

# Information Transfer Case Studies in Foreign Transportation Literature

Mary Roy  
Benjamin H. Jacobson

Transportation Library  
Northwestern University  
Evanston, IL 60201

September 1983  
Final Report

This document is available to the public  
through the National Technical Information  
Service, Springfield, Virginia 22161.



U.S. Department of Transportation  
Research and Special Programs  
Administration

Office of Program Management and Administration  
Office of Budget and Programs  
Washington, DC 20590

Technical Report Documentation Page

1. Report No. DOT-TSC-RSPA-83-12		2. Government Accession No.		3. Recipient's Catalog No.	
4. Title and Subtitle INFORMATION TRANSFER CASE STUDIES IN FOREIGN TRANSPORTATION LITERATURE				5. Report Date November 1983	
				6. Performing Organization Code DTS-32	
7. Author(s) Mary Roy, Benjamin H. Jacobson				8. Performing Organization Report No. DOT-TSC-RSPA-83-12	
9. Performing Organization Name and Address Transportation Library Northwestern University Evanston, IL 60201				10. Work Unit No. (TRAIS) RS409/R4506	
				11. Contract or Grant No. DOT-OS-50128	
12. Sponsoring Agency Name and Address U.S. Department of Transportation Research and Special Programs Administration Office of Program Management and Administration Office of Budget and Programs Washington, DC 20590				13. Type of Report and Period Covered Final Report 1972 - 1978	
				14. Sponsoring Agency Code DMA-20	
15. Supplementary Notes					
16. Abstract An assessment of the effectiveness of the transfer of foreign literature to U.S. transportation professionals has been conducted. The methodology involved a series of case studies concerning (1) distribution of the report on a major German Federal Republic study on high speed ground transport through the efforts of the Federal Railroad Administration, the Transportation Research Information Services and journal literature, (2) analysis of the transfer of publications on light rail transit in Europe, (3) survey of the members of the Transportation Research Forum on requirements for and access to foreign transportation developments, (4) description of the National Translations Center. The objectives, methodologies and findings for each case study are presented.  Recommendations for the expansion of current DOT programs in foreign transportation information transfer include undertaking a clearinghouse role for foreign language reports, developing a translations register for documents translated or known to be translated by the Department, preparing a summary digest on current important documents, marketing the international program through news releases and features in DOT journals, evaluating the program based on the user's experience.					
17. Key Words Information Services Information Transfer Transportation Literature Foreign Transportation Information			18. Distribution Statement  DOCUMENT IS AVAILABLE TO THE PUBLIC THROUGH THE NATIONAL TECHNICAL INFORMATION SERVICE, SPRINGFIELD, VIRGINIA 22161		
19. Security Classif. (of this report) UNCLASSIFIED		20. Security Classif. (of this page) UNCLASSIFIED		21. No. of Pages 46	22. Price

## EXECUTIVE SUMMARY

An assessment of the effectiveness of the transfer of foreign literature to U.S. transportation professionals has been conducted. The methodology involved a series of case studies concerning (1) distribution of the report on a major German Federal Republic study on high speed ground transportation through the efforts of the Federal Railroad Administration, the Transportation Research Information Services (TRIS) and journal literature, (2) analysis of the transfer of publications on light rail transit in Europe, (3) survey of the members of the Transportation Research Forum on requirements for and access to foreign transportation developments, (4) description of the National Translations Center.

The following summaries of the case studies include the objectives, methodologies and findings for each.

### 1. HSB Document Diffusion

The final report on a study of a high speed intercity rail system for the German Federal Republic by Hochleistungs-Schnellbahn Studiengesellschaft was published in six volumes in 1972 (HSB: Studie über ein Schnellverkehrssystem. Munich: Rudolf Leuthold Verlag). The HSB report represents a major economic and engineering investigation of a new ground transportation system for the Hamburg-Munich corridor, complementing the existing German Federal Railway network. The study was funded by the German Minister of Transport at \$3,000,000. The final report was translated into English under the joint sponsorship of the Federal Railroad Administration and the Transportation Development Agency, Transport Canada.

The objectives of the HSB case study were to determine the effectiveness of the transfer of information about this report to the U.S. transportation community, through the efforts of FRA, the TRIS abstracting/indexing services and the journal literature. The tasks included (1) obtaining background information on the translation of HSB by FRA including the identification of policies or practices for the acquisition, translation and dissemination of foreign transportation research reports; (2) comparing the diffusion of HSB in the professional transportation literature of several West European countries, Canada and the U.S. from 1969 to the present; (3) establishing a test for the TRIS abstracting/indexing data base for coverage of the report and its derived literature; (4) sampling awareness of HSB among ten non-FRA railroad experts by questionnaire; (5) determining the availability of the original report in North American libraries.

The exchange agreements developed by FRA with their counterpart organizations abroad seem to be productive for U.S. research. The HSB translation, one result of these exchanges, is judged timely, when the required permission of the German authorities, arrangement of the cooperative effort with Canada, and length and technical content of the report are considered. FRA ensured distribution of the translation to U.S. agencies concerned with parallel developments.

### 3. Professional Interest in Foreign Transportation Developments

Members of the Transportation Research Forum were surveyed to determine interest in and access to foreign transportation developments. The analysis of the results is based on responses from 235 members, 25.2% of the total surveyed. Seventy-one percent of the returns (representing 15% of total membership) indicated an interest in foreign developments. To meet this interest most members seemed to rely on U.S. sources.

Almost half of the responses cited problems in efforts to obtain information. The problems concerned awareness, acquisition, language barriers and applicability of the information. Recommendations for improving the transfer included the preparation of a summary/digest on developments abroad, better coverage in North American publications, U.S. clearinghouse services, and improved access to translations and translating services.

### 4. National Translations Center

In a follow-up of the recommendations on translations from the survey of TRF members, the services of the National Translations Center were summarized, stressing the Center's potential role as a depository for translations sponsored by the Department and as a source for transportation publications translated by other organizations.

The overall assessment of foreign transportation literature dissemination through DOT, TRIS and U.S. journals indicates both opportunities and successes.

In the case of DOT transfer, additional states of the art in foreign developments are required, along the lines of the UMTA-sponsored survey of light rail transit (1976), the Coast Guard-sponsored review of Russian and European literature on icebreakers and icebreaking methods (1974) and the FRA-sponsored Railroad Technical Documents Received Through U.S. Bilateral Agreements (1977). The last-named publication, produced for FRA by the Railroad Research Information Service, both announces foreign publications and requests user evaluation of those deserving full-text translation.

DOT activity can advance dissemination through the TRIS abstracting/indexing services and the U.S. journals. The DOT administrations receive reports through exchange and other overseas contacts. A Department-wide procedure should be established for loan of these reports to the appropriate TRIS data base for entry in the system. Notification of documents translated should also be forwarded to the abstracting/indexing services.

Timely release of information on foreign developments evaluated by the Department as applicable to U.S. operations will promote U.S. journal coverage. The Department-based journals, e.g., Transportation USA, Public Roads, Highway and Urban Mass Transportation, could serve as channels for announcement through regularly featured columns.

Urban Transit Abroad, a quarterly newsletter first published in February 1978 by the Council for International Liaison under UMTA sponsorship, could be considered an example for further modal or multimodal dissemination.

## Contents

Introduction	3
HSB Document Diffusion	4
Appendixes	19
Light Rail Transit	23
Professional Interest in Foreign Transportation Developments	30
National Translations Register	37
Conclusions and Recommendations	38

## INTRODUCTION

The investigation on the announcement, dissemination and transferability of foreign transportation literature involved a combination of approaches consisting of bibliographic case studies, review of transfer through DOT and TRIS, and a survey of transportation professionals. The areas of study were:

### 1. HSB Document Diffusion

A case study on the transfer of the research report on a high speed high capacity ground transportation system for the German Federal Republic to the U.S. community through (a) FRA-sponsored translation and dissemination, (b) RRIS announcement, (c) journal coverage and (d) railroad industry awareness.

### 2. Light Rail Transit

A second case study concerning primary and secondary sources on light rail transit coverage and their representation in the TRIS abstracting/indexing services, with implications for an urban mass transportation service.

### 3. Professional Interest in Foreign Transportation Developments

A survey of members of the Transportation Research Forum to determine awareness, applicability and accessibility.

### 4. National Translations Center

Review of Center services with possible applications to TRIS.

The methodologies, results and conclusions for each of the four topics follow. The final section presents general conclusions and recommendations on the transfer of literature on foreign developments.

service in which each element would be either containerized or roll-on/roll-off. Passenger service included carriage of personal automobiles.

The planning horizon was established at 1985 when the GFR road and domestic air systems were anticipated to have reached saturation. Cost/benefit consideration was given to environmental impact, accident reduction, economic stimulus and travel time savings. Engineering aspects of the projected HSB system were extensively explored among alternatives of air cushion, magnetic levitation and conventional steel-wheel/steel-rail.

The HSB system has not been fully implemented in Germany. Modern Railways reported in its July 1974 issue<sup>3</sup>:

The much-publicised development of the Hochleistungsschnellbahn (highly-efficient high-capacity high-speed transport system) does not seem to have progressed as fast as originally expected. Industry is busily building prototypes of maglev intercity vehicles for initial testing. The DB too is involved and is co-operating with the Federal Ministry of Transport in the design and construction of the 'test centre for guided transport technology' at Donauried. It is hoped to discover the ultimate optimum speed of steel-wheel steel-rail transport systems, and concurrently, if and when the need for non-conventional very high-speed ground transport will rise. Priority is being given by the Federal government to DB's solution to the transport problem of the immediate and near future. It is to be hoped that recent government changes will not lead to interference in the present plans.

The DB solution alluded to is conventional steel-wheel/steel-rail.

From this brief sketch of HSB the report content satisfies the criteria for scope and scale of study. The physical document is substantial, having been published originally in six volumes. Conclusive to the use of HSB as an object of this case study was the full English translation distributed by NTIS in May 1974.<sup>4</sup>

#### Tasks

The tasks of this case study were to: (1) obtain background on the translation of HSB which was sponsored by the U.S. Federal Railroad Administration (FRA) and determine whether a policy or practice existed for the acquisition, translation (if necessary) and dissemination of foreign transportation research reports; (2) compare the diffusion of HSB in the professional transportation literature of several West European countries, Canada and the U.S. from 1969 to the present; (3) establish a test for the TRIS abstracting services data base for coverage of the report and its derived literature; (4) sample awareness of HSB among ten non-FRA railroad experts by question-

<sup>3</sup>Towards the European Master Plan: 4. Modern Railways, v. 31, no. 310 (July 1974), p. 282.

<sup>4</sup>HSB: Study of a High Speed Intercity Surface Transportation System for Germany. NTIS: 1972. 6v.

4. U.S. Congress House and Senate Appropriations Committees. Hearings on the U.S. Department of Transportation Office of the Secretary, the Federal Railroad Administration and the Urban Mass Transportation Administration, 1970-1975.
5. Deutsche Bundesbahn. Dokumentationsdienst. Kurzauszüge aus dem Schrifttum für das Eisenbahnwesen (German Federal Railway Documentation Service. Brief Abstracts from Railway Literature) January 1969-February 1976, 40,000 entries. In addition 20 references were provided by the Service in response to a project request for a file search on HSB.
6. International Union of Railways. Selection of International Railway Documentation (abstracts) May 1969-December 1975, 8,930 entries.
7. Railway Engineering Research Institute. Railway Engineering Index (abstracts) 1971-1974.
8. Nederlandse Spoorwegen. Literatuur Informatie - Intern (Netherlands Railways. Internal Current Contents Information) 1972-1975.
9. ZEV Glasers Annalen (German railway engineering research journal) cover-to-cover scan 1969-1975.
10. European Conference of Ministers of Transport. Transdoc (abstracts) 1974-1976. nos. 1-2, 4-9.
11. Railway Age annual indexes 1969-1973.
12. Applied Science and Technology Index. 1969-1972.
13. Northwestern University Transportation Library subject card catalog (cited as NUTL).
14. COMPENDEX (Engineering Index on-line) search.
15. TRIS ON-LINE (Transportation Research Information Service) search.
16. RRIS (Railroad Research Information Service subset of TRIS) batch search.

A record was made for each relevant reference to include bibliographic information, language, format and source.

#### Task for TRIS Data Base

It was apparent that the broad criteria for accepting references on literature diffusion of HSB would need to be narrowed to test the transfer performance of the TRIS services. The test used was based on the presence in TRIS of abstracts of the original HSB text, the English translation of HSB, authoritative summary publications and the earliest identified description of HSB in a U.S. publication. The percentage of key documents abstracted in TRIS



tated high-speed ground transportation systems," and there would be "the exchange of information regarding programs and projects, research results, publications."

Receipt of the HSB report was noted in the Seventh Annual Report on the High Speed Ground Transportation Act of 1965 and the Railroad Technology Program 1973.<sup>11</sup>

On Dr. John Harding's initiative FRA sponsored the translation of the first four volumes of the six volume HSB study. The final two volumes were translated under the auspices of Mr. Peter Eggleton of the Transportation Development Agency, Transport Canada in accordance with a cooperative arrangement between the U.S. and Canada to exchange information on advanced rail systems. The estimated cost of translation was \$3,100 for volumes 1 through 4 and one man/year for volumes 5 and 6, which were large and heavily technical.

The English translation of the HSB report was arranged by FRA based on a review of the study's potential for application to U.S. transportation research. This criterion is applied to other foreign language reports received by FRA under similar information exchange agreements with other countries, each on a specific aspect of rail transportation. Distribution does not automatically follow translation. The decision to distribute the HSB translation through NTIS was initiated on the strength of the engineering content of the report and its potential interest to FRA maglev contractors. The translation was cited in Government Reports Announcements and in Weekly Government Announcements in May 1974, almost two years after publication of the German original report in June 1972. A news release on the availability of the translation was prepared by Dr. Harding but was not issued.

FRA filled about 25 requests for the HSB translation. NTIS demand sales through May 10, 1976 of the translation of volume 1 in hard copy or fiche were 24 copies and volume 6, 18 copies, the latter by implication the number of complete sets sold. According to NTIS "these two reports sold about average for translations."<sup>12</sup>

Dissemination efforts by Mr. Eggleton of TDA, Transport Canada, were similar to those of Dr. Harding, including the loan of copies to consultants, bringing the report to the attention of university researchers and to several railway engineers, preparing a news announcement for Transport Development News, a monthly bulletin prepared by TDA, and depositing copies with several Canadian libraries.

It is evident from the closely parallel U.S. and Canadian programs of bilateral information exchanges with various foreign countries on specific areas of rail transportation that there is a regular flow of transportation research reports from abroad. TDA also has had journal articles translated as needed. Although this aspect was not covered with FRA, it is reasonable to expect that FRA may do the same.

<sup>11</sup>This report noted: "After review of the six volume report by the FRA, the study was found significant and timely enough to warrant translation into English." The planned translation through NTIS was announced.

<sup>12</sup>Letter from Sue K. Krimm, Chief, Office of Management Analysis, NTIS to project staff June 9, 1976.

REFERENCES TO THE HSB REPORT IN PUBLICATIONS BY COUNTRY OF ORIGIN AND YEAR OF PUBLICATION

1969 - 1976

	<u>1969</u>	<u>1970</u>	<u>1971</u>	<u>1972</u>	<u>1973</u>	<u>1974</u>	<u>1975</u>	<u>1976</u>	<u>Total</u>	<u>Percent</u>
Germany	8	12	16	14	23	6	4	-	83	69.2
United States	-	1	2	1	3	1	1	1	10	8.3
United Kingdom	-	1	1	2	2	2	2	-	10	8.3
Europe*	-	-	1	2	1	3	-	-	7	5.8
France	-	-	-	1	1	-	-	-	2	1.7
Austria	-	-	-	1	-	1	-	-	2	1.7
Switzerland	-	-	-	2	-	-	-	-	2	1.7
Canada	-	-	1	1	-	-	-	-	2	1.7
Italy	-	-	-	-	-	1	-	-	1	0.8
Netherlands	-	-	-	1	-	-	-	-	1	0.8
Total	8	14	21	25	30	14	7	1	120	
Percent	6.7	11.7	17.5	20.8	25.0	11.7	5.8	0.8	100.0	

. August 1969 - HSB contract awarded by German Ministry of Transport  
 . January 1970 - first U.S. reference in Distribution Worldwide  
 . December 1971 - final report submitted to sponsor  
 . June 1972 - final report published  
 . February 1973 - German summary report published  
 . November 1973 - English translation completed  
 . May 1974 - English translation announced by NTIS

\*International association publications produced in Europe.

Table 4

## HSB REFERENCES BY PUBLICATION FORMAT

	<u>Number</u>	<u>Percent</u>
Journals	65	54.2
Conference papers	21	17.5
Reports	23	19.2
Newspapers or releases	7	5.8
Books	<u>4</u>	<u>3.3</u>
Total	120	100.0

The diffusion of the HSB report into English language and, more particularly, into U.S. publications appears to have been reasonably effective. This assessment must be qualified because no comparative studies are known for diffusion of other foreign reports of the same magnitude. Moreover, the criteria established for counting references were deliberately broad. In the following section in which a RRIS search on HSB is analyzed a more rigorous criterion is established for information transfer measurement by the designation of key documents.

## Test of RRIS in TRIS for HSB Coverage

Earlier in this report the test for transfer efficiency of the TRIS data base for HSB was formulated as the percentage of designated key documents represented in TRIS of all key documents on HSB from the diffusion search. Key documents comprise the original report and its translation, authoritative summaries and the earliest description of HSB that was found from a U.S. source. The bibliographic description of the 9 key documents is:

1. October 1969      Kalb, Hans. Die Systemstudie "Hochleistungsschnellbahn". Die Bundesbahn, no. 19 (Oct. 1969), p.903-916. (English summary title: Systems Study "High-Efficiency Rapid Transit System." Dr. Kalb is a member of the Board of Directors of the German Federal Railway.)
2. January 1970      Foreign railroads - the innovators; German Federal Railroad. Distribution Worldwide, January 1970, p.42. (First identified U.S. reference to HSB.)
3. May 1972          Leber, Georg. Europe's Need for High Speed Surface Transportation. Railway Gazette International, May 1972, p.169-171. (Objectives of the HSB study by the then German Federal Minister of Transport.)

Table 5

## KEY DOCUMENTS IN SELECTED SOURCES

<u>Key Documents*</u>	<u>Kurzauszüge</u>	<u>Selection</u>	<u>RRIS</u>	<u>NUTL</u>
1	x	x		x
2				x
3	x	x		x
4	x	x		
5	x		x	x
6		x	x	x
7			x	x
8				x
9		x	x	x

\*Full citations on p. 13-14.

Of the 51 abstracts in the RRIS batch search 9 items (17.6%) were found relevant to HSB under the criteria applied for diffusion counts. Eleven (21.6%) of the 51 items were for publications in English with the remaining 40 representing German publications. Imprint year distribution for the search is given in Table 6.

Table 6

## IMPRINT YEARS OF RETRIEVED ABSTRACTS FROM RRIS SEARCH FOR HSB

	<u>Number</u>	<u>Percent</u>
1969	1	2.0
1970	1	2.0
1971	2	3.9
1972	3	5.8
1973	9	17.7
1974	22	43.1
1975	<u>13</u>	<u>25.5</u>
Total	51	100.0

RRIS SUBJECT TERM ASSIGNMENTS TO FOUR KEY DOCUMENTS RETRIEVED IN BATCH AND PUBLICATIONS SEARCH FOR HSB

	<u>Hoch</u>	<u>HSB v.1</u>	<u>HSB v.2</u>	<u>HSB v.3</u>	<u>HSB v.4</u>	<u>HSB v.5</u>	<u>HSB v.6</u>	<u>HSB Kurzbericht</u>	<u>Barwell</u>
Transportation Systems Planning	x	x	x	x	x	x	x		
High Speed Trains	x	x	x	x	x	x	x	x	x
Advanced Systems	x			x				x	
German Technology	x	x	x	x	x	x	x		
Passenger Services				x	x		x		
Train Track Dynamics				x					
Bridges					x				
Tunnels					x				
Stations					x				
Freight Service						x			
Models							x		
German Federal Railroad								x	
National Transportation Policies								x	
High Speed Ground Transportation								x	
Intermodal Services									x
Magnetic Levitation									x
European Technology									x
Suspension Systems									x
Government Policies									x

Conversation with Dr. John Harding, Office of Freight Systems, FRA, July 1, 1976 (Dr. Harding was formerly Maglev Program Manager and Project Officer for the HSB translation)

Subject: FRA action regarding the research report: HSB Studie über ein Schnellverkehrssystem, prepared by Hochleistungs-Schnellbahn Studiengesellschaft mbH under contract to the German Ministry of Transport

The final report on HSB was published in six volumes by Rudolf Leuthold Verlag in 1972 for the West German Ministry of Transport. Under a Memorandum of Understanding (MOU) between the West German Ministry of Research and Technology/West German Ministry of Transport and the U.S. Federal Railroad Administration a copy of the report was transmitted to FRA through the Transportation Officer of the West German Embassy in Washington.

FRA had learned of the study and the development of a maglev vehicle sometime in 1971. Upon receipt of the report, and after learning no English language translation had been prepared or was planned, Dr. Harding, the FRA Project Officer, requested permission to translate from the German Ministry of Transport, again through the Transportation Officer of the Embassy. With permission granted, he approached the Transportation Development Agency of Canada on a joint translation by the two countries. This approach was based on an agreement between the U.S. and Canada for cooperative efforts in advanced rail systems.

The first four volumes of the report were translated by the Joint Publications Research Service of NTIS under FRA sponsorship; volumes 5-6 were translated by the Canadian Department of the Secretary of State Translation Bureau at the request of the Ministry of Transportation. The cost of the U.S. translation for volumes 1-4 approximates \$3,100, at \$20 per 1000 words for 155,000 words.

The decision for NTIS distribution of the report was also initiated by Dr. Harding, with permission requested and received from the German Ministry of Transport. NTIS announced the six volumes in both Weekly Government Announcements and Government Reports Announcements in May 1974. Dr. Harding requested but was unable to obtain an FRA release describing the translation.

Distribution of the reports was desired by FRA primarily because of the hardware development referenced in the report. The economic development was only peripherally interesting. The projected distribution through NTIS was considered of interest to FRA contractors on magnetic levitation and other advanced rail technologies.

FRA received and filled about 25 requests for the HSB translation. NTIS sold 24 copies of volume 1 in paper or fiche; probably 18 sets were sold. An additional 39 copies were distributed under Selected Research in Microfiche subscriptions.

FRA participates in an excellent exchange program on applied research. Agreements have been made between FRA and France, Japan, Rumania, Czechoslovakia, Poland and the USSR, in addition to the MOU with the German Federal Re-

Telephone discussion with Mr. Peter Eggleton, Director of Technology Development, Transportation Development Agency, Transport Canada, September 4, 1976, on the HSB report.

Translation of the last two volumes of the German text of the HSB report was made from the FRA copy by the Canadian Secretary of State's office. Approximately one man/year was required to translate due to the size and technical complexity of the volumes. This cooperative effort between DOT and TDA is in keeping with agreements to exchange transportation information under the umbrella of the USA-Canada Memorandum of Understanding concerning research and development cooperation in transportation.

Mr. Eggleton provided copies of the English translation of HSB to a number of libraries including Canadian National Railways, Transport Canada, Transportation Development Agency, McGill University, University of Toronto Institute for Aerospace Studies and Queen's University. The translation was also cited in TDA Library's accessions list which brought in requests from various organizations. A precis was provided to Transport Development News.

Mr. Eggleton lent copies to consultants and called attention to HSB to some university researchers and to several government officials. Several railway engineers engaged in development of the Montreal-Quebec high speed line, with whom Mr. Eggleton discussed HSB, felt that the system was somewhat removed from their immediate problems.

TDA is actively interested in foreign transportation developments. During 1971-1972, for example, research on slurry and capsule pipelines called for the translation of some 40 technical papers in languages ranging from Spanish, German and Russian to Chinese. An ongoing exchange of information is conducted with the Russians on rail freight operations in cold regions. In the field of rail/track dynamics developments are followed through reports in English language international railway journals and through journals such as ZEV Glasers Annalen from which occasional translations are prepared.

A vital source of current information are monthly reports from science consulars abroad which include sections on transportation. These reports are screened by the Canadian Institute for Scientific and Technical Information for their transportation content and are forwarded to TDA. A Transport Canada officer attached to the Canadian Embassy in London provides bimonthly reports on transportation in Europe and the Canadian Embassy in Washington maintains and transmits a clipping service on items of commercial and research interest.

## 2. Light Rail Transit

### Objectives

Light rail transit (LRT) can be defined as a conventional urban transportation system incorporating selected characteristics of streetcar and rapid transit technology. Systems vary: the three features in common seem to be overhead power supply, light rail vehicles, and partially or completely reserved or exclusive right of way.

The labels also vary, from upgraded streetcars to tramways in transition to light rail transit to semi-metro to pre-metro to light rapid transit. In German the system is Leichschnellbahn or Stadtbahn, in French Métro Léger or Tramway en site propre, in Dutch Sneltram.

One of the factors behind the selection of LRT as a case study under this project is that it is a relatively new technology to U.S. practice. With most of the development occurring overseas (primarily in Europe) and an increasing interest on the part of U.S. practitioners and UMTA on possible applications in this country, this topic offered an evaluation of the transfer potential of foreign literature on foreign developments through the U.S. media and the TRIS data bases.

The second factor in the selection of LRT concerns transit coverage in the TRIS data bases. Without a dedicated urban mass transportation abstracting/indexing service to what extent is the transit operator or planner served by the TRIS abstracting/indexing products? An analysis of LRT coverage might provide a partial answer to this question.

The two objectives in this case study, then, are to measure the transfer of foreign literature to the U.S. transportation community and to assess the TRIS abstracting/indexing services coverage of transit in the specific area of light rail.

### Tasks

The tasks established to meet the objectives were: (1) to compile a base bibliography on LRT through review of existing bibliographies, a Railroad Research Information Service batch printout, and the Transportation Library holdings, (2) to analyze transfer of foreign developments in the LRT data base and the referenced publications in the papers of a light rail transit conference held in June 1975, and (3) to compare RRIS coverage with the LRT bibliography. The methodology and corresponding data under each of these tasks are developed in the following section.

### Methodology and Data Analysis

Scope of the base bibliography was defined as publications on LRT from



articles), Italy (1), Spain (1), France (2).

All of the citations were selected for the LRT base bibliography.

### 3. TRB Light Rail Conference

Thirteen of 20 papers included bibliographies ranging from 1 to 82 citations. Two-thirds of these citations (199 in total) were to publications issued since 1969; one-sixth to 1975 imprints.

Citations by the 10 U.S. authors (138 total) were to U.S. publications in 86 instances; European publications (UITP) were referenced 19 times. Other countries and frequency include Canada 1, U.K. 6, German Federal Republic 24, Netherlands 1, and Norway 1.

The distribution is skewed by one author's citations to 22 articles in two German periodicals. Seventeen of these were to Stadtverkehr.

Eighty-two of the entries were selected for the LRT base bibliography.

### 4. RRIS File Search

The RRIS file search produced 137 references. Excluding research in progress (6 citations), pre-1970 publications (3) and historical coverage (4), the net references totaled 124. Since the exclusions were not specified in the search request, the latter figure was used to measure relevancy.

Seventy-two of the items were selected from the LRT bibliography, a relevancy factor of 58.1%. The items judged non-relevant because of insufficient LRT coverage totaled 30, an appraisal based on the abstracting/indexing services capacity for in-depth analysis. Five had no date, 3 were on conventional streetcars, 2 were to superseded reports and 2 items duplicated other entries.

This bibliography was extensively English language: 68 or 94.4% of the relevant publications. Forty-six of the items were produced in the U.S. Eleven were unique; no other information source identified them.

The sources for articles on LRT were primarily railroad publications. Railway Gazette International was referenced 7 times, Modern Railroads (4), Railway Age (3) and Rail Engineering International (2). Six other railroad journals were each referenced once, including three foreign, Elektrische Bahnen, ETR and Ingegneria Ferroviaria.

Only 3 references were to urban transportation journals: one each for UITP Revue, Traffic Engineering and Control and Transit Journal.

Transportation Research Record provided 19 citations, Highway Research Record 1, Highway and Urban Mass Transportation 2, Traffic Quarterly 1, and Automotive Engineering 1.

The other references were peripheral to transportation: Machine Design, Civil Engineer, Engineering News-Record, Contract Journal and Brown Boveri Revue.

Table 8. LRT SOURCES BY LANGUAGE AND COUNTRY OF PUBLICATION

Language	Country of Publication	Entries	Held by			Unique to					
			UITP	DB	TRB	RRIS	NUIL	UITP	DB	TRB	RRIS
English	U.S.	143	25	-	44	46	131	-	-	7	7
	U.K.	101	12	3	5	15	99	-	-	-	2
	Canada	13	6	-	4	5	7	3	-	2	-
	UITP	6	1	-	3	1	6	-	-	-	-
	Germany (F.R.)	1	1	-	-	-	1	-	-	-	1
Total English	Switzerland	1	-	-	-	1	-	1	-	-	-
		265	44	3	56	68	244	4	-	9	10
French	France	38	12	2	-	-	38	-	-	-	-
	Belgium	3	1	-	1	-	3	-	-	-	-
German	Germany (F.R.)	195	12	27	25	3	190	2	10	-	1
	Germany (D.R.)	4	-	4	-	-	4	-	3	-	-
Dutch	Netherlands	22	4	-	-	-	4	-	3	-	-
	Italy	2	-	1	-	1	2	-	-	-	-
Spanish	Spain	1	-	1	-	-	1	-	-	-	-
	Total Foreign	265	29	35	26	4	260	2	13	-	1
Total		530	73	38	82	72	504	6	13	9	11

graphy, only Railway Gazette International was referenced by RRIS. There was no coverage from Modern Tramway, Stadtverkehr, Verkehr und Technik, Nahverkehrspraxis, Vie du Rail or Openbaar Vervoer.

This observation is reenforced by a subsequent check of selected articles from the overseas representation in the LRT base bibliography against the RRIS file search. The selected articles total 111; 11 were referenced in the batch printout.

However at the time of the RRIS file search (March 1976), the RRIS exchange with the International Union of Railways was just underway. This exchange is now expanding the coverage of foreign publications in the data base, in intercity rail operations as well as in urban rail.

How well does RRIS serve the LRT component of transit? Considering that the Railroad Research Information Service picks up urban rail transit publications as they have application to intercity and commuter railroad operations, the answer is very well. One hundred thirty-seven references, basically issued between 1972 and 1975, in a field peripheral to railroad transportation is impressive.

The RRIS file search was compared with 58 reports and articles selected from the general and U.S. and Canadian sections of the LRT base bibliography. Thirty-eight were located in the printout; nine others were considered too recent (8) or too early (1) for coverage. A subsequent check of the Railroad Research Bulletin located all 8 newer publications.

A search of the Bulletin must rely on the indexing terms, rather than a browse of abstracts. The majority of document records are placed in category 23, Passenger Operations, but there are also assignments to 13 other categories. The assignments are correct, based on the aspect of LRT discussed, but the rail transit user would benefit more from placement of all document records on rapid transit in a single category, apart from intercity passenger operations. The latter would then be limited to intercity service. This is in line with document classification in the UIC Selection of International Rail Documentation and the DB Kurzauszüge aus dem Schrifttum für das Eisenbahnwesen.

Although there were only 3 foreign language documents in this bibliography, the bibliographic data base elements lead to another suggestion. All foreign language documents in batch and online should include a statement of text language plus presence of English language summaries in the original text. The text language is indicated in the bulletin.

Table 10. RETURNS BY MODAL ACTIVITY AND ORGANIZATIONAL AFFILIATION

Mode	Federal Government		State & Local Government		Carrier		Equipment Manufacturer		Shipper	Consultant	Academic	Association	Other
Transportation	4	13	-	-	2	-	-	18	-	27	-	9	
Rail	6	-	29	-	5	-	-	4	3	3	-	3	
Air	1	4	1	-	4	-	-	7	-	3	-	-	
Trucking	-	-	3	-	-	-	-	-	-	-	-	-	
Pipeline	-	-	-	-	-	-	-	-	-	-	1	-	
Water	1	3	2	-	-	-	-	3	-	4	-	-	
Physical Distribution	-	-	-	-	-	-	-	1	1	2	1	3	
Highway	2	10	-	-	-	-	-	2	-	1	-	-	
Urban	-	16	-	-	1	-	-	5	-	6	-	5	
Other	-	-	-	-	-	-	-	1	1	2	-	7	
Total	14	46	35	12	41	7	48	5	27				

(newspapers, trade magazines, research reports, abstracting/indexing services, etc.) and language category (North America, English language outside North America, and foreign language).

Ninety percent of the respondents based their review in part or totally on North American publications. Almost 70% checked categories for other English language publications; 14.5% identified foreign language sources. Types of publications checked averaged 4.9 for North American sources, 2.8 for other English language sources and 2.0 for foreign language sources. Trade magazines and journals are the major types relied on (70.0% of users), with newspapers, government publications and research reports read by 65%.

Users were asked to name three or more publications routinely scanned. The cumulative list, categorized by number of titles within modes, includes: transportation - 37; railroads - 29; air transportation - 16; water - 10; trucking - 2; physical distribution - 10; highways - 12; urban transportation - 16; and general - 43. The spread in publications read routinely suggests that (1) there is no small body of literature answering most of the information needs of the transportation professional, (2) the majority of transportation professionals find their information on foreign developments in the publications read for U.S. and Canadian developments and (3) there is no one publication on foreign transportation developments widely read by the U.S. community.

The largest single source for information was the Transportation Research Board publications. The TRB publications series was listed by 17, NCHRP reports by 1, Transportation Research Record by 7, Transportation Research News by 4, and the abstracts section of Transportation Research News by 7.

The 39 publications selected by 6 or more respondents are listed below. Each title includes the number and modal affiliations of the respondents.

#### Transportation

Traffic World	28	transportation, air, rail, water, trucking, physical distribution
TRB publications	17	transportation, water, highways, urban
Transportation Research Record	7	transportation, highways, urban
Transportation Research Forum proceedings	16	transportation, rail, water, urban
Transportation Engineering Journal	12	transportation, highways, urban
Transportation Journal	6	transportation, rail, highways, urban
Logistics and Transportation Review	8	transportation, water, physical distribution
Journal of Transport Economics and Planning	6	transportation, physical distribution, urban
Containerization International	12	transportation, rail, urban
Current Literature in Traffic and Transportation	8	transportation, rail, water, trucking
Transportation Research News (abstracts section)	10	transportation, rail, water, urban
Transportation Research	7	transportation, urban
	7	transportation, highways

The listing does not include any trucking and water entries. In those two areas the spread of titles was too great or the response by mode too low to qualify the selections.

Some of the titles (with total tallies) which received less than 6 votes but which should have been included in the literature on foreign transportation developments are:

Transportation Science (1)  
International Journal of Transport Economics (1)  
Rail International (5)  
Railway Technical Research Institute Quarterly Reports (1)  
Modern Railways (4)  
Rail Engineering International (2)  
Japanese Railway Engineering (5)  
Jane's World Railways (1)  
Air Transport World (1)  
ITA Bulletin (1)  
Dock and Harbour Authority (1)  
Fairplay (5)  
Seatrade (5)  
H.P. Drewry reports (3)  
Lea Transit Compendium (1)  
Modern Tramway (3)  
Transit Journal (3)  
UITP Revue (3)

Of the foreign language publications identified, Stadtverkehr and Vie du Rail each received 2 mentions.

Forty-two of the 235 respondents (17.9%) had had publications translated. Explanations offered with the negative answers included price and the availability of translation services. One respondent mentioned he was holding publications for translation.

One hundred thirteen (48.1%) of the respondents cited problems in connection with their efforts to obtain information on foreign transportation developments. The problems related to four general categories relevant to the information-gathering process: awareness, acquisition, language barriers and applicability.

On awareness, the more specific responses concerned the lack of ready or dedicated indexes on the foreign literature and insufficient coverage in the North American literature. The time required to identify information and the fact that the significant literature was buried in "mountains of trivia" requiring too much time for review were also mentioned.

The following list summarizes the problems in acquisition of publications.

- 1) Incomplete source address and price information
- 2) Time to acquire from overseas
- 3) Publications out-of-print too quickly
- 4) No response to requests
- 5) Publication costs (reports and periodical subscriptions)
- 6) Problems with payments to overseas vendors

#### 4. NATIONAL TRANSLATIONS CENTER

One concern of the TRF respondents to the survey on interest in foreign developments was the lack of access to and costs of translation services. This problem can be partly resolved through utilization of existing resources in the DOT Library and The National Translations Center.

Copies of English language translations acquired by the Department of Transportation through contacts abroad or in-house and contracted services should be deposited with the DOT Headquarters Library. The deposit will serve three purposes: (1) entry in the Library files to enable access to translations throughout the Department; (2) a clearinghouse within the department to control duplication in translation; and (3) a channel for the transfer of translations to the National Translations Center, located at the John Crerar Library in Chicago, Illinois.

The National Translations Center provides a loan and referral service for English language translations produced throughout the world. Holdings include records of 750,000 translations in engineering, science and social science, with one-third representing texts of translations retained by the Center and the remaining two-thirds sources of translations which will provide text to the client. Types of publications in translations include articles, conference papers, reports and patents.

This file has been built up through deposit or notification of translations by industry, business, commercial translation services, government agencies and translation centers outside the U.S. Examples of government agencies currently submitting translations include NASA, ERDA, EPA, NIH and the Department of Agriculture. Reports on available translations are received from various centers such as the International Translations Center (Delft), the British Library Lending Division, the Canada Institute for Scientific and Technical Information and the Railroad Engineering Index Institute. NTIS-announced translations are also included in the file.

National Translations Center services include search for specific publications in translation. About 5,000 translations searches are processed annually, with free services commensurate to translations deposited.

Half of the requests are completed in-house with loan or photocopy provided at a service charge.

The Center's monthly announcement bulletin Translations Register-Index includes 1600 items in each issue, with semi-annual and annual indexes. References for which text is available through the Center (one-fourth of the total listing) are also arranged under COSATI subject classification.

The National Translations Center operates a well-organized service, with access to its holdings by author (personal and corporate), journal title, and report number. Utilization of this resource would assist the Department of Transportation in disseminating its translations as well as in acquiring information on translations of transportation publication by other organizations.

As of January 1976 there were over 26,000 non-U.S. documents in the data bases compiled by the TRIS abstracting/indexing services and the DOT Office of International Programs/Technology Sharing Office. RRIS items totaled 5,832 as of October 1976. Despite the level of coverage, transfer efficiency seems relatively low. This can be partially explained by the fact that RRIS began operations in 1973, its exchange with the International Union of Railways was just developing during the period of the case studies, and its responsibility for rail transit is limited to coverage appropriate to U.S. rail operations. Further case studies based on the HSB/LRT key document methodology for landmark reports on topics of current interest are suggested to measure efficiency of the RRIS data base under expanded chronological depth and the fully-operating exchange with UIC. The methodology can also be applied to MRIS and HRIS.

The establishment of an urban mass transportation research information service is necessary to assure full coverage of light rail transit. The transit journals produced abroad should be well represented in this data base.

Consistency in descriptor assignment, introduction of acronyms in authorized terms, field codes for text language and English summaries in batch searches and online display/print brief citations should be improved or developed in the abstracting/indexing services.

To facilitate the transfer of literature on foreign developments, including the lowering of language barriers and improvements in document access, DOT, through one of its international offices or through the Library, should head the effort in the acquisition and evaluation of information produced abroad. This effort should coordinate all levels of Department activity, as part of the TRIS program. The following tasks should be considered for the international unit:

1. Establish an internal clearinghouse for foreign language reports received through the Administration, and, if possible, other government agencies.
2. Develop a translation register for documents translated within or known to be translated by the Department, ensuring that information on translated documents is forwarded to the TRIS abstracting/indexing service managers; register translations with the National Translations Center through the DOT Library.
3. Prepare a brief summary/digest on current important documents for distribution within the Department, and if possible, to transportation specialists outside the Department.
4. Market the international program through news releases and features in DOT journals.
5. Evaluate the service after the program is implemented and marketed, when the user can contribute based on experience.

The resources on international transportation documentation exist and are available for transfer if these steps are implemented.