The question on the role of the intermediary, with hindsight, perhaps could have been worded differently with a view to determining what role, if any, the intermediary might have in the future.

There was very strong support for the development of full text systems. Dissertations generally seemed to be perceived as an important source (less so in Holland and Spain), but only about a half of all respondents seemed to be enthusiastic about making the full text of dissertations available in electronic form. It will, of course, be interesting to re-assess this from the same set of users after they have had an opportunity of accessing the full text of Cranfield dissertations held in electronic format (one of the outcomes of the Eurilia project).

All of these issues will be further addressed in the international workshops that Eurilia will organise in each country and this will be further refined on the basis of informal feedback that the project team obtains as the Eurilia database develops.

The findings presented here will, of course, be contrasted with the post-audit study using a similar set of questions. The post-audit stage will be conducted towards the end of the study.

REFERENCES

1 European Initiative in Library and Information in Aerospace (1994). *Aerospace information: a literature review.* College of Aeronautics report number 9404, Cranfield University.

2 European Initiative in Library and Information in Aerospace (1994). *A commercial and business framework for the Eurilia project.* College of Aeronautics report number 9406, Cranfield University.

ORAL INTRODUCTION TO INTERVIEW

Script of interview to be conducted by telephone (or in person for academic staff, if easy to do) in Ireland, Spain, UK, France and The Netherlands.

'Thanks for agreeing to participate in this interview which shouldn't take more than 10 minutes. If it is inconvenient to talk to you I can ring back at an alternative, specified time and date.

I should emphasise that this interview is part of the Eurilia (European Initiative in Library and Information in Aerospace) project which is sponsored by the CEC. The project is attempting to enhance information access and utilisation of information within the aerospace sector. As previously advised, we would also like to interview you again at the end of the project in three years time, and it would be very helpful if you could keep us posted if you should change your address.

In addition to these two interviews, you will also be invited to a national seminar which will give you an update on Eurilia and invite your comments on the project's progress.'

Final pilot tested interview schedule

1. Type of organisation in which you work (interviewer tick only one box)

   Academic [ ]

   Industrial [ ]

   Government [ ]

   Other please specify

2. Education (interviewer tick all appropriate boxes)

   First degree [ ]

   Masters degree [ ]

   Doctoral degree [ ]

   Other please specify

3. Which of the following BEST describes your key work activity? (interviewer tick as many boxes as appropriate)

   academic/teaching/research [ ]

   design and development [ ]

   manufacturing production [ ]

   engineering maintenance [ ]

   air transport [ ]

   Other key activity - please specify

4. If you could only use <u>one</u> term to characterise your area of work would it be (interviewer only tick one box)

   Design [ ]

   Structures [ ]

   Aerodynamics [ ]

   Avionics [ ]

   Materials [ ]

   Space Sciences [ ]

   Other - please specify

5. In your job how important is it for you to have access to scientific and technical information (interviewer please ring appropriate number)

of critical importance				no importance
5	4	3	2	1

6. Can you recall the last occasion that you used scientific and technical information in your job (interviewer tick only one box)

Yes [ ]

No [ ]

7. On that occasion* which sources did you use (tick all appropriate boxes)

Colleagues [ ]

Material in own office [ ]

Library [ ]

Databases [ ]

Books [ ]

Periodicals [ ]

Reports [ ]

Other [ ]

* If user can't recall, re-phrase question to generally and tick this box [ ]

8. On that <u>specific</u> occasion, how easy was it to (interviewer please ring appropriate number)

(i) identify source of relevant information

very easy				very difficult
5	4	3	2	1

(ii) obtain that information

very easy				very difficult
5	4	3	2	1

and

(iii) how well did the supplied information meet your need

extremely well				hardly any use
5	4	3	2	1

9. When searching for information do you (tick one box)

do most searches yourself [ ]

do half yourself and half through an intermediary [ ]

do most searches through an intermediary [ ]

10. When searching for published information, either personally or through an intermediary, which of the following sources do you use (tick all appropriate boxes)

	Yes	No
on line dial up databases	[ ]	[ ]
CD-ROM services	[ ]	[ ]
printed indexes	[ ]	[ ]
library catalogues	[ ]	[ ]
books	[ ]	[ ]
journals	[ ]	[ ]
reports	[ ]	[ ]
dissertations	[ ]	[ ]

Other please specify _____

11. Would it be helpful if the full text of relevant documents was available in a searchable electronic form? (ring appropriate number)

very helpful				no help
5	4	3	2	1

12. Can you recall an occasion when you have had to consult for information purposes (not academic supervision or assessment) a PhD or Masters Degree dissertation (tick one box)

Yes	No
[ ]	[ ]

13. How helpful would it be if academic dissertations were available in a searchable full text electronic format? (ring appropriate number)

very helpful				no help
5	4	3	2	1

These interview schedules should be translated into the appropriate language and adapted to meet individual country needs - particularly question 2. Interviews should be completed and returned to John Blagden at Cranfield by the 13th May.

Questionnaire Eurilia (version française)

1. Travaillez-vous pour (un seul choix possible) :
- un centre de recherche ou une institution universitaire
- une entreprise

2. Votre niveau d'études (cocher les cases appropriées)
- licence ()
- maîtrise/DEA ()
- doctorat/thèse ()
- autres, spécifier ().....

3. Lesquels des termes suivants qualifient le mieux votre activité professionnelle ?

- recherche/enseignement ()
- conception et développement ()
- production ()
- maintenance ()
- transport aérien ()
- Autres, spécifier ().....

4. Si vous deviez choisir un seul mot pour définir votre domaine d'activité, ce terme serait (un seul choix possible) :
- Conception ()
- Structures ()
- Aérodynamique ()
- Avionique ()
- Matériaux ()
- Sciences spatiales ()
- Autres, spécifier ().....

5. Dans votre travail, pensez-vous qu'il est important d'avoir accès à l'information scientifique et technique ? (cocher le chiffre approprié)

très important peu important
5 4 3 2 1

6. Vous souvenez-vous de la dernière occasion où vous avez utilisé de l'information scientifique et technique dans le cadre de votre travail ?

oui () non ()

7. Si oui, quelles furent alors les sources que vous avez sollicitées ?
- des collègues ()
- de l'information localisée dans votre propre bureau ()
- une bibliothèque ()
- des bases de données en ligne ()
- des ouvrages ()
- des périodiques ()
- des rapports ()
- autres ()

8. Lors de cette dernière occasion, fut-il facile :
- d'identifier la source documentaire susceptible de fournir l'information recherchée ? (cocher le chiffre approprié)

très facile très difficile
5 4 3 2 1

- d'obtenir cette information ? (cocher le chiffre approprié)

très facile très difficile
5 4 3 2 1

Le document obtenu vous a-t-il donné satisfaction ? (cocher le chiffre approprié)

Oui, beaucoup non, pas du tout
5 4 3 2 1

9. Lorsque vous recherchez une information,
- Procédez-vous seul ? ()
- Partagez-vous cette recherche avec un documentaliste ? ()
- Confiez-vous cette recherche à un documentaliste ? ()

10. Lorsque vous recherchez un document publié, seul ou avec l'aide d'un documentaliste, lesquelles des sources suivantes utilisez-vous ?

- bases de données en ligne ()
- CD ROM ()
- index imprimés ()
- catalogues de bibliothèques ()
- ouvrages ()
- périodiques ()
- rapports ()
- thèses ()
- autres, spécifier ().....

11. Quelle aide vous apporterait le fait de pouvoir disposer sous forme électronique des documents en texte intégral ? (cocher le chiffre approprié)

aide considérable				aucune aide
5	4	3	2	1

12. Vous souvenez-vous avoir consulté une thèse de doctorat ou un rapport de fin d'études écrit par un ingénieur, dans le cadre d'une recherche documentaire ?

oui () non ()

13. Quelle aide vous apporterait le fait de pouvoir disposer sous forme électronique de thèses en texte intégral ? (cocher le chiffre approprié)

Aide considérable				aucune aide
5	4	3	2	1

APPENDIX D

INFORMATION LITERACY TEST

Are you aware of the following information sources?

	Yes	No
Reference Books		
Janes All the Worlds Aircraft	☐	☐
International ABC Aerospace Directory (Interavia)	☐	☐
Flight International Directory Part 1 & 2 United Kingdom/	☐	☐
Mainland Europe	☐	☐
Journals		
Aerospace	☐	☐
AIAA Journal	☐	☐
Aviation Week & Space Technology	☐	☐
Flight International	☐	☐
Interavia	☐	☐
Journal of Aircraft	☐	☐
La Recherche Aerospatiale	☐	☐
Abstract Journals		
International Aerospace Abstracts (IAA)	☐	☐
Scientific and Technical Papers (STAR)	☐	☐
Engineering Index	☐	☐
Electronic databases		
NASA	☐	☐
European Aerospace Database	☐	☐
NTIS	☐	☐
Compendex	☐	☐
Inspec	☐	☐
NATO - PCO	☐	☐
Flightline	☐	☐
McGraw-Hill Aerospace Database	☐	☐