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The TIBQUICK Projects

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Introduction

TIBQUICK I and TIBQUICK II are the names given to two projects undertaken by the Technische Informationsbibliothek Hannover (TIB); the first from 1989 to 1992 and the second 1993 and 1994. The project TIBQUICK I was funded by the Federal Ministry for Research and Technology (BMFT), whilst TIBQUICK II is funded by the BMFT and the Lower Saxony Ministry for Science and Culture. In order to understand these projects and their context, it is necessary to know what role the TIB plays in the German library system. Therefore the detailed description of the projects will be prefaced with a few words about the "Universitdtsbibliothek Hannover und TIB (UB/TIB)".

1 The UB/TIB Hannover

1.1 General Information

The "Technische Informationsbibliothek Hannover (TIB)" was founded in 1959 and is the Federal Republic of Germany's Central Subject Library for all areas of technology and related sciences, chemistry, computer science, mathematics and physics. It is the task of the TIB to acquire, and to make available, a comprehensive collection of conventional and non-conventional literature in technology and the natural sciences, especially foreign material, with particular emphasis on specialist new publications, which are difficult to obtain or in difficult languages. Customers can use the TIB directly for a fee or through the interlibrary loan service, which, in theory, is free of charge.

As an institution of the State of Lower Saxony within the University of Hannover the TIB is financed 30% by the Federal Government through the BMFT and 70% by the Federal States. It is housed in the same building as the University Library (UB), founded in 1831, and the joint collection is available to users of both libraries, but the two libraries are separately financed. The 242.5 staff members of the UB/TIB (UB 85.5, TIB 157) work in 4 buildings, three of which are next to each other in the central University complex, whilst the fourth, a remote store of 850,000 volumes, is a 10 minute car drive away.

1.2 Acquisitions policy

Areas of excellence in the TIB's world-wide acquisitions are: technical and scientific journals, both general and specialist; conference proceedings; research reports; material from Eastern Europe and East Asia; dissertations; patents; standards and technical regulations, as well as specialized dictionaries. The TIB subscribes to approximately 18,000 journals, including 4,300 from Germany, 5,100 from the rest of Europe, 3,200 from the USA and Canada, 1,200 from Eastern Europe and 3,200 from East Asia.

Some 100,000 printed items and 50,000 microforms (microfiche and microfilms) are added to the collection annually, with electronic publications (CD-ROM and disks) being acquired in increasing numbers. In 1993 the acquisitions budget for the UB and TIB, including binding costs, was about DM 10 million. German material accounts for about 30% of the acquisitions and foreign material 70%. In other words, foreign material forms the bulk of the collection.

1.3 Access to the TIB's collections

In Germany documents on technology and the natural sciences which are not available in a given library, but are held by the UB/TIB, can be supplied free of charge, providing the standard interlibrary loan form is filled out. This loan form could be on its travels for up to three months. (Within the scope of this interlending service, it is only those items published in Germany which can be obtained from the UB/TIB free of charge by foreign users.) Since the TIB was founded, however, there has been a more direct and hence quicker way of submitting a request and this is TIBORDER.

There are several ways of using TIBORDER. A TIB request form can be purchased for DM 18 (DM 25 outside Europe), filled in and sent to the TIB. Requests of this type are usually satisfied within one week. Another method is the on-line request. In 1993, as part of the TIBQUICK I project, a mailbox (named TIBMAIL) was set up to receive direct requests, including on-line requests from German and international hosts (DBI/ZDB, DIALOG, DIMDI,

ESA/IRS, FlZ Technik and FIZ Karlsruhe/STN International). Finally there is the facility for sending urgent requests. These requests are dealt with within one day (2 hours if delivered by fax). The fee is higher and depends on the method of delivery to the customer.

The UB/TIB satisfies more than 1 million requests a year. Approximately 600,000 requests are made on site and 400,000 are remote requests, of which more than half (1993: 56%) are direct requests subject to a charge. Every year there is an increase in the proportion of on-line requests in the total number of direct requests. At present it is 18%. In actual numbers, 40,500 on-line requests were sent to the TIB in 1993, of which 7,900 (ca. 20%) were urgent requests (see Fig. 1). It is worth mentioning at this point that there is a method of requesting which is even more popular than the on-line facility, at least for urgent requests, and that is sending requests by fax. Of the 23,000 urgent requests sent to the TIB in 1993, the 7,900 on-line urgent requests accounted for 34% whilst the urgent requests sent by fax accounted for 57%, with fax requests showing a clear upward trend (Fig. 2).

There are about 23,000 on-site users of the UB/TIB, consisting of private individuals, firms, institutions and other organisations. Outside of Hannover the UB/TIB has about 1,600 regular users, 10% of which are libraries, 23% institutions, 62% commercial firms and 5% private individuals. Approximately 4% of the users are large firms, such as Siemens, BASF, Volkswagen, Bosch, Daimler-Benz etc., who send 70% of the requests. The vast majority of requests are for journal articles (66%) and conference papers (24%), with the main demand being for documents from the last 10 years. For this reason complete volumes of serials and conference proceedings are not available on loan. Only photocopies of the individual articles are supplied. From a subject point of view, the most heavily requested material is in chemistry and chemical technology (19%). In second place are electrical engineering and electronics (14%), and in third place materials science (12%).

2   TIBQUICK I & II

2.1 TIBQUICK I

During the period 1990 to 1992 the TIB carried out a project to create "a model for speeding up the inter-regional supply of documents using the appropriate new technologies (TIBQUICK I)". The following elements of the project were achieved and have subsequently become part of the routine processing.

2.1.1   The setting up of a mailbox with facilities for the direct, electronic transmission of requests

Before the start of the TIBQUICK I project, on-line requests could only be sent to the TIB in a round-about way via a host (initially, from 1979 via DIALOG and then via DBI, DIMDI, ESA/IRS, FIZ Technik and STN International). Such a system meant delay and extra cost for the customer. Therefore, an electronic mailbox, TIBMAIL, was set up so that on-line requests could be transmitted directly to the TIB (see Fig. 3: User menu of TIBMAIL). In 1993, this facility was used for 7,600 requests. The TIB does not make a charge for the use of this mailbox which is available via the DATEX-P network, on the academic network WIN, and via Internet. In June of this year TIBMAIL was linked to the on-line catalogue of the UB/TIB (No. 13 in the user menu) so that TIBMAIL users could search the machine readable records of the library's holdings (currently ca. 600,000 monographs and serial parts and 120,000 periodicals and series).

Access to TIBMAIL and the on-line catalogue of the TIB:

Internet address:	tibmail.tib.uni-hannover.de
IP:	193.174.126.21
DATEX-P/WIN address:	45 050 2544 21
login:	tibmail

2.1.2   The automatic forwarding of on-line requests

Using OSI protocols (X.400-MHS), a processing routine running in the background downloads on-line requests sent to the TIB via the hosts STN International and Deutsches Bibliotheksinstitut (DBI) from the host's request file into the TIB mailbox, which also has an X.400 component (these are approximately 70% to 80% of on-line requests via hosts). The program, which accesses the request file, is activated at pre-set intervals (every 15 - 30 minutes), so that the requests, sent to the TIB by users of these two hosts, are forwarded to the TIB more or less immediately after the request is created on the host system. At the TIB another background process empties the mailbox at regular intervals and the requests are transferred from the various formats created by the different hosts into a standard TIB format before being downloaded to a relational database management system. The printing of the requests is controlled by a printer server which calls up the new requests from the database, separates them into urgent and standard requests and routes them to the appropriate printer.

2.1.3   The automatic addition of shelf locations to on-line requests

A large proportion of the TIB's daily intake of on-line requests (ca. 30%) comes via STN International. It is a major advantage in the processing of these requests by the library if the requests already have the shelfmark on them, because they can then be routed directly to the shelf, without having to go through the time consuming and labour intensive manual shelfmark check.The number of requests received via STN International with TIB shelfmarks was very small because only those on-line requests, sent directly from the STN database "TIBKAT" (TIB's on-line catalogue), had the TIB-shelfmark added automatically. For this reason a process for "automatically adding the shelfmark to on-line requests" was developed in co-operation with STN International. The process, again running completely in the background, is as follows:

First of all an "order reference file", containing ISSN, ISBN, CODEN, serial title, report number, book title and TIB shelfmark, was created from TIBKAT. Details of every request can now be compared with the contents of this file in order to find the shelfmark and transfer it to the record containing the request data.

Both the first experiments with the system, and routine processing since the Spring of 1992, have shown that neither the monograph title and nor the serial title are suitable for matching with the reference file data, because there are too many different ways of quoting them. In practice, shelfmarks can only be successfully assigned automatically if the on-line request contains identifiers such as ISSN, ISBN or CODEN.

2.2 TIBQUICK II

During the TIBQUICK I project there was considerable discussion about taking steps to speed up the copying of documents and about using new transmission technologies for the supply of the requested material. These deliberations found expression in the TIBQUICK II-project which will run until the end of 1994. Figure 4 gives an overview of this project.

Central to the TIBQUICK II-project has been the installation of a new digital copying system and, for this reason, the full title of the project is: "The optimisation of the TIB's services and processing systems through the intro-duction of a high performance digital system for the copying and transmission of documents". In order to appreciate the significance of this title, you need to know that approximately 85% of remote requests are satisfied with photocopies, resulting in an annual production of about 4.6 million photocopied pages. A third of these copies, especially from serial issues, are made on traditional office photocopy machines, which, as is well known, are not particularly suitable for bound volumes. A system based on microfilming and hard copy enlargement is

used for the bulk of all copies made. It is the preferred method for books and bound serial volumes.

This system involves placing the volume on a split platform which is pressed upwards against a glass platen so that the document is kept flat (see Fig. 5, above). A double page of text is filmed with a step-action microfilm camera and the platform lowered so that the page can be turned and the next pages filmed. When the whole film has been exposed, it is developed and the hard copy enlargements are produced on special equipment. A major advantage of this system is that the operators can sit down while they work and merely need to turn the pages, since the open pages are filmed from above by the camera. The system has also, however, many disadvantages. Thus, within the framework of the TIBQUICK II-project, the intention is to replace the existing system with one based on digital technology (see Fig. 5, below). The disadvantages are:

- a considerable amount of time is wasted through having to delay developing and enlargement until the whole film has been exposed;

- the specialised equipment, used for the enlargement, is expensive end incurs high maintenance costs;

- the quality of the copies, in particular the format of two A4 pages on an A3 sheet as dictated by the technology, does not meet the requirements of the TIB's customers;

- the system works in analogue mode; therefore the immediate seamless transfer to fast data transmission links is ruled out.

But the aim of the project is much more than the mere exchange of technologies. It is:

- improvement of existing services through reducing the time required to supply photocopies;

- new quality in document supply through the use of fax or electronic mail delivery, even in the standard service;

- optimisation and rationalisation of the request processing system through improvements in the internal procedures and in the links to the library's other computer-based systems;

- reduction of overheads by removing intermediate steps, for example, microfilm enlargement and sorting, and by using high performance copiers and fax machines which are better suited to the purpose.

In setting up the project the most important consideration was the choice of a suitable scanner. As far as possible the chosen product was to be off-the-shelf,

requiring no development-intensive customisation. A few months ago KODAK launched just such a product (Fig. 6). The "KODAK Imagelink Book-Scanner 200" is, as far as we know, unique in Europe. (We have since learned that Minolta has developed a similar machine, and plans to market it next year.) Using this type of scanner, the procedure for satisfying a request for a photocopy of an article is as follows:

Step 1:   scanning of the request form and the document pages, with transfer of the scanned pages, via a suitably fast interface (SCSI 2) to a PC;

Step 2:   automatic interpretation of the transaction information on the request form (customer number/request number) using OCR or barcodes, followed by the automatic retrieval of the despatch details from the TIB customer database;

Step 3:   automatic invoicing based on the data produced during the processing of the request (number of pages, method of despatch);

Step 4:   automatic transmission by Group 3 or Group 4 fax, even for standard requests (timed as appropriate), or hard copy from high performance printers for despatch by post.

The project is currently at the stage where the hardware has been bought, a detailed specification for the software programming has been prepared and a considerable part of the software had been programmed. According to the planned schedule, the installation of the complete system should be finished by the end of the year, to be followed by an exhaustive period of testing.

2.3   The future

As part of TIBQUICK II preparations are being made for document delivery by e-mail (over academic networks, primarily the Internet) but it cannot be fully implemented within this project because the TIB's principal target group are industrial libraries and documentation centres where access to these networks is not very widespread. In addition, delivery by e-mail raises the questions of permanent availability and the provision of the necessary software.

There will be no archival function in the digital copying system developed for the TIBQUICK II; consequently the scanned journal articles will be deleted after being transmitted to the customer and not permanently stored. This means that, when further requests are received for a title already scanned once, the retrieval and scanning process will have to be repeated. For copyright reasons a different approach is currently not possible. The addition of an archival function with full text storage is technically feasible at any time and this could be integrated into

the system as soon as the legal and technical conditions have been met. Developments in this field, which is closely allied to the concept of the "electronic journal", 'library 2000" and the "virtual library", are being monitored with considerable interest by the TIB and action on any developments will be taken within the framework of further projects.
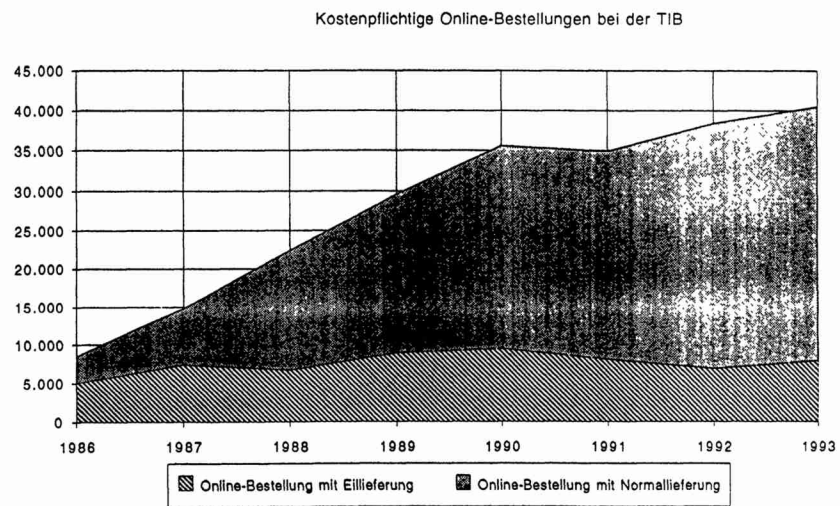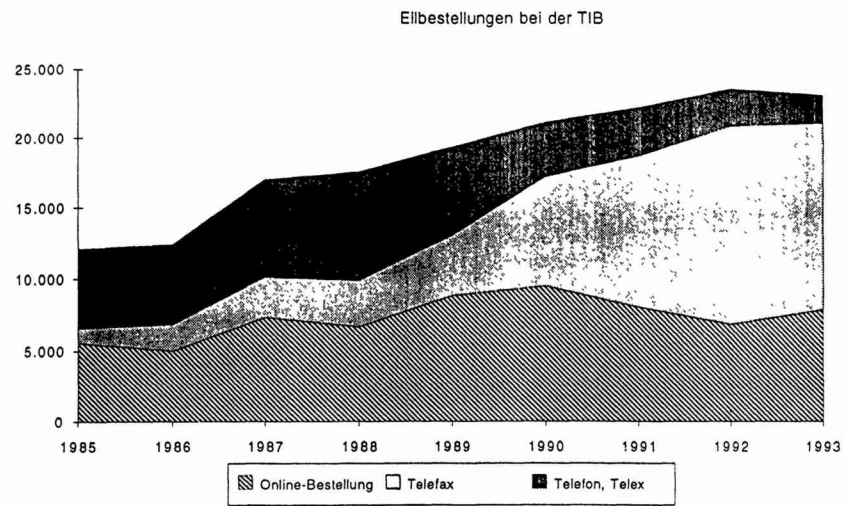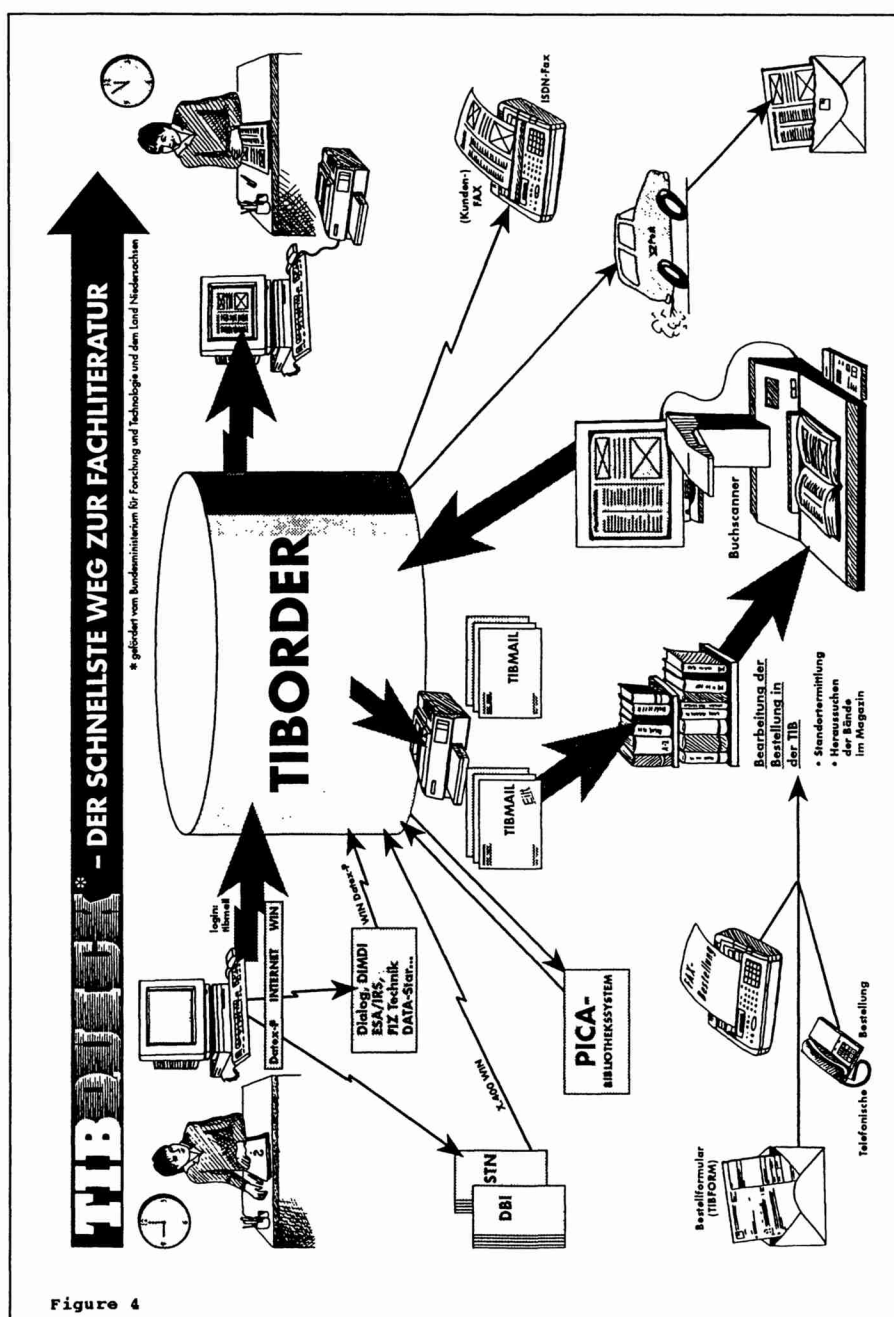
Kostenpflichtige Online-Bestellungen bei der TIB

| | Online-Bestellung mit Eillieferung | | Online-Bestellung mit Normallieferung |

Figure 1

Ellbestellungen bei der TIB


```
25.000
20.000
15.000
10.000
 5.000
     0
       1985   1986   1987   1988   1989   1990   1991   1992   1993
```

▨ Online-Bestellung ☐ Telefax   ▓ Telefon, Telex

Figure 2

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                         T I B M A I L
   Kundennr.:            Benutzermenue              Datum:  27.06.94
   -----------------------------------------------------------------------

      --  Hauptfunktionen          --  sonstige Funktionen

      10  Bestelldialog            20  Allgemeine Informationen ueber die TIB
      11  Dateitransfer            21  Abfrage der Benutzungsbedingungen
      12  Nachrichten senden       22  Passwort aendern
      13  Katalog der UB/TIB       23  Sprache auswaehlen


           Literaturbestellungen bei der TIB sind KOSTENPFLICHTIG.
           Bitte informieren Sie sich ueber die Benutzungsbedingungen.
           Mit der Aufgabe einer Bestellung   werden die Benutzungs-
           bedingungen der TIB anerkannt.


      99  TIBMAIL verlassen

      Bitte geben Sie Ihre Wahl ein: 13 (RETURN zur Bestaetigung)

   Hilfe durch <^W>  Hilfe Tastenbelegung durch <^Y>


   Figure 3
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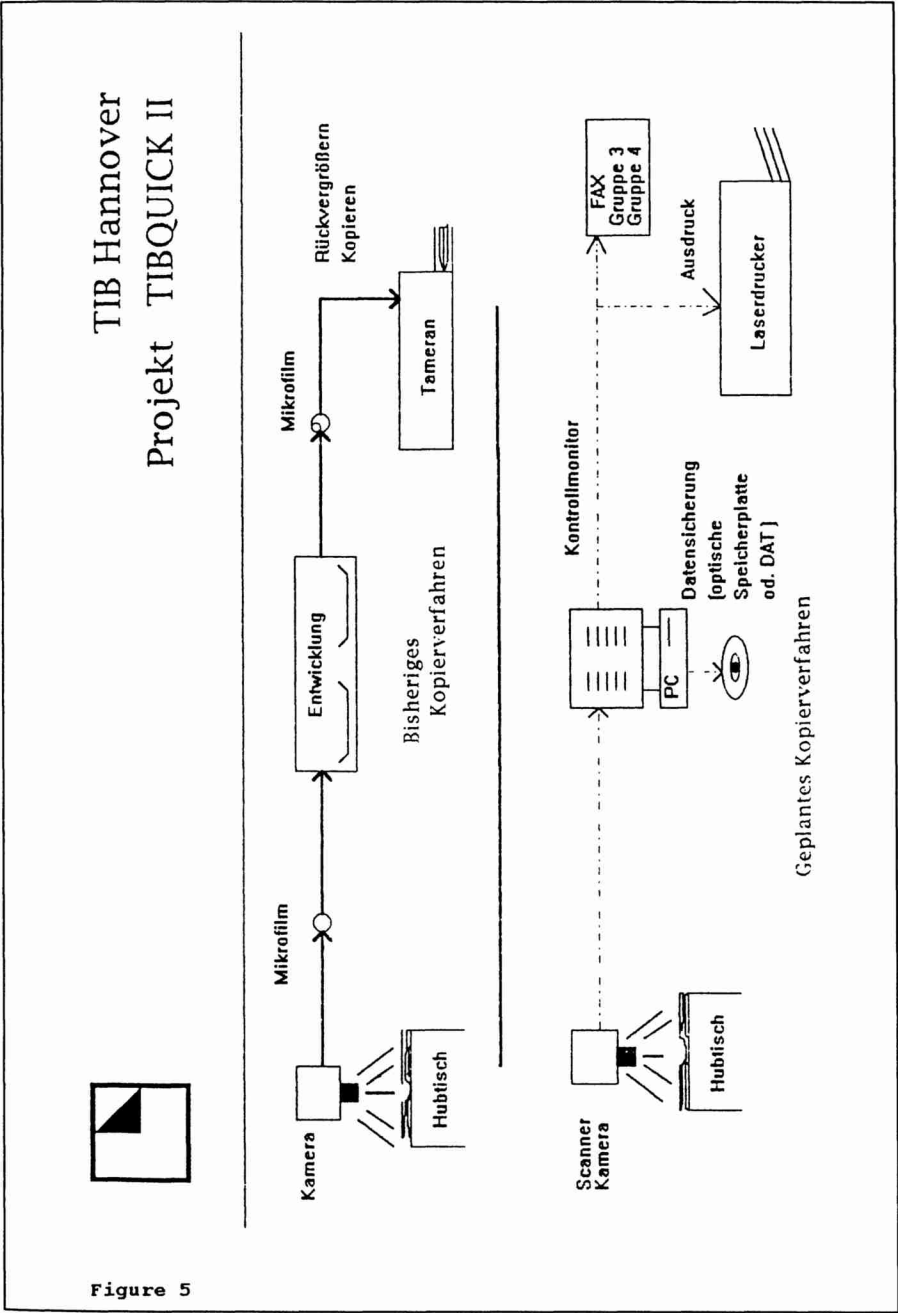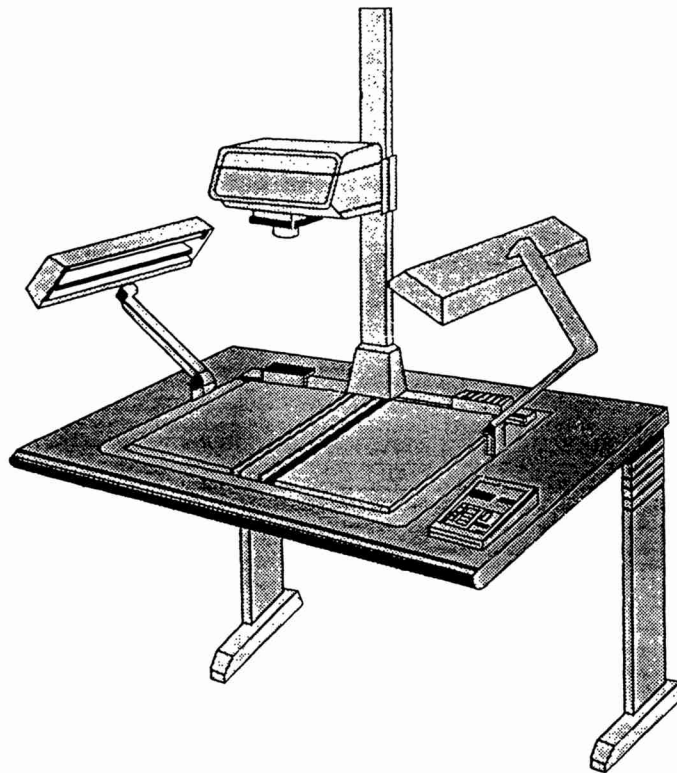
Figure 4

Figure 5

Figure 6