

PUBLIC BROADCASTING ARCHIVES AND ACADEMIC USE IN GERMANY

SCOPES OF THE PORTAL FOR BROADCAST SEARCH 'RUFUS'

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Abstract: This article situates the new online database rufus Rundfunksuche in the German PSB archive landscape. rufus grants researchers in communication and media studies access to the metadata of the ZDF production archive. The text lays out the genesis and framework of the infrastructure as well as its functionality and particular challenges. It explains strategies of data transfer from the archival structure of ZDF to a freely accessible platform for academic use with complex search and filter functions. As a context, the analysis also considers initiatives of other broadcasters implementing less complex search functionalities while working with curatorial strategies. Overall, the article underlines the dynamising effect of the pioneering project on the process of opening up the archives of public broadcasters in Germany.

Keywords: German public service broadcasting, digital archive, access, metadata, ZDF, audiovisual cultural heritage, national mediography, public value, ARD Retro

1 rufus: Unlocking Treasures from German Television Archives for Research

For communication and media studies research on German audiovisual heritage, a veritable innovation and streamlining utensil is available online: it is called 'rufus,' short for the German word 'Rundfunksuche,' which means broadcast search. blog.rufus-portal.de is an independent platform, which for the first time provides users with decentralised external access to the metadata of German television programme archives. The information given comprise title, series title, broadcast date(s) and duration, channel(s), file number of the archive, keywords, abstracts, descriptions of image content, contributors such as presenter, camera and sound operator, producer, artists etc. These data fields are comprehensively searchable. On this basis rufus is a new universal infrastructure and functions as a digital finding aid tailored to research. The platform was developed with the support of the German Research Foundation (DFG).

rufus is pioneering in its field in Germany, since it not only broadly opens television archives for research, but also makes broadcasting history accessible and recognises it as part of the audiovisual cultural heritage. The portal is a

pilot project of Leipzig University Library (UL) and could only be realised thanks to the cooperation with ZDF, one of the public service broadcasters. It has been the first in Germany to make the metadata from its production archive available. The head of the respective department for research support at ZDF's archive speaks of a 'quantum leap.'¹ After all, this programme data comprises more than sixty years of German broadcasting history. In this respect, the following observations are intended to illustrate the promising results a project can deliver when it works at the interface between archives, research infrastructures, and academic users.

Since 2024, rufus has been accessible to the defined specialist community of media and communication scholars as a test version, meaning it is fully functional with minor compromises in terms of usability and design (Figure 1). As the

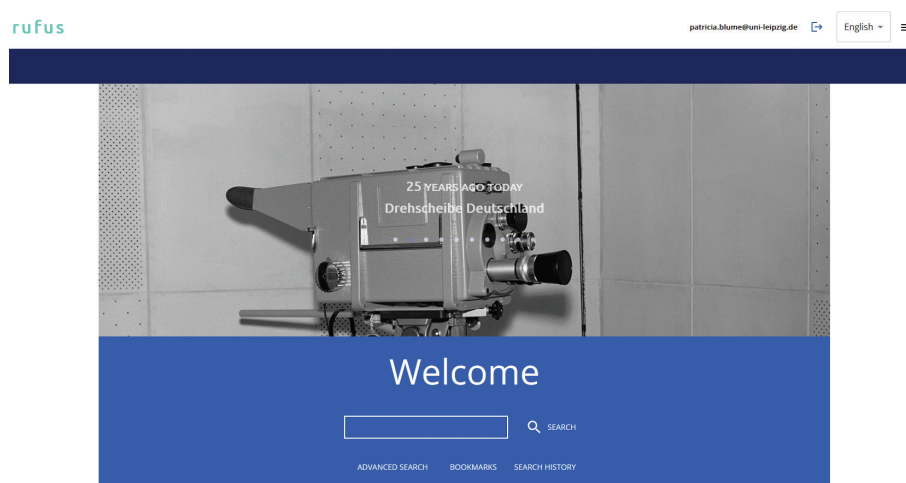


Figure 1. rufus start page (screenshot).

funding has now ended, Leipzig UL is operating the service without technical or user support and only with a functional beta design. In the meantime, preparations for a new project application are continuing.

In this article, I describe the genesis and significance of rufus as a research tool in the field of TV heritage, which is unique in Germany to date. In addition, I take a meta-level look at its functionality and ask: how can the transition from a closed structure such as the ZDF archive to a (comparatively) open and transparent online platform succeed? And how can such a platform process archive data that follows professional classification and adheres to high standards of documentation, while providing individual and precise searches without detailed knowledge of the archive? At the same time, I would like to point out the contrasting handling applied by the 'Retro' project of the German PSB ARD, which uses its free online TV platform 'Mediathek,' media library, to integrate historical audiovisual content lacking however a sufficient attribution of metadata and searchability.

2 Why rufus? The Process of Opening Up Broadcasting Archives in Germany

Researchers working with audiovisual media in Germany encounter a number of problems with the source material. To a large extent, the archiving, preservation and public accessibility of television heritage has not been satisfactorily resolved. There is no state regulation regarding media or cultural policy. The responsibility for archiving programmes

lies with the broadcasters, who define their holdings primarily as programme assets and only secondarily as cultural assets – even though they clearly acknowledge the cultural heritage contained in their own archives, but also stress the restrictive legal regulations, in particular copyright, which rule out a general opening.²

In general, the research side agrees on the importance of audiovisual archives as an integral part of PSBs. Olga Kolokytha et al., looking at broadcasting archives in Austria, Hungary, Poland and Greece, emphasize that the accessibility to archives is a universal service and as such a fundamental factor for PSBs to fulfil their democratic role in the 21st century.³ Regarding Germany, there has been little initiative concerning the accessibility from the broadcasters. In this respect, Leif Kramp, who has worked extensively on broadcasting archives and their management, identified a neglect of the audiovisual media heritage and clearly detected a clear need for media and cultural policy action.⁴

For roughly ten years, broadcasting archives in Germany have been making efforts to provide greater support for the work of researchers. At ZDF, this group has been using the holdings regularly since at least the 1980s.⁵ In the meantime, academic interest in broadcasting heritage has increased significantly; the number of users from the academic sector in the archives of the public broadcasters has been growing for years.⁶ However, inventory overviews and research tools such as finding aids are not available online, and access to the records themselves is extremely labor-intensive and complicated in practice.

In the case of ARD, with its federal organisation and nine regional broadcasting corporations, a researcher must first identify which is the archiving body and where the material of interest might be located.⁷ Recently, the German Broadcasting Archive, Deutsches Rundfunkarchiv (DRA), has taken on an intermediary role in centrally receiving user requests and forwarding them to the regional archive(s) concerned. The user submits the concrete request, rather unspecifically, via an **e-mail form**. Although the DRA itself only holds material from German broadcasting up to 1945 and German Democratic Republic (GDR) television and radio, it is linked to the relevant databases and finding aids. Researchers can, of course, view the material on site. The only collection available online is the brand new ARD radio play database, the **ARD Hörspieldatenbank**, which contains metadata as well as a small amount of audio files.⁸ In the case of ZDF, the archive handles requests directly and offers researchers a workstation on its premises for free on-site research and viewing. In general, the staff at the different archives is on hand with expertise and tries to enable a lot of things. Nevertheless, the personnel shortage combined with a heavy workload is clearly noticeable in all broadcasting archives.

Of course, it is first worth looking at other European countries, where viable central infrastructures for free access to audiovisual heritage have been created under different conditions. Notably, some countries make use of a compulsory deposit of television programmes, which has been in place for decades in some Scandinavian countries and in France and which goes hand in hand with providing access, as via **INA** in France. The ORF in Austria, as another example, opens its holdings for academics directly through cooperations with universities. In Switzerland, Memoriav, the superordinate competence centre for the country's audiovisual cultural heritage organised as an association, offers almost 700,000 metadata on television and radio broadcasts via the **Memobase** portal. In Germany, in contrast, there is no legal deposit for television productions, and other initiatives aimed at central archiving and general accessibility have not yet been successful.

In the mid-1980s, efforts were initiated by a renowned cultural institution, the (West) Berlin Academy of Arts, to create a German Media Library. As a national memory institution without any dependence on broadcasters, it was intended to make television heritage accessible to scholars and the public, and to address both television historical discourses and general memory needs. However, the project took over nearly 20 years due to numerous legal, organisational, and financial obstacles, as well as the lack of willingness from broadcasters, media and cultural bodies to support such an independent institution. The idea eventually merged into a newly established television department of the Deutsche Kinemathek, which later became the Museum of Film and Television.⁹

An initiative at the infrastructural level came from the memory organisations that preserve audiovisual heritage. In 2000, the **Netzwerk Mediatheken**, the Network of Media Libraries, was founded, an association of institutions dedicated to the protection, preservation and development of audiovisual sources, including broadcasting heritage. Participants include university media collections, museums, public archives and individual archive departments of broadcasters. It is committed to making audiovisual material in its decentralised collections available for education, research, teaching, art, and the general public.

Since autumn 2009, historians, media and communication scholars, media archivists and representatives of relevant institutions have joined forces in the 'Audiovisual Heritage' initiative to raise awareness of the importance of and access to audiovisual sources, particularly from broadcasting. The initiative, which was launched by the Centre for Contemporary History (ZZF), called, among other things, for the utilisation of production archives to be made easier. In particular, it asked 'to what extent – filtered – catalogue data can be made available online, if possible, in order to enable reliable source research in the first place.'¹⁰

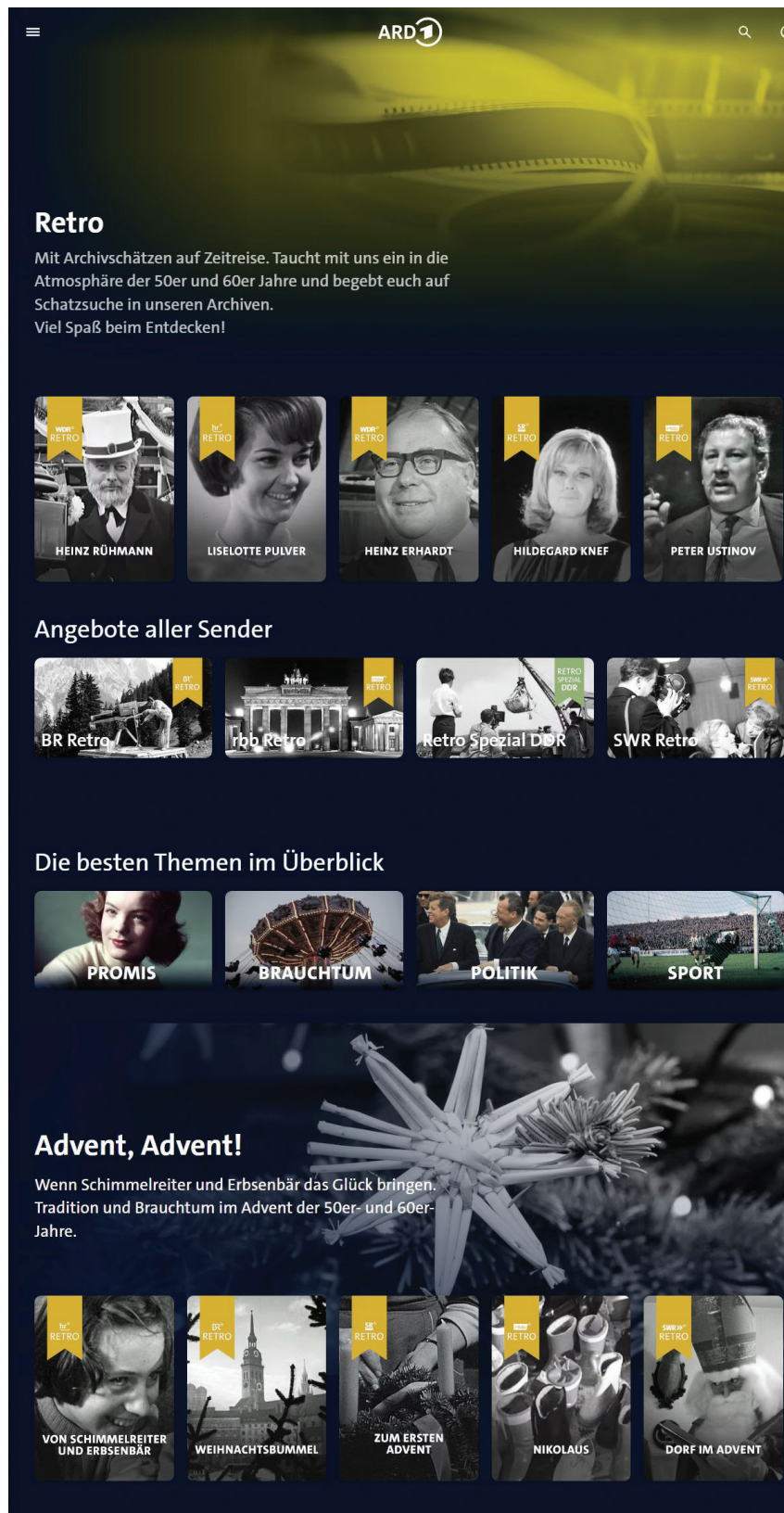
The success of these efforts was reflected in the voluntary commitment of the German public broadcasters.¹¹ After a lengthy process, in 2014 they agreed on a joint regulation that defines the conditions under which archive material is made accessible to science and research.¹² This is regarded as an important formal stage in opening up archives for research and, above all, has created transparency.

ARD as a joint PSB built on nine regional channels has taken the next huge step on the way to opening up German broadcasting archives with its service ARD Retro. It was tested and initialised with the ARD regional member SWR, which covers the broadcasting area in southwest Germany. In 2019, it became the first public broadcaster in Germany to make historical audiovisual material from its television archive freely available online with the 'SWR Retro' project. The project was in 2020 transferred to all regional channels, including radio programme as well as a special track for the broadcasting programme from the GDR.

ARD Retro is a constantly growing online collection with currently over 20,000 videos and audios relevant to contemporary history, which have citable URLs and are permanently archived, according to its own information. The content is limited to the period up to December 31, 1965, as the current German copyright law came into force after this date, which severely restricts exploitation. That's also the reason why content is non-fictional only, omitting series, entertainment and music shows. The ARD retro service is explicitly aimed at a general public interested in contemporary history.

As an infrastructure, ARD Retro does not use its own database, which could map the sizable high-quality metadata information from the broadcaster's archive. Instead, the material is integrated into the extensive 'ARD Mediathek,' ARD's online TV platform. This only contains a restricted set of metadata information such as title, teasers, keywords, genre and broadcast date. Yet, the Mediathek platform is particularly attractive due to its reach of 2.7 million daily users of which 40 percent are between 14 and 49 years old.¹³ This generates rates for Retro of 39 million clicks since the start in 2020.¹⁴

Similar to other online TV platforms, the central entry of the Retro portal is structured by theme-based visual tiles. Their selection is driven by journalistic curation. In this process the Retro team constantly posts new historical videos with a focus on regional productions.¹⁵ Some of the content is of current relevance and is grouped separately on the homepage, apart from a 'best topic' section following themes such as 'traditions,' 'politics' or 'sports' (Figure 2). The search function is quite inconspicuous. It comprises the entire content of Mediathek, i.e. not only Retro content, but all published videos from the current programme, which can only be narrowed down by channel and a 'kids' label. This type of access is convenient for everyone, but it does not meet the specific search requirements of academic contexts. These would be an advanced search and appropriate filters including an option to specify the period or date of interest.

Figure 2. Homepage of ARD Retro within **ARD Mediathek**, the online TV platform of ARD (screenshot).

ARD Retro has also been criticised for the fact that the historical content is not framed by context or categorised by research.¹⁶ At the same time, it remains to be seen how the Retro service will fit in when ARD and ZDF expand their separate online programme platforms into a joint streaming network in the future, as announced in 2021. At the moment, ARD's online media library contains only a small selection of ZDF content and vice versa. One of the aims of this process is to make the entire German PSB programme more findable and tailor it according to a personal profile through a mandatory log-in. So far, the media libraries can only collect limited usage data. Both broadcasters recently reported on the progress of the shared streaming network project and pointed out that the recommendation system will be based on transparent public service algorithms, unlike those of commercial platforms.¹⁷

Finally, for the sake of completeness, I would like to include the model of the Franco-German cultural channel ARTE, which, however, must be licensed by institutions and is not freely available. Under the label ARTE Campus, the channel has been offering a curated 'educational online media library' with 'the best of ARTE' including historic broadcasts for colleges, universities and adult education since 2021.¹⁸ A good 2,000 videos are currently available. The majority of these have full text transcription and offer additional features for use in an educational context. A simple search function as in ARD Retro is also integrated here. The content is grouped according to fields of knowledge, with a particular focus on current topics such as the Olympic Games. This is a supplementary service which does not use the online programme platform of arte.tv.

In 2012, ZDF and subsidiaries of ARD also considered commercial exploitation together with German television production companies. Under the working title 'Germany's Gold,' they wanted to offer highlights of German film and television production from the past decades on a joint video-on-demand platform. However, the project failed due to antitrust hurdles. Although such portals do not pursue a social mission, this one would have had a share in the wider availability of programme heritage.

As described above, the process of opening up TV archives to researchers in Germany is extremely lengthy and slow. Accordingly, researchers clearly expressed their desire for an easy-to-use and online-accessible research instance with which they could search the holdings of broadcast archives according to their individual needs.

Against this background, the broadcast search portal rufus and ZDF's willingness to make its internal data available to the outside world is proving to be a unique initiative of outstanding importance for access to audiovisual cultural heritage in Germany.

3 Initiation of rufus and the Infrastructural Base

A few years before ARD went public with its Retro service, Ulrich Johannes Schneider, then director of Leipzig UL, approached the German broadcasting organisations. He presented the visionary idea of a broadcasting search portal that would reuse the treasure trove of archives – the metadata, being excellently structured according to archival standards – in an infrastructure fit for academic needs.¹⁹ This was well-received at ZDF's because the media house had decided in the late 2010s to present its activities more prominently and to make the archive holdings more accessible to the public as part of the audiovisual cultural heritage.²⁰

For this cooperation, two premises were defined from the outset: due to the existing copyright regulations in Germany, it was and is out of the question to make (historic) videos available online. It was also clear that, for security reasons, the portal would not be able to work with the ZDF infrastructure directly, and instead import the metadata from the broadcaster's internal system to the IT environment of Leipzig UL.

The third component was set by the profile of Leipzig UL: the focus on a target group that uses archive data for research purposes. This is because the library sees itself primarily as a service provider for an academic community

and would like to support their activities in research and teaching. As one of the world's oldest academic libraries, it owns a rich special collection, it is a place of learning and a cultural institution – and it is constantly working to meet the wide range of tasks of a university library with contemporary and innovative services.

Leipzig UL was also able to offer ZDF a close connection to the German communication and media studies community. After all, the latter had brought the great need for accessibility to material from the broadcasting archives to Leipzig UL, i.e. through the specialist academic information service, Fachinformationsdienst (FID) Media. Since 2014, Leipzig UL has been operating **FID Media**, formerly FID adlr.link. It is one of about 40 FIDs in Germany. They cover specific disciplines and provide scholars, regardless of their location, with specialist resources, research-relevant information and services by decentralised online portals. This makes them a globally unique infrastructure for the information and publication needs of researchers.

On a technical level, rufus uses the account and rights management system of the FID portal. This allows the rufus test version to be targeted at this focused and well-informed user group. Under these conditions, Leipzig UL was able to win ZDF as a cooperation partner, having started the collaboration in December 2021. The broadcasting institutions of ARD follow the project in an observer status. Since the portal's content is relevant across disciplines for all research questions involving media context, it is planned to expand the user group during the continuation of the project.

4 Data Input: ZDF Metadata

The ZDF archive applied an extensive review in which the more than 70 metadata fields of its television database were individually examined and assessed. Through this process, the detailed data collection was streamlined to the essentials. More than half of the content-related fields remained, ensuring that all broadcast-related information was fully prepared for transfer to the portal. Among those we find the following data fields: title, broadcast date and duration, channel, file number, descriptions of content and image as well as contributors.

There have been various reasons for the exclusion of certain fields during the metadata selection. These fields contain information intended solely for internal use by ZDF, such as loan data, confidential rights information related to licensing agreements, or other corporate internal data with personal information. Additionally, data that would be unusable without the knowledge of the broadcaster's internal cataloguing rules – having varied over the decades – such as database IDs and production numbers used for cost management were not transferred.

The broadcaster was satisfied with this solution: 'Ultimately, a data package was put together that, from ZDF's perspective, strikes a balance between archival, business, and public interests.'²¹ At the same time, the initial intensive review process laid the foundation for a low-maintenance continuation of the collaboration between the broadcaster and Leipzig UL. ZDF developed a robust workflow for filtering the data and transferring it, which is sustainable in that it considers future synchronisations. By the way, as part of an internal feasibility study, ZDF also conducted an extensive legal review that covered personal rights, copyright, media rights, and other limitations. The extraordinary opportunity to make the metadata of audiovisual cultural assets available to the academic community led ZDF to accept any remaining risks.²²

5 Mapping and Curation: From the Archive into an Open Infrastructure

Let me now examine the actual algorithmic process by which Leipzig UL integrated the archive data into a more universal model. This is where the expertise of a library comes into play, particularly its specialisation in creating catalogues and in maintaining and curating metadata. Leipzig UL processes a wide variety of media, including coins, portrait engravings, oriental manuscripts, ostraca, papyri, and Japanese video games, for catalogues with highly specialised requirements. With this knowledge, the library turned its attention for the first time to television data.

The process began with data preparation and a thorough analysis of the sample data provided by ZDF. It became clear that the data structure needed slight adjustments to meet the platform's requirements. After careful consideration, EBUCore, developed by the European Broadcasting Union (EBU), was decided on as the metadata standard of choice. Following additional testing phases, the mapping process transferred ZDF's internal format to the new EBUCore standard converting the raw data sets into the required formats. This successfully rendered the data processing procedure as both universal and transferable, ensuring that the data workflow could be streamlined while remaining flexible for future data providers (Figure 3).

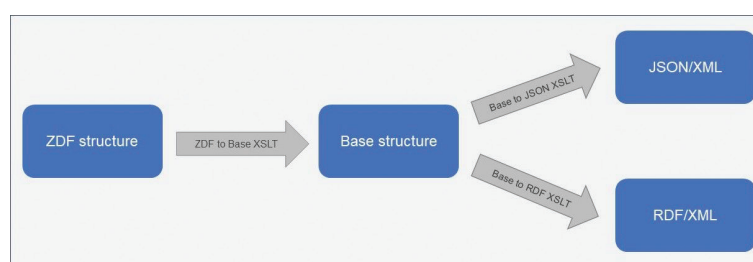


Figure 3. Visualisation of the data transformation process (rufus project).

The second step focused on creating the search interface to make the dataset searchable. This stage resulted in the development of the actual portal and its functionalities. The core element of the portal is an Elasticsearch instance, serving as a powerful and versatile search engine. It ingests the ZDF archive data and enables complex and rapid search queries. The outcome is a search engine tailored to meet the needs of academic research, allowing comprehensive fulfilment of external information demands.

In a third step, the team developed the user interface, which comprises standard functions for research portals as well as specific features. The most central tools include the search functions. In addition to a classic simple search, rufus offers an extensive advanced search with logical operators, phrase searching, fuzzy search, and other user-friendly aids. To ensure usability, the project team initially gathered the expectations and requirements of the target group, then conducted a pre-test and a post-development test workshop.

A crucial aspect of rufus – beyond all algorithms and coding efforts – lies in effective communication. As anticipated, rufus has to bridge not only the technical gap between the archive database and the portal but also the gap between the data specifications and the users' needs. Knowledge transfer involves explaining the data as well as the use of the platform, such as the characteristics of the data, its consistency and (un)completeness, the specifics of the field contents, and the search capabilities. Accordingly, users are provided with information resources like mouseover tips, an FAQ section, and e-mail support.

6 History of ZDF and its Production Archive

To characterise the data provided by the ZDF production archive for rufus, it is important to outline some key points of the history of the broadcaster. ZDF was established at the end of 1961 during Konrad Adenauer's chancellorship and officially began broadcasting on April 1, 1963. As the name 'Zweites Deutsches Fernsehen' (ZDF) suggests, it was the 'Second German Television,' created alongside the ARD's PSB programme, 'Das Erste,' which had been in operation since 1950. While ARD was and still is federally organised, ZDF is supported jointly by all the federal states. Its programme was intended to contrast with ARD's offerings and provide the audience with a content alternative.²³

ZDF's profile included programmes that reported on world events, conveyed the realities of life in Germany, highlighted the happenings in various federal states, and showcased the country's cultural diversity. The programming mandate also encompassed reporting from and about the GDR.²⁴ After the reunification of Germany, the federal states signed the 'Interstate Broadcasting Treaty in Unified Germany' in 1991, which came into effect the following year. This treaty included a new ZDF State Treaty, which, in its various versions and amendments, continues to be the legal framework governing the broadcaster's operations and organisation.

The organisational and personnel setup of the new television institution began in the first half of 1962, with the archive developing alongside.²⁵ Its structure evolved over the years. Today, the central archive division of the broadcaster is known as the 'Archive-Library-Documentation Department,' located in Mainz.

Basically, staff at the production archive only documents broadcasted programmes and contributions. The cataloguing is based on a ZDF-specific set of rules, aligned with the general German standards for television production documentation and media cataloguing. In 1985, a television database replaced paper-based cataloguing, accompanied by an extensive retrospective project to digitally capture the essential data from index cards. This database has undergone various development stages, with workflows and indexing rules adapting over time.

Most importantly, the broadcaster's contents were and are archived with the intention to be used by ZDF's own editorial teams. Thus, the archive's main purpose – from its inception to the present day – is a journalistic one, serving as a tool for ZDF staff to reuse and repurpose content within the broadcaster's own programming. Unlike public archives, such as state and federal ones, the ZDF production documentation is part of a corporate archive which is not publicly accessible and operates under different rules. In this frame, research interests are secondary to programme assets. This function must be considered when using the rufus portal.

7 The Treasure and the Key to the Chest: Data Description and Search Options

rufus contains ZDF productions dating back to the very first broadcast on April 1, 1963 (Figure 4). It provides data on nearly 500,000 broadcasts with 2 million individual features. ZDF delivers the data annually in spring as a comprehensive extract, ensuring that the portal reflects the current TV programming, including the most recently completed year. This data also includes improvements and updates to the existing records, as the ZDF archive continually works to retrospectively index older entries according to modern standards, thus steadily refining the overall database.

1 - 25 of 3,837 hits

Löwenzahn

Fotografie - Der Doppelgänger

1.

Sun 17.05.2015 08:09:36 ZDF

Sun 24.05.2015 11:06:21 KiKA

Sun 07.08.2016 08:09:50 ZDF

Sat 17.08.2019 06:00:05 ZDF

Thu 17.12.2020 19:23:20 KiKA

Sun 08.01.2023 11:04:08 KiKA

Fotografie

Unser drittes Auge

125 Jahre **Fotografie**

2.

Fri 28.08.1964 ZDF

History (superordinate) (HIS)

Fotografie

Leben mit Chemie (9)

Fotografie

3.

Sun 18.07.1976 ZDF

Fri 17.11.1978 ZDF

Figure 4. Hit list for the default selection search with the example of 'fotografie' (photography) indicating title, series title, broadcast date, and keywords (screenshot).

The rufus portal includes metadata for nearly all news, magazine, documentary, show, quiz, and fictional programmes since ZDF's first broadcast. It also encompasses the content of ZDF's digital channels, as well as its contributions to 3sat, PHOENIX, ARTE, and KiKa, the kids' channel.²⁶

Users will find the following information in rufus: the so-called formal data, such as the broadcast title, series title, file number, broadcast date, and duration, as well as the data, including details about the creator, contributors, abstracts, subject matter, and visual content (Figure 5). Additionally, the portal provides keywords and categories that hold contextual information. Keywords were assigned by the archive based on a thesaurus and a set of rules, while categories are entered manually and freely. Any typographical errors or spelling variations that arose from this process have been grouped as much as possible through additional data-cleaning processes.

Universitätsbibliothek Leipzig

+

Archive no.:

4000145414

item title:

Universitätsbibliothek **Leipzig**

categories:

nicht-fiktional Nachrichtensendung Nachrichten Erziehung Bildung

keywords:

Bibliothek Saxony (XSN) Germany (DEU)

timecode:

time code

start:

22:20:35

end:

22:21:03

duration:

00:00:27

audio:

broadcast audio international audio

content

+

22:20:35:13 – 22:21:03:00 (22:20:35 22:21:02 00:00:27) **Leipzig**: Universitätsbibliothek Bibliotheca **Albertina** nach zehnjähriger Restaurierung wiedereröffnet.

content

22:20:35:13 – 22:21:03:00 (22:20:35 22:20:38 00:00:03) Schriftzug "Bibliotheca **Albertina**" an Fries der Bibliothek. (22:20:38 22:20:41 00:00:03) Prachtvolles Treppenhaus. (22:20:41 22:20:46 00:00:05) Schwenk von Glasdach auf großen Lesesaal. (22:20:46 22:20:53 00:00:07) Schnittbilder Ausstellung mit historischen Kostbarkeiten und Exponaten zu Goethe. (22:20:53 22:21:02 00:00:09) Ruine der Bibliothek vor Beginn der Restaurierung.

image content

Figure 5. Excerpt from the detailed view of a search result, showing the descriptions of content and images. This example is a segment from the 'heute journal' news broadcast about the reopening of Leipzig UL after restoration (screenshot).

This broad coverage and the extensive information enable research on virtually any thematic aspect. Particularly through the image descriptions, users can identify specific content, for example which topics were featured in the news programme 'heute'/'today' or when and in which formats the broadcaster reported on specific events such as the fall of the Berlin Wall. Even if some broadcasts are only partially catalogued, the portal provides avenues for determining trends in topics like gender equality in ZDF programming, assuming users can independently operationalise such analyses.

The portal proves especially valuable in its detailed information about contributors. Users can research authors, but also directors, actors, hosts, cinematographers, editors, production companies, and depending on the format, even composers, singers, or orchestras. Additionally, rufus supports queries related to specific genres, the development of particular shows, programme slots, or audience-targeted formats like children's programming. Beyond explicit media and communication science questions, rufus is a treasure trove for various aspects of everyday life, cultural, and social history, making it of high interdisciplinary interest.



Figure 6. Some options of the advanced search (screenshot).

The key to unlocking the data lies in the extensive search capabilities offered by rufus. Users have access to a variety of combination options and tools in the advanced search (Figure 6). The portal also provides different filtering options to narrow down search results, such as by channel or weekday (Figure 7). A specialised research feature is the automatic compilation of a random sample for an 'artificial week.' The interface also includes additional functions like user accounts and special tools for personalised actions, such as saving or exporting search results in private folders. Moreover, rufus contains a future feature which sends requests for video viewings directly from the portal to the archive, relieving the staff of vague research inquiries.

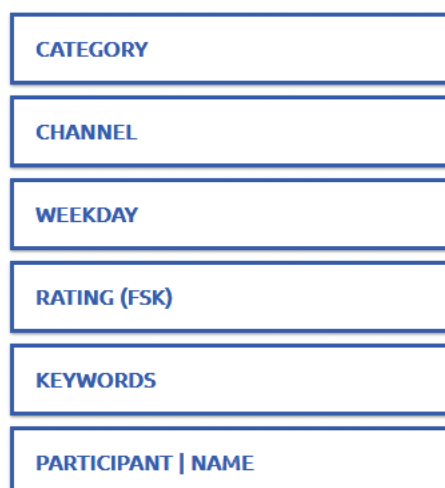


Figure 7. Options for further filtering the search results (screenshot).

For the standard sorting of search results by ‘best match,’ rufus relies on algorithmic curation. It is the default logic of Elasticsearch with a **documented algorithm**. Additionally, the portal employs a recommendation algorithm on the homepage to offer previews of shows by title as a teaser. Here, users receive a sample of small retrospectives on the programme ‘25 Years Ago Today’ (Figure 8).



Figure 8. ‘25 Years Ago Today’ on the rufus homepage with a recommendation for ‘Teletipps vom Hausarzt’ (Tele tips from the family doctor) (screenshot).

8 Characteristics of ZDF Metadata

Due to the archive’s historical evolution, which involves varying demands and conditions, the metadata stock exhibits specific characteristics. Consequently, not all fields are as precisely or consistently indexed as researchers might wish for in an ideal archive. This has to be taken into account on two levels: during the curatorial and technical transfer of data from one infrastructure to another, and during the content transfer from the portal to the user through knowledge transfer and communication. The interpretation of historic materials generally requires extensive archival background knowledge. However, in rufus, users rely largely on themselves – apart from a comprehensive explanatory apparatus and a future helpdesk. Therefore, the portal aims to empower users to navigate and interpret the data independently by making use of the available information and tools.

When examining the metadata from 1963 to the present, there are some peculiarities that users need to be aware of, especially when working with statistical analyses. Firstly, the metadata has gaps due to documentation interruptions, such as changes in the technical conditions of the indexing process. Particularly in the early years of archiving during the 1960s, the storage was selective. Like in other broadcasting archives, not all material which was ever produced was archived. For technical and financial reasons many broadcasts were not recorded in their entirety at that time. For example, for the period from 1963 to 1981, only single news contributions usually exist rather than the complete news show. Additionally, in the 1970s, the archive discarded some shows and entertainment programmes which, from today’s perspective, would be considered worthy of preservation. Fictional programming, however, is entirely preserved unless it had to be returned to the rights holder, as in the case of foreign films and series. On the other hand, programmes produced specifically for ZDF, such as television plays and (early evening) series, are fully archived.²⁷

The heterogeneity of the data is another factor to consider, arising from the changing conditions of cataloguing practices. Over the decades, the individual metadata fields have been filled and maintained with varying quality and quantity, leading to inconsistencies. For example, different levels of detail were applied to the indexing of entries. Data fields were renamed, or new fields were added, like with the introduction of new guidelines, the expansion of the broadcaster family, or new publication formats like the Mediathek.

Generally, the documentation and the extent of field content in the archive database have become increasingly precise over time. For instance, with the introduction of a new set of rules, information on image and subject matter was added as separate fields.²⁸ These are the most data-rich fields in the portal, providing a text-based, detailed description of programme content.

Moreover, it is important to note that the database contains discriminatory language, reflecting historical indexing and changing societal values and norms. Many media archives and libraries in Germany are currently examining ways of dealing with this issue.²⁹ Through so-called neutral cataloguing, discriminatory content is preserved to ensure it remains discoverable. At ZDF, efforts have been made to tag problematic content with labels like 'racism.' However, fully addressing all such content is currently not feasible due to the sheer volume of data and the need for case-by-case assessment.

Finally, regarding the level of standardisation, so far, the delivered corpus is not based on the integrated authority files, Gemeinsame Normdatei (GND), being applied in German-speaking Europe. Originating in library cataloguing, these authority data represent and describe entities such as persons and allow for an unambiguous identification. As a result, rufus does not currently provide an unambiguous attribution, for example, for individuals like journalists, presenters and actors, but also e.g. politicians or artists appearing in broadcasts. Whether and how these data could be enriched can be explored in the continuation of the project.

9 Conclusion: Significance, Perspectives, Visions

Feedback on the portal for broadcast search has so far been extremely positive, from researchers in communication and media studies as well as from GLAM institutions that might use rufus to fill data gaps in their own holdings. Obviously, the transfer between the infrastructures of ZDF and Leipzig UL has been successful. rufus is not only being praised by researchers but is also well received by ZDF. The broadcaster views the project as an opportunity to demonstrate to both a specialist audience and social multipliers two aspects: how it fulfils its public value as a PSB and how it is actually promoting a shift in the TV archive landscape by creating transparency and allowing scholars to gain an insight into the inner workings of its broadcasting documentation.³⁰ The contribution of public service media to the commons has been significantly enhanced by ZDF's openness.

Against this background, the project partners are convinced that, despite the currently unclear funding prospects, research into television and television history is taking a new direction with rufus. If a PSB joins this process and, like ZDF, is committed to the accessibility of media heritage, it thus has the opportunity to redefine its contribution to the public good and provide substantial support for research. In any case, rufus is a pilot project that adds new dynamics to the long process of opening up television archives in Germany and has the potential to be a catalyst for this development. Moreover, the demand for a portal like rufus in other disciplines is high, and ZDF is ready to address a wider research community beyond the pilot group of media and communication scholars.

At the same time, there are various perspectives for improving and expanding the portal. In addition to enhancing user experience, the existing ZDF archive data needs to be supplemented. Information not contained in archival records for the reasons mentioned above could be obtained from other sources, such as programme magazines, in order to expand the function of the portal from a production chronicle to a programme chronicle. The desire for a publicly accessible programme database for Germany has often been expressed by researchers.³¹ By growing in this direction, rufus could mirror the breadth of TV programmes and simultaneously show what is preserved in the archives. Here, too, an initial step could be taken with the ZDF programme.

A major task remains to attract new data providers from the public broadcasting sector to the project. This would allow the flexibility of the established transfer processes to be tested with further archives. In addition, the portal will only

reach its full potential if it provides a cross-location overview of which materials are held by which of the many German TV archives. Looking further into the future, rufus could offer the basis and the impetus for establishing the 'national mediography' that is currently lacking in Germany.

At present, we record that the data transparency and accessibility of rufus cannot be achieved by media library-based initiatives working with editorial selection and curation – although they have made significant progress by providing videos up to 1965. At the meta-level, rufus is an example of how a closed system can communicate with an open system for the benefit of research. With manageable effort and intelligent mapping, it has been possible to transform a historically grown television archive with various peculiarities and specific uses into an accessible database. The maximum input of high-quality metadata and its processing by means of a comprehensive and reliable finding aid allows for individual use. In my opinion, this combination is a promising solution for access to the audiovisual heritage for researchers under the current circumstances in Germany.

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Biography

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