



Live
Staging of Media Events

IST Conference in Helsinki

www.ist-live.org

Date: 21 – 23 November 2006

Speaker: Joachim Köhler

Location: Sankt Augustin, Germany



Vision of the Project

The central idea of Live is to create:

- Novel Content Production Methods
- Tools for Interactive Digital Broadcasters
- New ITV video formats and services

to stage Live Media Events such as the 2008 Olympic Games

- **Olympic Games: Beijing 8th to 24th of August 2008**
- **629 days left (http://www.olympic.org/uk/index_uk.asp)**



Motivation and Background

- Live formats offers chances for broadcasters (versus VoD, DVD)
- Sport content is of increasing interest and costs
- Mass events have an important social meaning for a society
- New applications to exploit available bandwidth
- Optimal reuse of expensive sport content
- ...



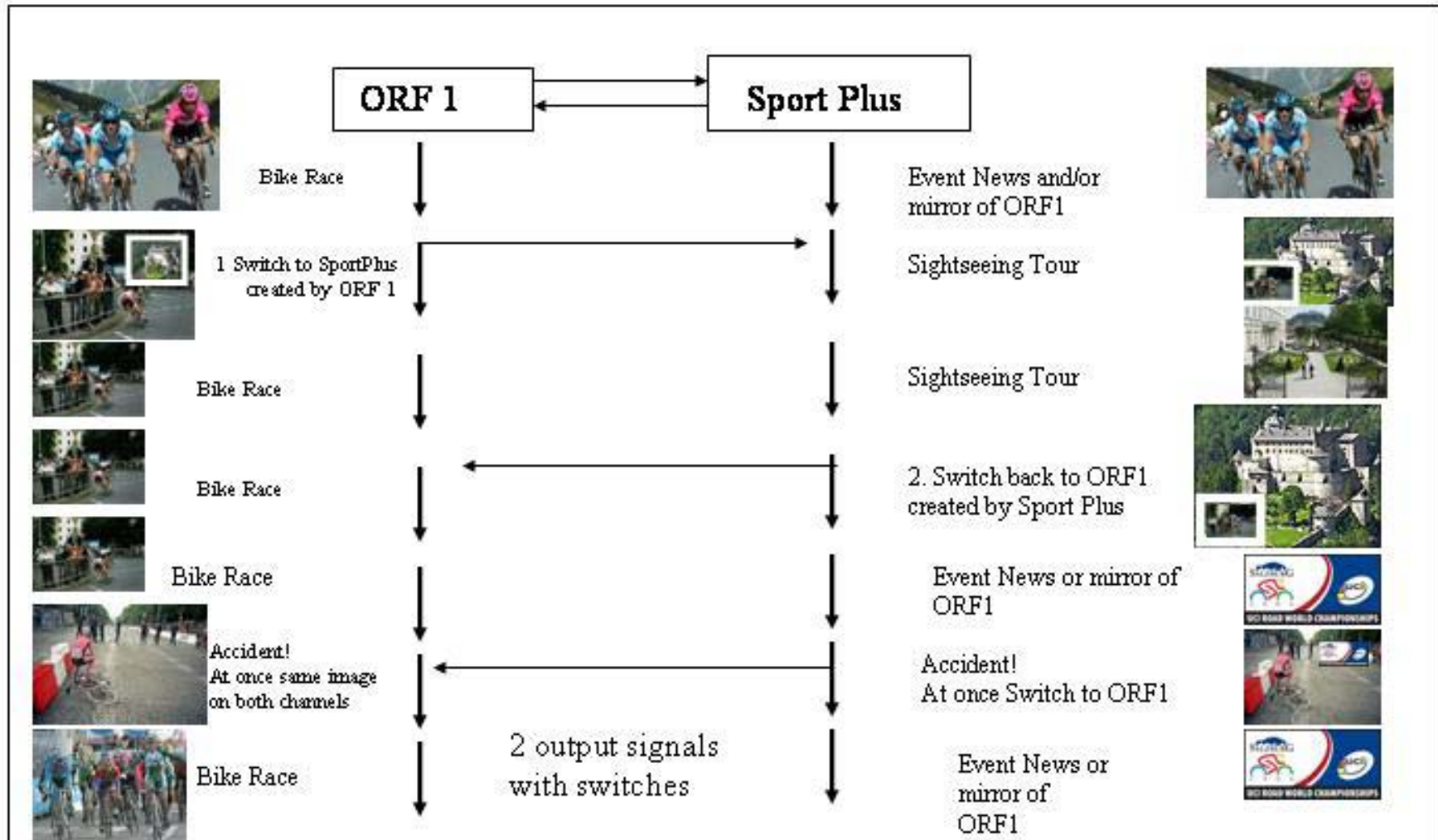
- Research on content modelling
 - Experiments with professional directors and video conductors
 - Developing advanced dramaturgic concepts
 - Using of available material from the archive
- Selection and adaptation of technologies in the area of:
 - Semi-automatic metadata generation
 - Developing of recommender systems and consumer profiling techniques
 - Semantic selection and presentation of audio/visual content
 - Usage of available broadcast technology (MHP, IPTV)



- Generation of inter linked multistream program for a live event
- Challenges:
 - Live scenario requires immediate decisions (no delay allowed)
 - Dramaturgic concept is needed
 - Many different information sources must be evaluated in realtime
 - Director has to create several streams
- creation of link points:
 - Moderator driven
 - Visual driven



Video Conducting III



➤ We need high semantic knowledge

- Scene classification
 - Task: Classify scene segment as „cycling“, „swimming“, „interview“ etc.
- Athlete identification
 - Task: Identify athletes „who is cycling, interviewed, depict, etc.“



Scene
Classification

Person
Identification

➤ Semiautomatic Annotation of Knowledge

- Annotation tool
 - Task: Annotate LIVE streams using high-level semantic no machine can produce (NewsML, Maz-Mitschriften)
 - Task: Refine LIVE meta data streams by semi-automatically annotation (label faces detected in a keyframe)



Semi-
Automatic
Annotation
Tool

Metadata Generation II

Identify promising algorithms for indexing

- Technical feasibility (Online/Offline)
- Identify useful components

Semi-Automatic
Annotation
Tool

Rather static cues:

Rather dynamic cues:

low
level

Color estimation &
classification
(Skin, Dominant Color,
Histogram)

Motion Estimation
& Classification
(camera motion,
tracking, optical flow)

Texture classification

Cut/Dissolve/Wipe
Classification

Face Detection
Pedestrian Detection
Object detection

Audio Classification
(F0, Speech-Nonspeech,
Jingles, Speaker ID)

Person Identification

Scene Classification

Speech Recognition

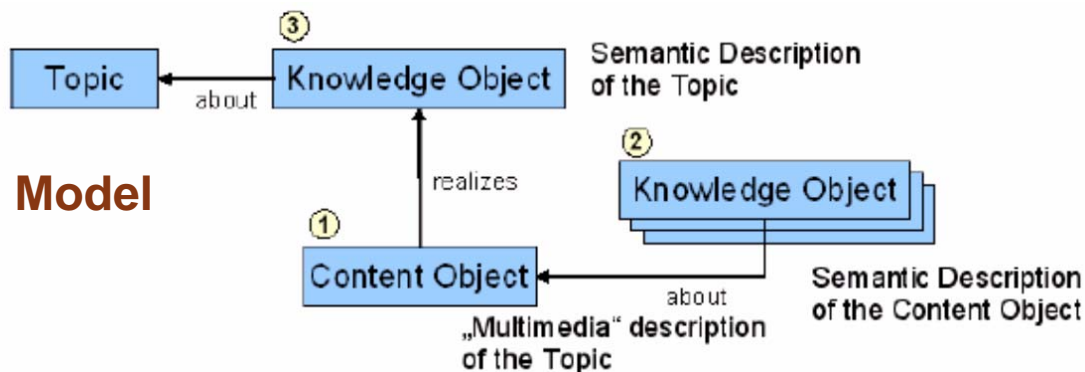
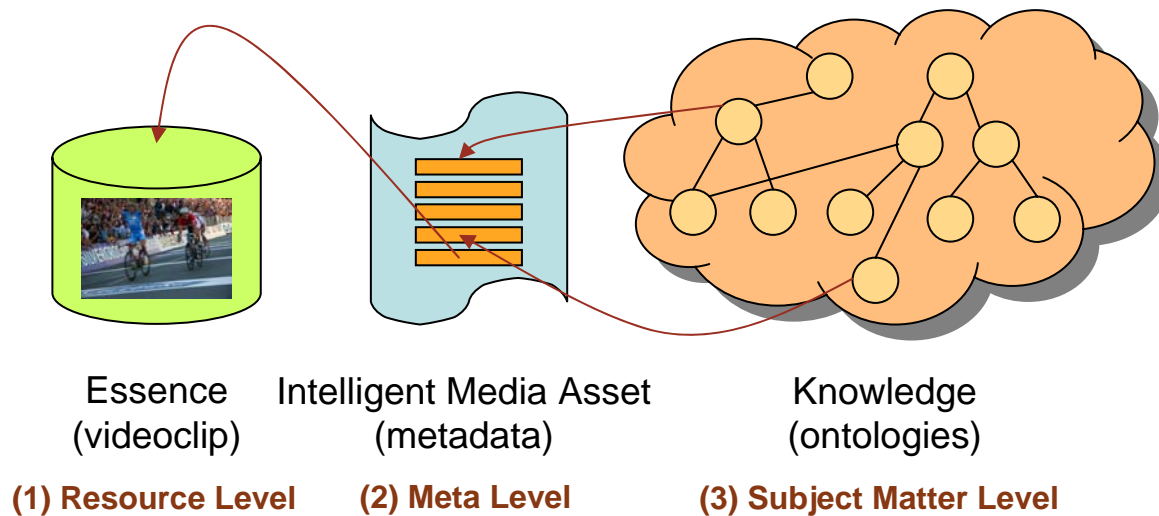
high
level

- **Task according to the Wishlist of Visual Artists:**
 - Detect Close-Ups of people (no matter who, Madonna, average John Doe,...),
 - Classify Masses, few, single, no person
- **Tasks according to ORF**
 - Detect athletes, interview partners, etc.



Intelligent Media Framework

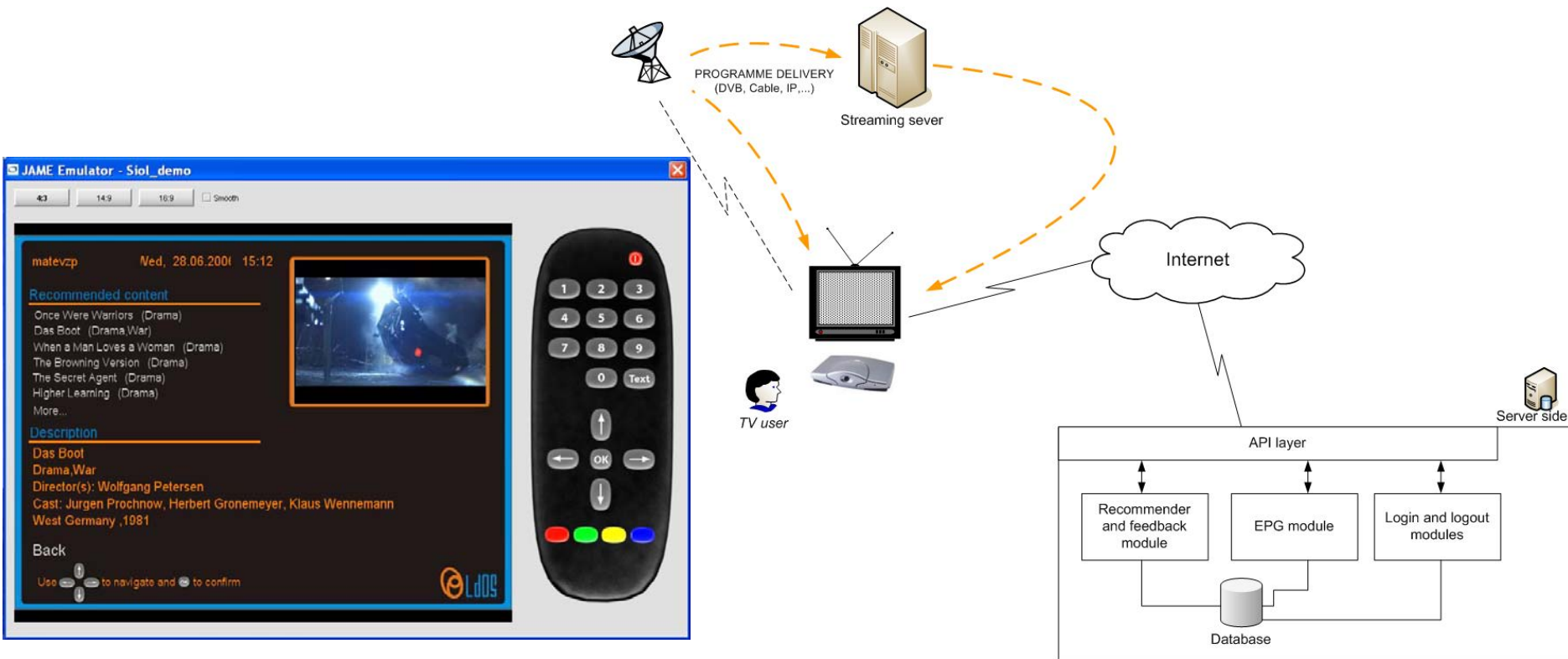
- The Intelligent Media Framework implements services for an intelligent content model in the broadcasting and media domain



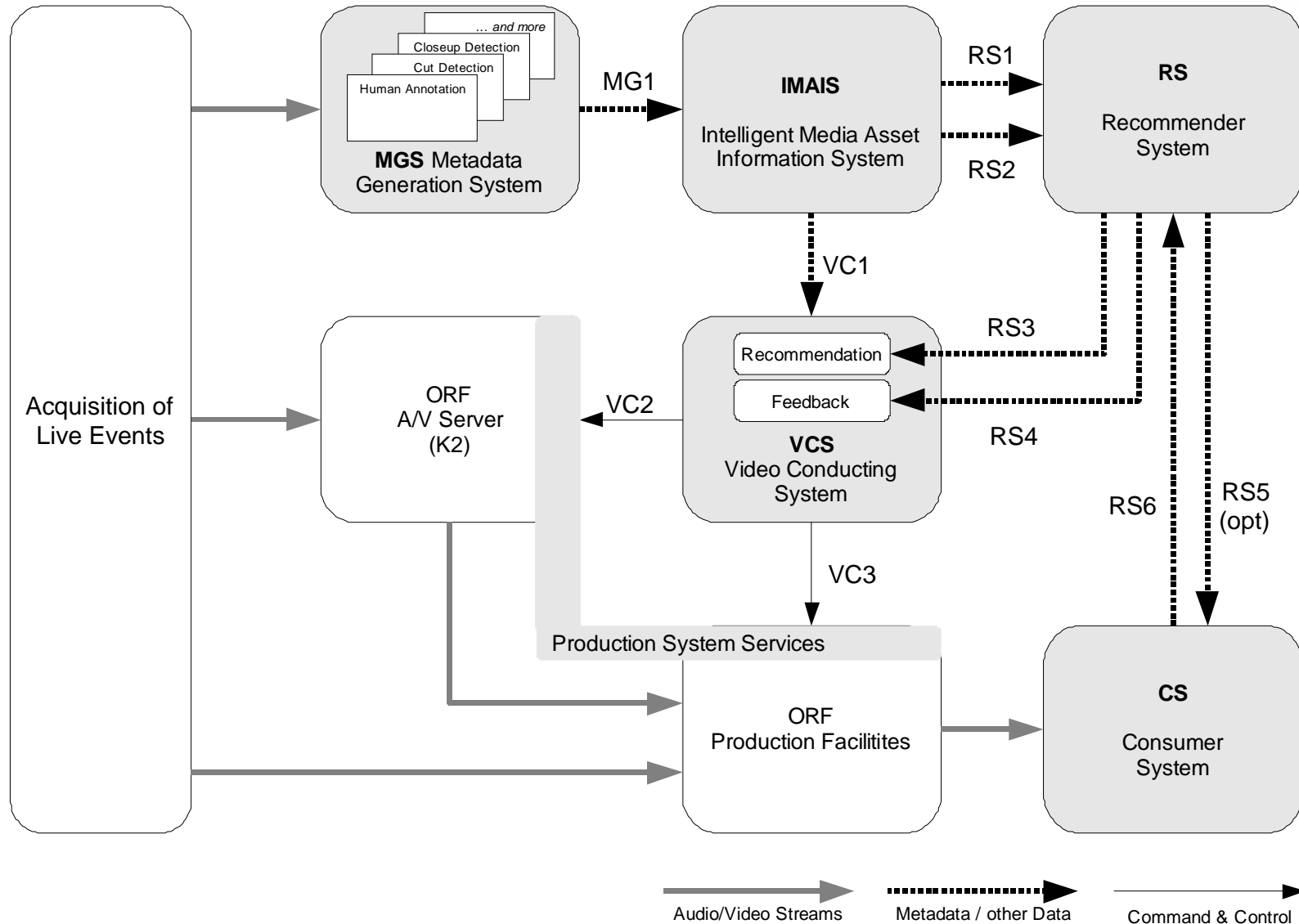
Feedback and Consumer System

➤ Mini demonstrator for feedback and recommendations:

- Feedback from MHP application was tested:
- Feedback collection server was set up (provided by IAIS)
- User interface was developed (JAME author tool - IAIS)
- UoL Recommender service and EPG parser was integrated



System Integration for Live Staging



Tests in Salzburg

- Live team participates in the UCI World Bike Road Championship 2006
- Place: Salzburg
- Date: 23 and 24th of September
- Collection of huge amount of sport content (traditional ORF camera feeds) used for later experiments
- Production of individual material for additional streams



Staging Experiments at ORF

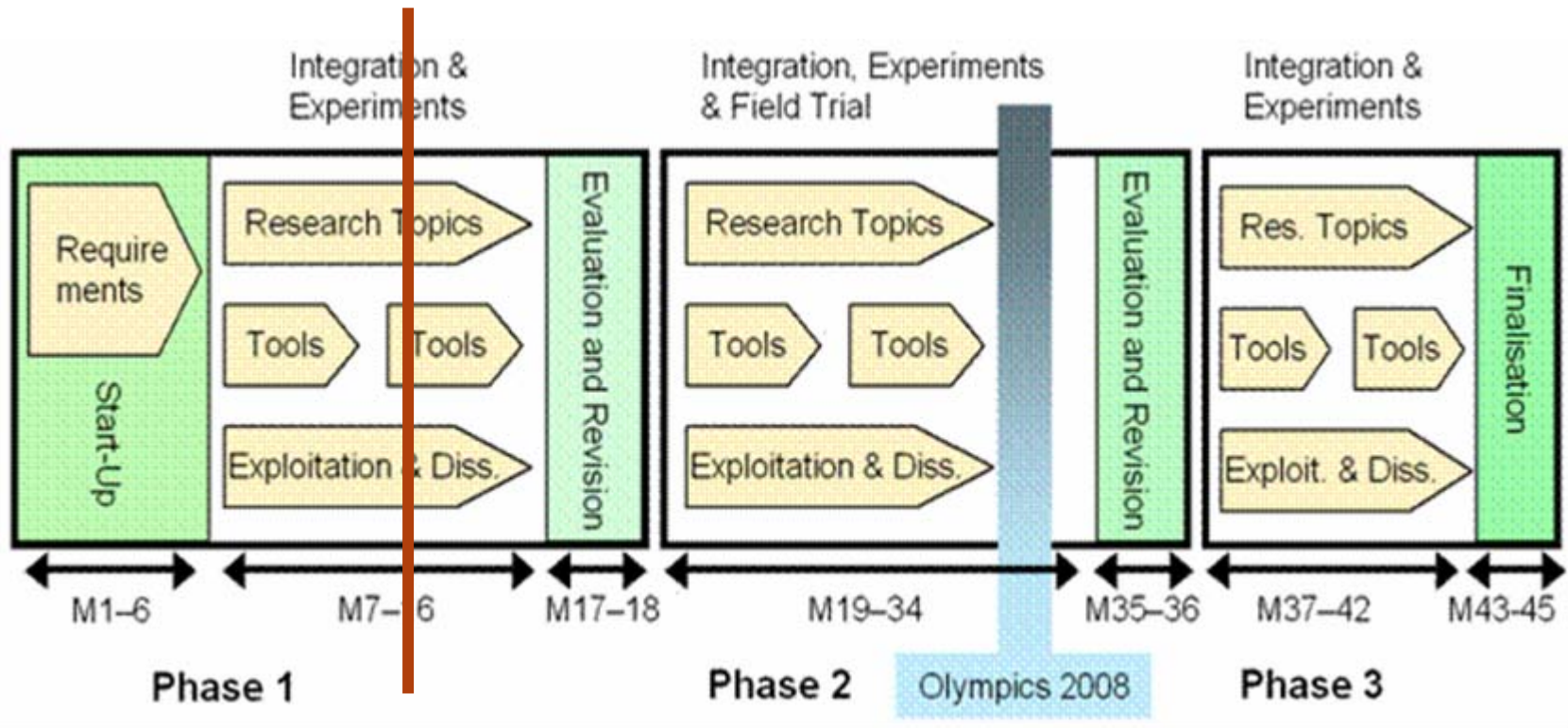
- Recorded material was used to simulate live situation
- Two control rooms were connected with each other to provide technical environment to produce 2 output streams
- Audio/visual material from the archive was used to enrich the streams
- Preparation time for content selection from archive took huge effort
- Date: 23th and 24th of October 2006



The first result is that the sport director, who is used to high stress during live productions, is a master in improvising, making quick decisions, communicating to a large team and staging dramatically a sport show on the basis of the actual live event.

We can believe the statement of the sport director Werner Mitterer that he could stage a multi stream show with the LIVE tools for the Olympic Games 2008.

Live: 3 Phases of the Projects



Partners



- Fraunhofer IAIS (co-ordinator)
- Academy for Media Arts, Cologne
- ORF
- Atos Origin
- School of Informatics, University of Bradford
- University of Ljubljana
- University of Applied Sciences Cologne
- Salzburg Research
- Pixelpark will replace Sony NetServices