

The IRT Project-oriented R&D

Dr H. Wilkens
Director, IRT

1. *Changes in the media landscape*

The competitive broadcasting environment in Germany has come about due to a number of factors, including:

- the growth of commercial broadcasting;
- the introduction of digital production and distribution technologies;
- the move towards multimedia services.

Traditional viewing and listening habits are changing as new media alliances bring new ideas and new products to the market. These changes are coming rather quickly; while some of the new ideas disappear after an experimental phase, others reach stability perhaps in a form that was never envisaged at the beginning of the process. Quick reactions to these new challenges are often necessary – without the detailed exploration and the necessary technical development that was carried out in earlier times.

The IRT, based in Munich, provides R&D facilities for the public service broadcasters of Germany, Austria and Switzerland.

This article describes how the IRT has adapted to meet the needs of its parent bodies in the rapidly-changing media environment.

The immediate future of broadcasting may be described as follows:

- existing general programmes which provide information and entertainment will continue to exist but there will be multimedia additions to them, as well as links to other information sources;
- new specialist programmes, covering different areas of content, will be offered to special user groups and some of these may become stable in the course of time;
- new media delivery systems, such as CD-ROM and DVD, will complement the broadcast services;

- Electronic Programme Guides (EPGs) will play an important role for the customers;
- it will be necessary to provide more content for less money, due to the fact that there will be no dramatic increase in the funds available for public service broadcasting.

2. Changes in the technical landscape

Newly-designed media services will become possible, by combining elements of the existing distribution media. Falling prices will allow mass storage devices to be used at home and, hence, the downloading of programmes and information for databases will dramatically increase the possibilities available to the customer. Interactive workstations at home will allow totally new services to be provided.

3. Changes in the industry and market

Broadcasting equipment will progressively be replaced by computers; few parts of the broadcasting chain will remain specialized.

Only a few media alliances will become global players and they will dictate the markets. Small flexible firms will serve niches in the broadcasting market but, as these companies can often disappear very quickly, they are unlikely to become partners of the existing broadcasting organizations. Some global players from the network (telecommunications) sector will influence the broadcasting market but their interests will not necessarily meet the principal requirements of the public service broadcasters.

4. Reorganization at the IRT

The *Institut für Rundfunktechnik* (IRT), based in Munich, provides R&D facilities and services for the German, Austrian and Swiss public service broadcasters.

Three years ago, we had to reorganize the work of the IRT in order to become more effective in the changing environment. We had to cut our budget by 10% without, hopefully, making any reductions in our output. However, this was not simply a financial exercise as it also required answers to be found for some rather more philosophical questions, such as:

- what criteria should be applied to the work carried out by the IRT?



Figure 1
Aerial view of the IRT, Munich.

- which of our tasks were really needed and which ones could we abandon?
- which tasks were truly urgent?
- how could the work of the IRT be made more transparent?
- how could we keep track of the planned, and the required, effort and time needed to complete a task?

In order to address these and other important questions, high-level discussions were held with the German, Austrian and Swiss broadcasters who control our work (the IRT Board Members) and a list of priority tasks was drawn up; we were able to drop some of our existing tasks that were no longer needed.

At a workshop, members of the IRT – from all levels of the organization – discussed the new task

Figure 2
General view of an IRT laboratory.



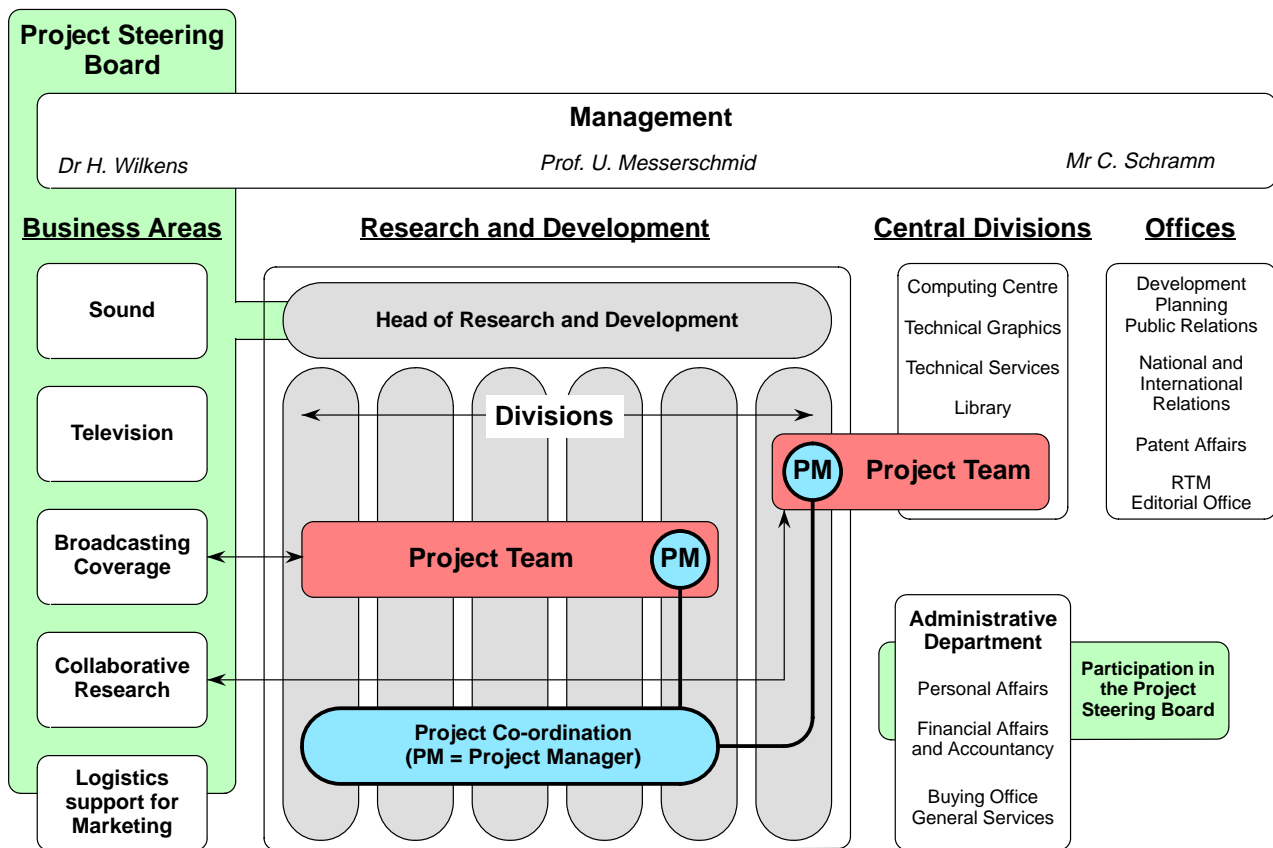


Figure 3
Organization of IRT
projects.

list and developed a new project-oriented matrix organizational structure. *Fig. 3* shows the fundamentals of the IRT's new organizational structure, which has now been in operation for more than two years.

■ 4.1. Customer fields

The first important change in our structure is that we have split our work into four business areas, as follows:

- Sound;
- Television;
- Broadcasting Coverage;
- Collaborative Research.

Each of these areas has a *product manager* whose job is to liaise with our customers, i.e. the representatives of the German, Austrian and Swiss public service broadcasters.

Since we have to work in collaboration with other research organizations in the broadcasting field, projects are also carried out with the support of national and international funding programmes.

These collaborative projects often lead to the standardization of future broadcasting systems, with further work being carried out in the framework of the EBU and other standardization organizations.

In addition to this type of externally-funded R&D work, we also have had to look for funding from commercial sources – by offering spare IRT capacity on the open market. Consequently, we have had to engage the services of a *marketing organizer*.

All our tasks are now organized into projects with:

- a clear goal;
- defined start and end dates;
- planned effort in terms of manpower and expenditure.

The project proposals come in general from the product managers and are chosen by a collective decision board called *Projektrat* (Project Steering Board). This consists of the heads of the IRT, both scientific and administrative, the product managers and, in addition, the marketing organizer. The main task of this Board is to discuss the assignment of manpower and other IRT

resources and therefore it has to prioritize the proposed (and agreed) projects.

■ 4.2. Research and Development

The other principal change in our structure is that we have formed a large R&D department which is split into 12 divisions. The head of R&D is also a member of the Project Steering Board, because the allocation of IRT resources is mainly a manpower problem. Most of the IRT work is now carried out within projects, and responsibility for these is given to *project managers* in co-operation with the product managers. The project managers have to report to the Project Steering Board and are responsible for the results of, and the reports on, the various projects now undertaken.

The work of the Project Steering Board has now been running for 2½ years, during which time we have gained a lot of experience of it. The main outcome is that the problems we previously had in the IRT are now discussed at the right level, i.e. at the management level (and not at the level of the overloaded person dealing with the customers in our broadcasting organizations). We feel that this new strategy makes our work more transparent and the results of it more clear. We hope that, after a short period of transition, our broadcasters will appreciate what the IRT can offer them in helping to solve their operational problems.

■ 5. Conclusions and future outlook

The R&D process has always had to aim at ever-changing targets. In the world of broadcasting, these targets have been changing very rapidly in recent years and the IRT has had to make some essential changes to its organization, in order to remain a competent partner of the German, Austrian and Swiss broadcasters it serves. To provide correct support for the technical decisions taken by its board members, the IRT has had to become a learning organization.



Figure 4
A virtual studio at the IRT.

Following the example of the EBU Technical Department, the IRT has addressed the changing broadcasting environment by introducing project-oriented work and methods. The organization of the IRT has been adapted by the establishment of project teams which combine together the knowledge, skills and experiences obtained in different fields, rather than being organized on a task basis, as was previously the case.

The restructuring of the IRT has not been just a “paper exercise”. We have had to convince our paymasters and customers of the value of our services, and have had to tailor our goals to match their expectations.

Dr Henning Wilkens was born in Rendsburg, Germany, in 1941. He graduated with a Dipl. Ing. in Electrical Engineering from the Technical University of Berlin in 1969 and received his Dr Ing. degree from the Heinrich-Hertz-Institut, Berlin, in 1974.

After joining the Heinrich-Hertz-Institut, Henning Wilkens was engaged in studies on the subjective evaluation of concert halls, using an innovative artificial head recording system. After completion of that project, he was responsible for conducting subjective tests for the optimization of digital picture coding strategies. He subsequently was entrusted with responsibility for a project which explored the potential for user-friendly audio and video conferencing equipment. In addition to that, he was project leader of the multi-user broadband dialogue system.

In 1983, Dr Wilkens joined the Institut für Rundfunktechnik, Munich, in the post of Director. Since then he has been a member of EBU Working Party V, which has now been restructured into the EBU Broadcast Systems Management Committee. He was a member of the DAB Steering Board and the Technical Module of the European DVB Project.

