

# PROJECT DOCUMENTATION FOR PROSCAN THE CHALLENGE TO COLLECT LARGE AMOUNTS OF PAPER AND DATA

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*In 2003, the PROSCAN project, the extension of the PSI medical proton therapy program, made further progress. The amount of project documentation increased by about 50 %. In this report we discuss some of the aspects of documentation within a research project and the way these were handled for PROSCAN.*

## INTRODUCTION

More than three years ago, the PROSCAN project, the extension of the medical proton therapy facility at PSI, was launched. PROSCAN encompasses the installation of a dedicated compact cyclotron for medical therapy (COMET) including beam lines to the existing proton Gantry, and three additional areas which will be used for a second Gantry, a modernised OP-TIS installation for eye tumour treatment, and a horizontal beam port for experiments (e.g., for radiation biology, space physics, or particle physics).

Such a project, in which facilities are being designed for both physical experiments and treatment of humans with proton beams, has a strong interdisciplinary character. Therefore, people from a variety of different disciplines and external collaborators, who sometimes speak their "own language", are involved in this project. Careful and extensive documentation is also indispensable in view of the safety aspects of treating humans.

## GETTING STARTED WITH DOCUMENTATION

The task of documentation for PROSCAN was officially started at a moment when the project had already been in progress for several months. Therefore, retrospective gathering of protocols, documents, data, and decisions was necessary. This work was complicated, but successful in the end.

Sometimes it turned out to be difficult to convince people to always provide document copies. Arguments like:

„We have been doing it this way for the last 30 years”,

„we are a research institute, not an industrial company”,

„this document (or parts of it) will soon be obsolete”,

„you will obtain a final documentation (drawings as built) at the end, together with our product”,

„we have no time for documentation”

were frequently heard.

## WHY DOCUMENTATION?

People within the PROSCAN project had to be convinced that international industry standards or harmonised European norms are being applied increasingly in research projects. This holds particularly, when medical applications are involved, as in the case of PROSCAN. Collaboration with other institutes, industrial partners, and authorities is simplified using a clear documentation strategy.

Another point is the prevailing increased flexibility and exchange of personnel. The project structure of PROSCAN is part of a matrix structure, since all involved persons still have their position in the organisational structure of PSI. The actual project organisation chart consists of 41 boxes assigning tasks to 34 different persons (see Fig. 1). These persons are distributed over different departments and most of them are working for more than one project at the same time.

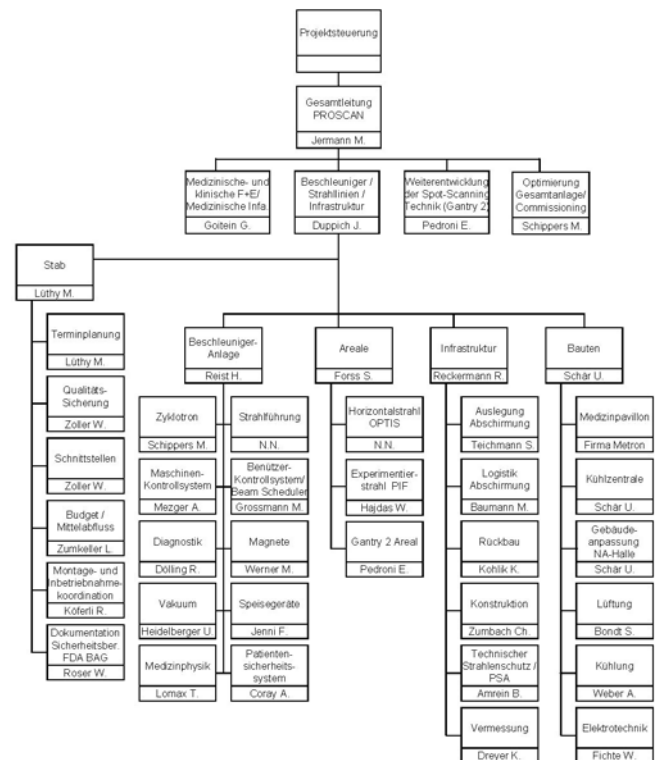


Fig. 1: The present project structure of PROSCAN.

A high rate of fluctuations in task assignments is the drawback of a matrix organisation; as many as 23 personnel changes have occurred in the last three years. It is therefore indispensable that the knowledge essential to such a project is not only present in individual brains and personal notebooks, but is also ac-

cessible for other project members and for the successors in case of personnel changes.

Furthermore, documentation facilitates backtracking of project decisions. It avoids issues being re-discussed because participants of a meeting are not aware of how, when, and why a non-documented decision was made by whom.

## THE PROSCAN DOCUMENTATION

All PROSCAN documents (meeting protocols, technical specifications, design concepts, technical descriptions, drawings, layouts, photos, acceptance tests, memos, etc.) are given a specific PROSCAN-number and are normally stored at three different places:

1. As a hardcopy in the office of the person responsible for the PROSCAN project documentation.
2. Roughly 90 % of the PROSCAN documents are available in electronic form. These are being stored directly in the internet using "Cip-Cube". This is a program which has been developed by the Architectural Department of the ETH Zurich for documentation of construction projects. Using Cip-Cube, members of the PROSCAN project as well as external collaborators are able to access the documents related to their work. Their individual username and password allows them to log in from any computer connected to the internet.
3. Most electronic versions are also being stored on a central disk, the "PROSCAN-disk", which can be accessed via the PSI computer network by all members of the project organisation.

The advantages and disadvantages of the three different locations of the PROSCAN documentation will now be discussed in more detail:

Paper storage is the traditional form of archiving. Compared to modern electronic tools, its access is slow. Specific searches can be difficult and time-consuming. However, paper hardcopies are immune against computer problems and their access can be guaranteed for several decades.

At the beginning, the success of the Cip-Cube program was a bit hampered by the fact that some people complained about its insufficient user-friendliness. Looking more closely, the problem was mainly related to lacking routine with Cip-Cube – this can happen with any program which is being used occasionally.

On the other hand, documentation using Cip-Cube has a wide range of advantages:

- The data base is accessible via internet with individual password from anywhere around the world, 24 hours a day. Daily backups are being automatically performed.
- The range of documents accessible can individually be adapted to the function of a person within the project.

- The program has capabilities for date definitions and automatic distribution of meeting invitations or protocols. Different file types can be attached to E-mails sent to various groups of recipients.
- Cip-Cube has a versatile search tool.
- Open issues can be defined within protocols and responsibilities can be attributed to selected persons. Open issue lists can be printed.
- Distribution lists can be created and documents with or without attachments can be directly sent to any E-mail address.

At present, the Cip-Cube database for PROSCAN encompasses more than 1000 files using roughly 500 MB of disk space. About 650 items are listed as open issues.

The second form of electronic documentation for PROSCAN, the so-called PROSCAN disk, is more or less a scratch disk, on which every user with access can write or delete any data. The user must be aware that such a data storage is unsafe. Furthermore, the disk has to be cleaned regularly.

Nevertheless, the PROSCAN disk can be accessed in a very simple way and is also frequently used for a fast project-internal data transfer.

Table 1 summarises the advantages and disadvantages of the three documentation systems mentioned above:

	Paper hardcopy	www.cip-cube.ch	PROSCAN-disk
Completeness:			
- protocols	+	+	-
- drawings	+	-	o
- other	+	+	o
Access:			
- from PSI	o	+	+
- external	-	+	-
- security	+	+	o
User friendly	+	o	+
Search tools	o	+	o
Distrib. tools	-	+	o
Data safety	o	+	-
Extra tools	-	+	-
Future access	+	?	?

**Table 1:** Criteria of usefulness of the documentation systems used for the PROSCAN project (+: useful, -: not useful, o: intermediate, ?: unclear).

## CONCLUSIONS

All documentation systems have their individual advantages and disadvantages. The general "handyman" system simply does not exist. The combined use of different systems has proven to be a useful tool in the scientific environment for documentation of the PROSCAN project.