

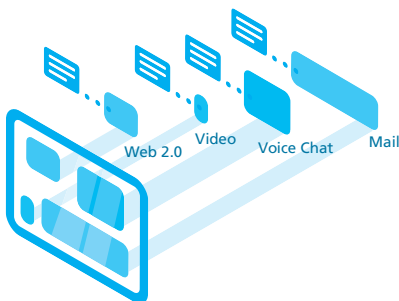
## non-linear video

Experience Interactive Videos

### At a Glance

Non-linear video is a technology developed by the Fraunhofer Institute FOKUS which makes video content an interactive experience.

Non-linear video gives the viewer the opportunity to interact with objects that are part of the video and access supplemental information. On demand, multimedia content is linked with related information. Interactive, time independent navigation opens new ways to experience video content.



## non-linear video



## Interactive video technology

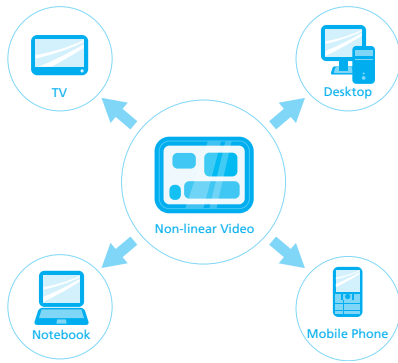
Non-linear video offers the platform for realizing interactive and personalized multimedia content. Videos are linked to related information thus making time independent navigation possible. The linear character of traditional moving pictures and video formats are enhanced with non-linear video towards multiple ways of interaction. The user can navigate at any time through objects, which are contained in the video content such as TV programs and films. As soon as the viewer clicks on an object that interests them, supplemental interactive information or video is displayed. This can be any multimedia content (image, text, animation, video, pdf), websites, or alternative communication methods such as telephone, chat, email as well as Web 2.0, community and social media services, which can be shown on a time basis or in subject to the user.

Non-linear video supplements the previous available technology of pre and post rolls, commercial breaks, product placement, and overlays. Videos become clickable using links to content and additional information which are brought up parallel to the existing moving pictures. Metadata describe the objects in the video as well as possible ways to interact with it.

## How content becomes interactive?

Traditionally, videos and TV content have been created to be consumed passively. Using non-linear video, TV and multimedia content is made to be experienced interactively. This technology creates a seamless transition between additional information, valued added services and video content. The resulting interactive content functions just like a website. Individual sections can be annotated and linked to continuous content such as text, images, video and links. This information is represented by XML based metadata and is made available using an interactive video player. Web-Standards are employed as the access control technology.

The FOKUS Tagging-Tool enables the annotation of the raw video data. This intelligent software supports the editor by identifying relevant objects and sections of a video-scene, placing information and by highlighting. The tagging tool is designed to be used as a web-based solution and can be conveniently utilized within the browser. In addition to the time and spatial data, you can also add keywords to describe objects such as the type, category or kind of interaction.

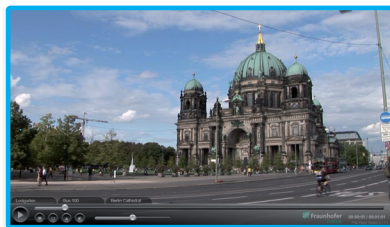


## Interactive content on all platforms

Non-linear video works with many of the user devices available today. The technology of Fraunhofer FOKUS enables the convergent use of interactive video content on TV, the web as well as mobile phone. This unique environment makes interactive media available regardless of the end device and access platform.

The different ways for the viewer to interact, the graphic presentation of the supplemental information as well as the content itself all come in the best possible format for any type of user device.

Non-linear video thus offers diverse variations of both the visual aspects of and interaction with the content. As a result, it can offer interactive content, relevant additional information and communication channels custom-made for both the user and the device.



## Levels of interaction

As opposed to traditional video, which limits interaction and use due to its linear nature, interactive video opens up new and diverse possibilities. FOKUS non-linear video supports multiple levels of interaction in the content itself as well as between the interactive objects and the supplemental information available. The viewer can access interactive video content using three basic levels of interaction:

- Moving picture content (video material)
- Interactive objects in video (text, audio, video, image, web)
- Communication channels (telephone, chat, email, web 2.0, social networking)

Whereas the level of moving picture content sparks someone's interest in a topic or product, the newly created levels enable customization of content and make detailed information about the objects in the video available. In combination the interactive possibilities, that are carried out to produce a non-linear story line that, can be freely chosen and interacted with by the viewer.

## Contact

Robert Seeliger  
 robert.seeliger@fokus.fraunhofer.de  
 +49 30 34 63 72 62

Fraunhofer FOKUS  
 Fraunhofer Institute for Open  
 Communication Systems  
 Kaiserin-Augusta-Allee 31  
 10589 Berlin  
 www.fokus.fraunhofer.de



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## Benefit and areas of application

The linking of information using non-linear video can be applied ideally for multistep information access and business models: from free use, which grants access to general information to registration sites as well as premium content access through a pay system.

Since interaction in today's video platforms is limited to commenting on posts and placing advertising banners, the non-linear video technology developed by Fraunhofer FOKUS offers new possibilities for interactive video use. Multimedia data, video objects and additional information are linked to interactive content and enriched by customized object interaction. Related information, communication channels and content are all customized for the user and his end device. Supplemental information enables advanced applications such as interactive advertising, video portals and edutainment.