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Deliverable Leader	<UNITN> Gaia Trecarichi
Quality Assessor	<INRIA> Alexis Joly, Nozha Boujema
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List of authors

Partner Acronym	Author
<UNITN>	<Veronica Rizzi, Fausto Giunchiglia, Gaia Trecarichi>
<AFP>	<Denis Teyssou>
<Y!I>	<Vanessa Murdock>
<ALINARI>	<Andrea de Polo>
<EXALEAD>	<Amar-Djalil Mezaour>

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Executive summary

The goal of this deliverable is to define the requirements for a proper modeling and exploitation of events; in particular, the focus is on deriving a common and shared understanding among the GLocal partners of what is intended by an “event”, what are the fundamental elements (i.e., metadata) for its description and the services than can be enabled on it.

The content of this document should provide an useful input to other activities in this WP as well as in other WPs. For example, the general functional and non-functional requirements mentioned within this document should be taken into consideration in WP5 activities, particularly in Task 5.1, where the functional specifications of the GLocal architecture need to be identified and analysed.

This document has been compiled by collecting contributions from the GLocal industrial partners AFP, Yahoo!, Alinari, EXALEAD, the INRIA research institute and the University of Trento (coordinator of this deliverable). Each contribution consists in a number of event scenarios which are first described and then detailed with possible event metadata. Moreover, for each scenario, a set of services is specified, which defines some possible functionalities for the end user.

Due to their different needs, industrial partners depicted use case scenarios reflecting their own scope of application, and different viewpoints of events: some regards “news events”, which are central to citizen journalism applications (AFP); some relate to applications helping end-users in activity learning, activity planning and decision making (YAHOO); some are conceived for the purpose of image indexing and retrieval (Alinari); some are seen as units enriching broadcast news indexing sites (Exalead).

The research partners (UNITN and INRIA) contributing to this deliverable focus on event-based techniques (e.g., visual based event matching, event-based organization of personal media) for experience sharing and revival.

The metadata and services suggested by each partner and that are common to each event category are proposed as basic event components; new metadata are discovered and therefore suggested when different semantics are given by the partners to specific metadata, as in the case of the event metadata “type”; an initial set of metadata is then suggested for specific event categories, some of which will be selected according to the consortium needs.

Besides underlying the metadata and services, functional and non functional requirements related to the implementation of event-based search engines are briefly sketched at the end of the document.

1 Introduction

New ways of experiencing multimedia content rely on the ability of management systems to allow end-users to express their needs as naturally as possible. Since users structure their experiences in terms of events and multimedia material constitute the evidence of such experiences, events represent a natural, high-level abstraction to express such needs.

It becomes therefore crucial to define suitable event representation for multimedia applications.

Research works are available which discuss generic event models as well as models tailored to events from specific domains (e.g., journalistic, historical, cultural-heritage, music, multimedia events): a generic event model, the E-model [1], is extended to enable “event-centric” rather than “media-centric” media management systems [2]; the F Event Model [3] proposes a formal model that, together with standard properties, supports mereological, causal, correlation relationships and interpretations of arbitrary events. The Event Ontology [4], developed as part of a music ontology framework, supports music events (e.g., compositions, recordings) but is not tied to such domain. The event markup language EventsML [5] takes a journalistic viewpoint and provides an XML schema to facilitate the exchange of news events among news agencies. In [6], most of the above-mentioned models are compared and an event ontology is proposed to meet the vision of a Linked Data Event Model¹.

Most of the event models surveyed above support the main aspects of events but are not specifically tailored to multimedia applications. Also, in the GLocal event model there should be a way to make events subjective entities by means of user-driven contextual metadata. Furthermore, it should permit to define relationships between events and resources, and between resources. This is also allowed in Eventory [7] where such relationships are made explicit through ad-hoc interfaces for events, media and connection creation; however, a system where these types of relationships are deduced from the way the media are organized would be preferable to a system where they are explicitly created.

In this first stage of work, we aim at collecting the necessary requirements from the GLocal partners rather than deeply evaluating existing models, some of which (e.g., EventsML) might be considered as starting event models and eventually extended to the purposes of the project.

In this context, events are regarded as domain-level entities, i.e., things that happen and have positions in space-time; they are usually given by descriptions and may consist of two or more sub-events which are temporally, spatially and causally connected. Moreover, there are sometimes different descriptions of the same event.

Traditional media have their own focus on events but participants, witnesses may have their own different focus on the events. An idea would be to draw a typology of the focus which seems very much related to the concept of InfoSource in NewsML, which is the source of the information about the event (participant, officials, institutional source, witnesses, police, demonstrators).

Another idea would be to have a typology of events that the GLocal system will deal with.

At AFP the building of an event manager compatible with the norm EventsML² is an ongoing process. It seems important to take into account the notions of unforeseen and foreseen (planned) events when the event occurs. There is also the case of recurrent events (events which take place each year, such as Film festivals, each four years, such as Olympic Games, etc).

A sub-event has a relation of ingredient with the main event. A sub-event is part of a main event. It seems that the relation between main event – sub-event is well described by a broader-narrower relationship (e.g., all the competitions of Olympic Games).

Another issue is the constitution of a macro event from events. Take an example such as the 11 of September, there are four events (two plane crash in the Twin Towers, one crash on the Pentagon in Washington and another one in Pennsylvania). All these events merge into one single macro event: 11S. The type of relation is here narrower-broader.

¹ <http://linkedevents.org/ontology/>

² A new release has been issued in December 2009: <http://www.iptc.org/cms/site/index.html?channel=CH0115>

It seems that for foreseen events, we have a descendant broader-narrower relation while for unforeseen event (not planned when the event occurs), we would have an ascendant narrower-broader relation.

For related events, this kind of relationship could be detected based on similarity of location and participants but that in many cases, it has to be added manually by the user of the system, especially when considering some causal effects between events.

Examples of related events are:

- The protests against Human rights violation in China on the way of the Olympic torch. Same unity of action but in different locations with different demonstrators;
- War in Afghanistan related to the 11S (causal relation which was obvious at the time when this event occurred);
- Yearly commemoration at ground zero, related to 11S (and similarly any kind of anniversary of an event which triggers some new events).

As shown above, there are many aspects to be considered when dealing first with the conceptual definition of “event” and then with its modelling.

This document is organized as follows: in Section 2, scenarios from partners are described and related event types, metadata and services are identified. For each scenario, first a textual and informal description is provided and then appropriate event type hierarchy (e.g., Event -> Disaster -> Quake -> Earthquake) and metadata are described. In many scenarios metadata is instantiated with some examples (e.g., time range: 13th of June 2009) and a list of related events is provided. In Section 3, we first summarize the resulting event metadata that are common to all scenarios identified in Section 2 and then we report event types that are described with specific metadata and/or services. In Section 4 search engine requirements are presented and, finally, in Section 5 conclusions are drawn.

2 Scenarios

2.1 AFP Scenarios

2.1.1 Descriptions of scenarios

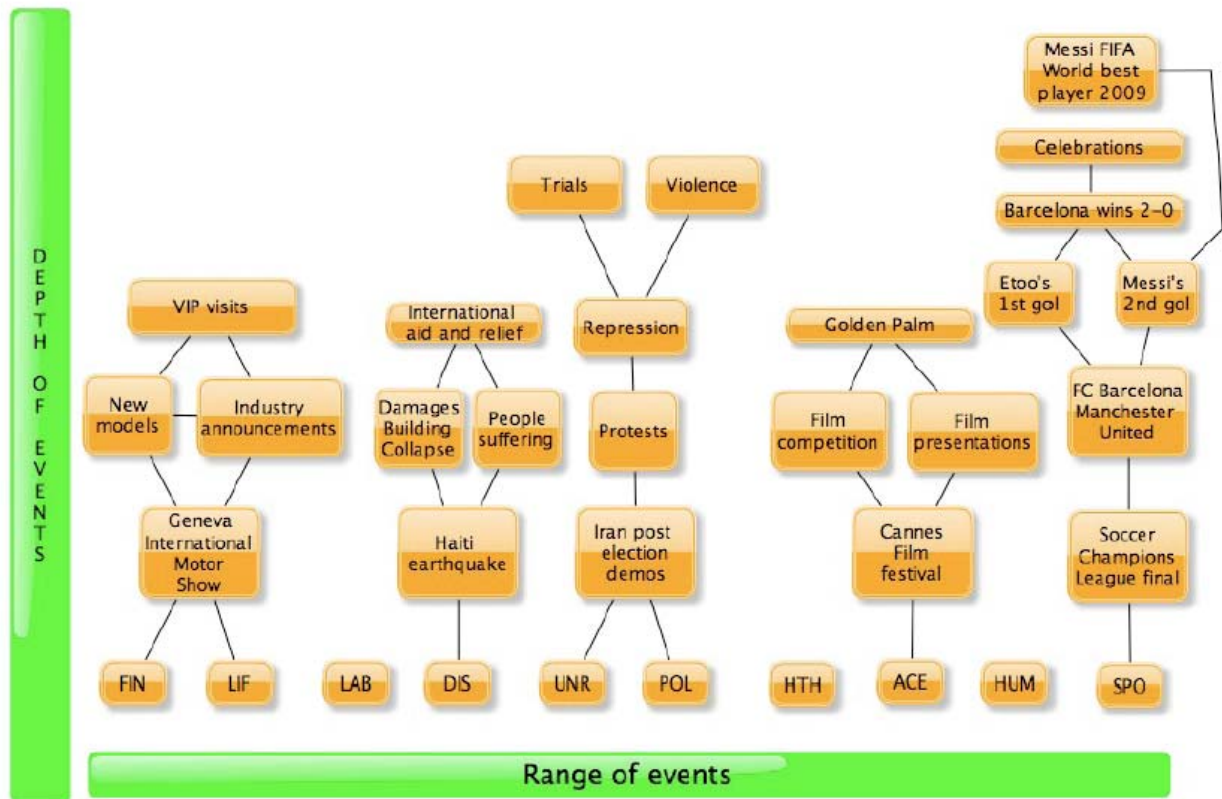


Figure 1: scenarios from AFP

In the following sections we describe scenarios depicted in Figure 1. In this figure labels from IPTC three levels taxonomy (see <http://cv.iptc.org/newscodes/subjectcode/>) are used: IPCT classifies news according to 17 main subjects, divided into around 200 subject matters and roughly 1.000 subject details. In particular, FIN is used for economy, finance and business category, LIF for lifestyle category, DIS for disaster category, UNR for unrest and conflict category, POL for politic category, ACE for art, culture and entertainment category and SPO for sport category.

2.1.1.1 Scenario 1: Geneva international motor show

Event where car makers are displaying their new models, where new concepts, new trends in the motor industry are revealed. This is the place where industrials announce new initiatives, where CEOs or CTOs are participating in press conferences ... 5-15 of March 2009 in Geneva.

2.1.1.2 Scenario 2: Haiti earthquake

A major seismic disaster with a human tragedy of thousands of dead and injured people, building collapse, organization of international emergency aid, rescues, survivors, looting ...all localized in the island of Haiti, from the 12th of January 2010.

2.1.1.3 Scenario 3: Iran post-election protests

Rallies and demos of protesters, activists against the regime, leading to police or military repression, violence, troubles, trials... since the announced victory of Mahmud Ahmadinejad over his opponent Mir Hosein Musavion 13th of June 2009.

2.1.1.4 Scenario 4: Cannes film festival

Yearly film competition to nominate the Golden Palm. Many movie makers and actors presenting their films, press conferences, projections, public appearances. In 2009, the Golden Palm was given to The White Ribbon of Michael Haneke (Austria).

2.1.1.5 Scenario 5: Soccer Champions League final

One of the main sports event and one of the most important in soccer. In 2009, FC Barcelona won over Manchester United 2 – 0 with goals by Samuel Eto'o and Lionel Messi, in Roma Stadium on 27th of May.

2.1.2 Event types, metadata and services

2.1.2.1 Scenario 1: Geneva international motor show

Event type hierarchy

- Event -> Show & Financial Event -> Motor show

Metadata

- *name* (of the event)
- *description* (of the event)
- *type*: recurring (predictable) event (each year) [Global]
- *participants* (people and organizations involved in the event): car makers, CEOs, CTOs
- *location*: Geneva
 - note: always the same location
 - note: a location has a “near notion” (= geographical range) and geographical coordinates (they can be obtained from the media and/or from the up-loader)
- *time range*: 5-15 of March 2009 (specific for each year)
- *visual concepts*: cars
 - note: each visual concept has two related attributes:
 - *rights of the content* uploaded by the GLocal user (e.g. creative commons, commercial use, type licence)
 - *author of content* (= copyright owner)
- *media*
 - it is a related entity. It may be an image or a video
- *entry ticket price*
- *worldwide premieres*
- **sub events**
 - e.g., press conferences, companies announcements (type: is-part-of)
- **related events**
 - e.g., demonstrations outside the venue (type: is-Related-to), financial events such a stock value slump after a particular announcement (type: causal)

Services

- get previous Geneva Motor Show of year XXXX

- get previous Geneva Motor Show from year XXXX to year YYYY
- get financial events caused by Geneva Motor Show of year XXXX
- get all 3 star hotel near Geneva Motor Show venue
- get all cars presented during the Geneva Motor Show of year XXXX

General services / Functionalities

- services to users uploading content
 - if a user takes a picture or a video of the president of Toyota presenting a new car and only puts the name Toyota's CEO as tag on the picture/video, the GLocal system knows that Toyota's CEO is Akio Toyoda, then the system may propose to the user examples of pictures of Mr Toyoda (whether from the web or within GLocal community of users) to help solving possible ambiguities
 - if the picture / video is displaying more people apart of Mr Toyoda, the user could add an annotation in a frame around Mr Toyoda to identify him on the picture
- services to the info-mediators administrating the GLocal platform
 - check the content by looking after similar content on the internet through an automated query on the GLocal back-office
 - verify that the geo-location of the image / video is accurately placed in the Geneva international motor show
 - check the confidence score in the user uploading the content, based on his historical record on the platform
 - detect possible manipulation of images (could be through frequency analysis within the picture, quantification table, display of EXIF/IPTC/XMP metadata, or by comparison with existing objects in the database as location based image retrieval, or looking for the same object on the web using a visual signature database or services like tineye.com)
 - allowing to draw a frame on the picture to highlight some part of the picture
- services to medias, and other members, of the GLocal system
 - search by the main event, sub-events (a company announcement for instance) or related events (a car maker announcing at the time of the event that it recalls n vehicles because of mechanical problems) as well as most popular events (or downloads), most recommended events (through rating of the community, info-mediators or media)
 - retrieve visual concepts within the photo / video content such as logos of trademarks and company (organisation) named entity (in metadata). For instance, give me all content on Maserati
 - navigation by events, by author, by location, by time range, by people/organizations involved in the events, sort sub-events within a macro-event, display of related events
 - see provider confidence.

2.1.2.2 Scenario 2: Haiti earthquake

Event type hierarchy

- Event -> Disaster -> Quake -> Earthquake

Metadata

- *name* (of the event)
- *description* (of the event)
- *type*: unpredictable but know type of event (quake) [Global]
- *participants*: (people and organizations involved in the event): injured people, organization of international emergency aid, rescue worker, survivors

- *location*: Haiti
 - note: location is not predicable
- *time range*: from 12th of January 2010 (until a new disaster catch the attention of media)
- *visual concepts*
 - note: each visual concept has two related attributes:
 - *rights of the content* uploaded by the GLocal user (e.g. creative commons, commercial use, type licence)
 - *author of content* (= copyright owner)
- *magnitude of earthquake*
- *number of victims*
- *economic estimation of damages*
- *media*
 - it is a related entity. It may be an image or a video

sub events

- e.g., rescues, looting, personal and building damages (type: is-part-of)
- note: sub events are rather predictable

related events

- e.g., envoy of international aid (e.g. a government aid announced in Berlin, Rome or Paris with photos of civil guards leaving their base to go to Haiti)

Services

- get nearest past earthquake from year XXXX to year YYYY
- get a satellite map of damaged area
- get list of damaged buildings

General services / Functionalities

- services to users uploading content
 - help to fill in the metadata about locations, geo-coordinates if not present in the EXIF metadata, and background about the earthquake (dates, magnitude, updated death toll)
 - ability to see similar or related media objects on the earthquake from the GLocal community or from the web
 - ability to put a frame with an annotation on a picture to highlight some part of the image (facebook-like feature)
- services to the info-mediators administrating the GLocal platform
 - check the content by looking after similar content on the internet through an automated query on the GLocal back-office
 - verify that the geo-location of the image / video is accurately placed in Haiti
 - check the confidence score in the user uploading the content, based on his historical record on the platform and eventually get background information about the user on 123people.com pipl.com facebook, twitter ...
 - detect possible manipulation of images (could be through frequency analysis within the picture, quantification table, display of EXIF/IPTC/XMP metadata ... or by comparison with existing objects in the database as location based image retrieval, or looking for the same object on the web using a visual signature database or services like tineye.com)

- services to medias, and other members, of the GLocal system
 - search by events(for example, proposing latest events recorded in the GLocal system on the Haïti earthquake, most recommended events (by all users of the platform)
 - retrieve visual concepts within the photo / video content such as building collapse, relief aid ...
 - navigation by events, by author, by location, by time range, by people/organizations involved in the events, sort sub-events within a macro-event, display of related events
 - comparison of places before and after the earthquake and replicas
 - see confidence score.

2.1.2.3 Scenario 3: Iran post-election protests

Event type hierarchy

- Event -> Political Event -> Political Conflicts

OR

- Event -> Unrest & Political Event -> Political Conflicts

Metadata

- *name* (of the event)
- *description* (of the event)
- *type*: unpredictable, long lasting event [Global]
- *participants* (people and organizations involved in the event): activists against the regime, policy, military, Mahmud Ahmadinejad, Hosein Musavion
- *location*: Iran
 - you can also list cities where protest took place
 - there were some protest also outside Iran ³
- *time range*: 13th of June 2009 (until protest is finished)
- *visual concepts*
 - note: each visual concept has two related attributes:
 - *rights of the content* uploaded by the GLocal user (e.g. creative commons, commercial use, type licence)
 - *author of content* (= copyright owner)
- *number of death*
- *nickname*: e.g., Green Revolution, Green Wave, Sea of Green and Persian Awakening

related events

- e.g. victory of Mahmud Ahmadinejad (type: causal), suspected fraud in the voting process (type: causal), hunger strike

sub events

- e.g. rallies and demos of protesters, police or military repression (type: is-Part-of)
- NOTE: the chronology aspect is really important

³ See: http://en.wikipedia.org/wiki/2009%E2%80%932010_Iranian_election_protests

Services

- Get all sub events in chronological order
- Get all events that caused the protest

General services / Functionalities

- services to users uploading content
 - be able to post to GLocal in a secured way (through vpn and proxy?) to avoid being traced by the regime (through web or mobile phone)
 - help to fill in the metadata (location, named entities, concepts) through suggestion of categories (pacific demo, violent demo, troubles, unrest, victims? or solving ambiguities in names of town, street ...)
 - ability to see similar or related media objects from the GLocal community and from the web
 - ability to put a frame with an annotation on a picture to highlight some part of the image
- services to the info-mediators administrating the GLocal platform
 - provide related information on the web to get more information about the context of the event either through keyword search, either through image similarity search.
 - perform geo-localization of events with display on a map
 - check user profile and confidence score, based on his historical record on the platform and eventually get background information about the user on 123people.com pipl.com facebook, twitter
 - detect possible manipulation of images (could be through frequency analysis within the picture, quantification table, display of EXIF/IPTC/XMP metadata ... or by comparison with existing objects in the database as location based image retrieval, or looking for the same object on the web using a visual signature database or services like tineye.com)
 - allow to draw a frame on the picture to highlight some part of the picture.
- services to medias, and other members, of the GLocal system
 - allowing to search by location-based events, and related events (other demos in Iran)
 - allowing to retrieve visual concepts within the photo / video content such as building, famous squares, anything that may help to identify the location, a part from the geocoding
 - navigation by events, by author, by location, by time range, by people /organizations involved in the events, sort sub-events within a macro-event, display of related events
 - comparison of places before and after an event () Similarity search (facial recognition also on celebrities)
 - see provider confidence score (keeping user profile anonymous for security reasons)

2.1.2.4 Scenario 4: Cannes film festival

Event type hierarchy

- Event-> Cultural Event -> Film Festival

Metadata

- *name* (of the event)
- *description* (of the event)
- *type*: recurring event (each year) [Global]
- *participants* (people and organizations involved in the event): e.g. movie makers, actors, news and magazine writers, jury member, selected movies

- *location*: Cannes
 - note: always the same location
- *time range*: e.g. 13-24 of May 2009 (specific for each year)
- *visual concepts*
 - note: each visual concept has two related attributes:
 - *rights of the content* uploaded by the GLocal user (e.g. creative commons, commercial use, type licence)
 - *author of content* (= copyright owner)
- *festival history*
- *awards*
 - note that an award has a type (e.g. Palme d'Or) and a movie

sub events

- e.g. press conferences, projections, public appearances, award ceremony, other sub events mainly related to films (type: is-Part-of)

related events

- parties organised besides the festival (is-Related-to)

Services

- get list of Cannes Film Festival of year YYYY awards
- get member of Cannes Film Festival of year YYYY jury
- get list of Cannes Film Festival of year YYYY selected movies

General services / Functionalities

- services to users uploading content
 - help to fill in the metadata by proposing synopsis of films, completing names, nationalities of actors, actresses, directors ...
 - ability to see similar or related media objects from the GLocal community
 - ability to put a frame with an annotation on a picture to highlight somebody in an image
 - suggest existing pictures of a person already in the system or on the internet to help identify that person.
- services to the info-mediators administrating the GLocal platform
 - perform geo-localization of events with display on a map
 - record user profile and confidence
 - detect possible manipulation of images (could be through frequency analysis within the picture, quantification table, display of EXIF/IPTC/XMP metadata ... or by comparison with existing objects in the database as location based image retrieval, or looking for the same object on the web using a visual signature database or services like tineye.com)
 - allow to draw a frame on the picture to highlight somebody on the picture.
- services to medias, and other members, of the GLocal system
 - allow to search by a specific event or related film festivals, propose most popular events within the festival in terms of traffic, download, recommendation from the community of users.
 - allow to retrieve visual concepts within the photo / video content such as logos, trademarks.

- navigation by events, by author, by location, by time range, by people /organizations involved in the events, sort sub-events within a macro-event, display of related events
- see confidence score

2.1.2.5 Scenario 5: Soccer Champions League final

Event type hierarchy

- Event-> Sport Event -> Soccer match

Metadata

- *name* (of the event)
- *description* (of the event)
- *type*: recurring event (each year) [Global]
- *topics* are predictable: score, goals, ...
- *participants* (people and organizations involved in the event): e.g. FC Barcelona, Manchester United, Samuel Eto'o, Lionel Messi.
 - note: is the match winner a role?
- *location*: Roma Stadium
- *time range*: 27th of May 2009
- *visual concepts*
 - note: each visual concept has two related attributes:
 - *rights of the content* uploaded by the GLocal user (e.g. creative commons, commercial use, type licence)
 - *author of content* (= copyright owner)
- *match result*

sub events

- e.g., yellow and red cards, goals, troubles with supporters inside and outside the stadium, ... (type: is-Part-of)

related events

- e.g., come back of champions in their home city, FIFA Player of the year award won by Messi, .. (type: causal)

Services

- get all yellow and red card events in chronological order
- get route from XXX to Roma Stadium
- get list of winner team from year XXXX to year YYYY

General services / Functionalities

- services to users uploading content
 - help to fill in the metadata
 - ability to see similar or related media objects from the GLocal community
 - ability to put a frame with an annotation on a picture to highlight some part of the image (facebook-like feature)
 - suggest existing pictures of a person already in the system to help identification of the person

- services to the info-mediators administrating the GLocal platform
 - check the content by linking to similar content on the internet
 - geo-localization of events and sub-events (stadium, supporters in home town, ...)
 - record user profile and confidence
 - detect possible manipulation of images (could be through frequency analysis within the picture, quantification table, display of EXIF/IPTC/XMP metadata ... or by comparison with existing objects in the database as location based image retrieval, or looking for the same object on the web using a visual signature database or services like tineye.com)
 - allowing to draw a frame on the picture to highlight some part of the picture.
- services to medias, and other members, of the GLocal system
 - search by events (match, goals, supporters, celebrations ...)
 - search and retrieval of visual concepts within the photo / video content such as logos, trademarks, signs of clubs
 - navigation by events, sub-events, by author, by location, by time range, by people /organizations involved in the events, sort sub-events within a macro-event, display of related events
 - see confidence score and possibly user profile.

2.2 Yahoo! Scenarios

2.2.1 Descriptions of scenarios

2.2.1.1 Scenario 1: yo-yo

A person wants to learn how to do advanced yo-yo tricks. He searches videos online, looking for videos from the world yo-yo championships. He sees a performer doing many tricks in serial. He identifies one trick in the series, and plays that segment of the video over and over, sometimes slowly, to learn how the trick is done.

Alternative: A person wants to learn how to do advanced yo-yo tricks. He searches for videos of the world yo-yo championships online. He listens to the audio until he finds a trick mentioned. He searches for that specific trick online to find a how-to video for that trick.

2.2.1.2 Scenario 2: conference

A person is giving a talk at a conference in a foreign city. The conference has several sub-events such as a social outing, and a dinner. She would like to illustrate her talk with images from the city she will be speaking in. She searches online for relevant images. In her search she includes the city name, and the names of venues, points of interest, or events the city is known for. Later she will use the same images to illustrate her blog post about the conference. Because the talk is a public talk, and the blog will also be publicly available, the images selected must not have copyright restrictions.

2.2.1.3 Scenario 3: concert

A person has been invited to hear a band. The band is playing at a venue she has never been to before, and she is not sure whether it is very casual or more formal, whether it is outdoors or indoors, and does not know what type of music the band plays. She searches online for the band, finds an mp3 of several songs, and listens to them. She then searches for the venue to find images to see how the people are dressed, and what type of venue it is, before deciding whether to go.

2.2.1.4 Scenario 4: wedding

A couple is planning a wedding. They must choose the dress, the flowers, the caterer, the venue, the music and the stationary. They search online for images of dresses, flower arrangements, venues, and examples of stationary. They search also for mp3s of music, and videos from various local performers for both the ceremony and the reception.

2.2.1.5 Scenario 5: finding an apartment

A person is looking for an apartment. He browses the real estate listings and sees apartments in his price range. He doesn't know anything about the neighbourhood or the building the apartment is in, so he browses online for street-level images and videos of the area around the apartment and of the building itself.

2.2.2 Event types, metadata and services

2.2.2.1 Scenario 1: Yo-Yo

Event type hierarchy

- Event-> Sport Event -> Yo-Yo Event

Metadata

- *name* (of the event): World Yo-Yo Championships
- *description* (of the event): large scale international event which features spectators and yo-yo enthusiasts. The primary event is a yo-yo competition.
- *type*: annual or semi-annual large-scale general interest event [Global]
- *participants* (people and organizations involved in the event)
 - competitors
 - spectators
 - corporate sponsors
- *media*
- *location*: Rosen Plaza Hotel, Orlando, FL
- *time range*: August 6-8, 2004
- *match result*
- *videos*
 - note: a video is an entity: it has attributes (language, duration, transcriptions of the audio, background music identifier) and is composed by segments
 - the video documents the event

Services

- get winner name

2.2.2.2 Scenario 2: Conference

Event type hierarchy

- Event-> Meeting -> Conference

Metadata

- *name* (of the event): ACM Conference on Multimedia (ACM MM)
- *description* (of the event): large international technical/scientific conference
- *type*: annual large-scale event
- *participants* (people and organizations involved in the event): speakers, key note speakers, chairs, sponsors, scientists, organizers, corporate sponsors, students, committee, etc.

- *location*: Palazzo dei Congressi, Piazza Adua 1, downtown Firenze, Palazzo Medici Riccardi, Via Cavour 1
 - note: a location is an entity, it has (name, address, etc., + links to images)
- *time range*: October 25th, 10.00am to October 29th, 6.00 pm
- *related web pages*: e.g., conference home page, blog posts about the conference, etc.
- *images*
 - note: a image is an entity: it has attributes (e.g., type of camera, aperture setting, copyright, ...) and links to other identified entities (e.g., monuments, people, ...)
 - images may be used for publicity, advertising, documentation
- *acronym*
- *accommodations with special discounted rates*
- *paper submission dead line*

sub events

- e.g. session, presentation, social outing and dinner, talks and collocated events such as workshops and tutorials that are part of the event, but not part of the main event (such as the Interactive Art Program, Workshops, and Tutorials)

unrelated co-located events (events the location is known for)

- e.g. exhibition about Enrico IV at Cappelle Medicee

Services

- get list of presented papers
- get committee
- get key note speakers

2.2.2.3 Scenario 3: Concert

Event type hierarchy

- Event-> Cultural Event -> Concert

Metadata

- *name* (of the event)
- *description* (of the event)
- *type*: weekly or monthly small-scale event [Global]
- *participants* (people and organizations involved in the event): e.g., singer, band, etc.
- *location*
 - note: a location is an entity, it has venue attributes (name, size, address, etc., + links to images)
- *time range*
- *songs*
 - note: a song is an entity, it has attributes (duration, date of release, ...) and links to other entities (e.g. album)
 - the songs are the central attraction at the event
- *ticket price*
- *charity concert*

- *numbers of listeners*

Services

- get next concert of band XXX
- get next concert of a band that plays the same genre of band XXX

2.2.2.4 Scenario 4: Wedding

Event type hierarchy

- Event-> Ceremony -> Wedding

Metadata

- *name* (of the event)
- *description* (of the event)
- *type*: fewer than five times in a lifetime (Local)
- *participants* (people and organizations involved in the event): e.g. wife, husband, parents, musicians, caterer, etc.
- *location*
 - note: a location is an entity, it has attributes (name, size, address + links to images + link to videos + link to songs): e.g., St. John's Church, 13th street, Denver, CO
- *time range*
 - variable depending on the sub events. If there is a rehearsal dinner and a wedding ceremony, the time range is two days. If there is only a wedding ceremony, the time range is several hours on one day
- *flowers*
 - note: flowers have attributes (type, location)
 - note: this is an interesting attribute because flowers are often local and seasonal, and may give an indication of the location of the wedding or the season.
- *images and video*
 - they document the event
- *wedding type* (e.g., religious, civil)
- *wedding style* (e.g., traditional, elopement, same sex, etc.)
- *number of wedding attendants*
- **sub event**
 - e.g., ceremony, rehearsal dinner, reception (speeches, cutting the cake, first dance), bachelor party

Services

- get pictures taken during the ceremony

2.2.2.5 Scenario 5: Finding an apartment

Event type hierarchy

- Event -> House Hunting

Metadata

- *name* (of the event): finding an apartment
- *description* (of the event): searching apartment listings, visiting apartments, signing the documents and moving
- *type*: recurring every 5-20 years (Local)
- *participants* (people and organizations involved in the event): person moving, real estate agent, property owner
- *location*
 - note: a location (and a building is a location) is an entity, it has attributes (name, address, price + links to images + link to videos)
 - neighbourhoods in which the person moving searches
 - apartment that is eventually rented
- *time range*: variable
- *images*
 - they illustrate the property

sub event

- e.g. signing financial documents (closing), visiting a real estate agent

related event

- house moving (it is a consequent event)

Services

- get street-level images and videos of a specified area

2.3 Alinari Scenarios

2.3.1 Descriptions of scenarios

2.3.1.1 Scenario 1: Pitti Uomo fashion show

ANDREA is a professional photographer. He works for a press agency in Milan. He has been sent on request, to Florence, to make a photographic reportage of the last Pitti Uomo fashion show event. His editor needs to publish those images (the best ones) 3 days after the photo event, so the time is very small to make a selection of images, considering that more than 3000 pictures will be taken during the event and not more than 100 will be published. For this image selection the editor will use the GLocal Content Based Retrieval (CBR) solution to quickly and effectively track and find the images that best fit its editorial magazine.

2.3.1.2 Scenario 2: Editor art director

FRANCESCA is a professional post production manager at FMR (Franco Maria Ricci), one of the finest Italian Fine Art visual magazines. She needs to digitally retouch and select the best images from a corpus of images to be published in the next issue of the FMR magazine. She needs to find specific images with specific subjects and genre through the available image bank of FMR and she cannot waste too much time in her image research. She is going to use the GLocal service to properly get the images that she needs, according to specific metadata information and event description.

2.3.1.3 Scenario 3: San Giovanni Fireworks

ARIEL is a professional photographer. He has done a photographic campaign project in Tuscany Region during the San Giovanni Fireworks event on June 24th in Florence, next to the Arno river, to show how the city of Florence is celebrating this event for his travel magazine Conde'. His editor needs to select certain images based on certain criteria and he will use the GLocal EventsML editor to annotate and retrieve the

images that best fit into his article in a very short time frame. GLocal will help therefore the editor to save time and money in this indexing and retrieving process.

2.3.2 Event types, metadata and services

2.3.2.1 Scenario 1: Pitti Uomo fashion show

Event type hierarchy

- Event-> Cultural Event -> Show

Metadata

- *name* (of the event)
- *description* (of the event)
- *type*: yearly [Global]
- *participants* (people and organizations involved in the event): e.g. fashion models
- *location*: Florence
- *time range*
- *images*
- *songs*
 - note: song and events can have a relation based on the music motif related to a specific event. For example a dance or pop music song will characterize an aggressive young generation type of cloths, while a romantic song might be related to a more traditional or old style fashion dress.

sub events

- e.g., fans of a specific brand or model interrupt the show, model while walking on stage fall down, person from the floor (Greenpeace supporter) throw ink to a model fur dress and get arrested, ... (type: is part of)

related events

- e.g., cloth, fashion industry, Greenpeace and recycling awareness, Award for best fashion item: Giorgio Armani (type: causal)

Services

- get style of fashion dress by music motif
- get images by event metadata information

2.3.2.2 Scenario 2: Editor art director

Event type hierarchy

- Event -> Publishing event -> News event

Metadata

- *name* (of the event)
- *description* (of the event)
- *type*: yearly [Global]
- *participants* (people and organizations involved in the event)

- *location*
- *time range*
- *images*

sub events

- e.g. press event, photo journalism

related events

- e.g. bookbinding, publication

Services

- *annotate images*

2.3.2.3 Scenario 3: San Giovanni Fireworks

Event type hierarchy:

Event-> Entertainment Event -> Firework

Metadata

- *name* (of the event)
- *description* (of the event)
- *type*: yearly [Global]
- *participants* (people and organizations involved in the event): e.g. citizens
- *location*: Florence, next to the Arno river
- *time range*: June 24th
 - always the 24th of June
- *images*
- *songs*
 - note: loud music will introduce the event and will also end the event. This kind of music or sound is typical for certain kind of events

sub events

- e.g. accidental fires, people injuries, etc. (type: is part of)

related events

- e.g. celebrations, historical city events, amusements

Services

- get images of red fireworks
- get images of final flurry bursts

2.4 EXALEAD Scenarios

2.4.1 Descriptions of Scenarios

2.4.1.1 Scenario: GLocal Kickoff Meeting

A professional user (for example, a journalist) would like to gather all newscasts (video or audio) related to a given event to produce an article or TV report on it. She is particularly interested in highlighting the

particular characteristics of this event like the entities involved in it (people, organizations, locations ...) and to show the impact and effects of starting from its happening date: generated events, relation with external events, society impact, etc.

Currently broadcast news indexing sites such as <http://voxaleadnews.labs.exalead.com> only index time; date and speech found in the audio stream, but do not have a way of finding events. Using the GLocal platform, such a broadcast site will be able to send the transcribed news of a broadcast, along with other metadata to a GLocal powered web service and receive as an output of the service a unique event descriptor. The event descriptor should contain a GLocal-unique event identifier that can be used to link other GLocal annotated metadata to that event, as well as a human readable label for the event.

The information sent to the service can include metadata, such as the time and date when the media was captured, geo-localization settings when present, person, places and organization recognized in the audio stream, as well as the timestamp where each person, place and organization was found. The GLocal service will output a unique identifier of the detected event and a set of parameters like the role of each involved person (initiator, targeted, participant, etc.), location and a timeline of the different steps the event lifetime.

After calling the GLocal service and receiving the new event descriptor as an output, this event will be added to the index of the broadcast news indexing site, and become available for event-based querying. Innovative HCI components could be developed on the basis of the event characterization of the GLocal service to present a synthesis of the events indexed in the voxalead application. For example, in a timeline, voxalead application could display a collection of events according to their time and date characteristics (display by starting date, by end date, duration, etc.). Another example could be the display of the events in a map according to their happening location. Media could then be browsed according to additional parameters to text based queries.

The schema of Figure 2 presents a draft model of an event relevant to this use case scenario.

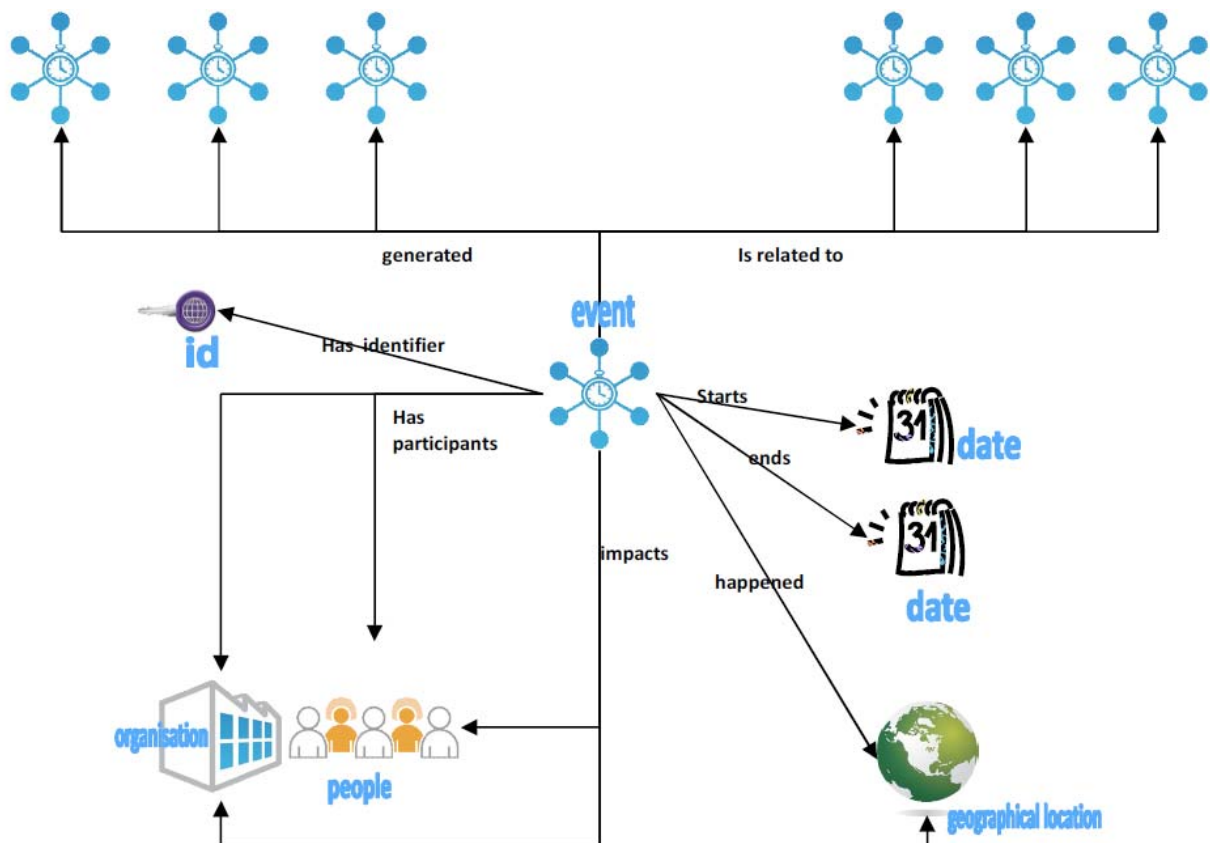


Figure 2: scenarios from EXALEAD

2.4.2 Event types, metadata and services

2.4.2.1 Scenario: GLocal Kickoff Meeting

Event type hierarchy

- Event

Metadata

- *name* (of the event) : GLocal Kickoff Meeting
- *description* (of the event) : Kickoff of the GLocal Project
- *type*: yearly [Global]
- *participants* (people and organizations involved in the event)
 - note: each participant plays one or many roles in the event
 - Organisations: e.g., Exalead may play the ROLE of consortium member; UNITN may play the ROLE of consortium member, consortium leader
 - Persons: e.g., Francesco De Natale may play the ROLE of project coordinator, representative of UNITN (Note: you may see the latest as a role, like "being Students' Union Representative); e.g., Djalil Mezaour may play the ROLE of project manager, Representative of Exalead
- *location* (geo-localization)
 - either Address: Madonna Di Campiglio, Italia
 - either GPS Coordinates (for geocoding): XXXX E YYYY N
- *time range* (starting date, end date, duration):
 - *start_date*: 2009-12-15T09:00:00+01:00
 - *end_date*: 2009-12-18T12:00:00+01:00
- *ID* (GLocal-unique event identifier)
 - either GUID, allocated: {3F2504E0-4F89-11D3-9A0C-0305E82C3301}
 - either hash of relevant data: HASH(start_date, end_date, location, participants, [title])
 - note: title can be problematic to normalize
- *extra information*:
 - note: data not parsed/understood by the framework but useable to provide useful information to users, this field can be searchable.

parent event

- this can be used to provide a tree-like structure to events
- parent event relation:
 - unpredicted:
 - consequence
 - independent
 - predicted

sub events

- you may divide an event in different steps, according to the event lifetime. For example, the GLocal Kickoff meeting can be split in:
 - Ski session
 - Meetings

- Social Event
- list of event GUIDS
- sub events can be considered as real events, however a property (perhaps parent event), as to be assigned
- note: of course a sub event is an event itself. Since it is an event it has a list of sub-events. The parent-event attribute can be obtained by “event sub-event” relation, but we may decide to duplicate this information

Services

- display meeting sub-events according in a timeline
- display meeting sub-events in a map according to their happening location.

2.5 UniTN Scenarios

2.5.1 Descriptions of Scenarios

2.5.1.1 Scenario 1: A trip in Val di Non

Danda has just returned from a tour in the Italian region of Trentino with her friend. She collected lots of material (e.g., digital photos, diaries, videos) and now wants to organise it digitally to revisit it later on and share her trip memories with her friends. With the current Web 2.0 technologies, she can rely on blogs, video sharing websites (e.g., YouTube) and online photo management software (e.g., Flickr, Virgilio Foto Album), to store and share the material. Since she likes writing, she opts to communicate the experience through her blog and thus dedicates some blog posts (<http://dandaworld.blogspot.com/2008/09/appunti-di-viaggio-my-journey-diary-11.html>) to describe the three days spent in Val di Non, the locality visited. In the first blog post titled “My journey diary - 11 Aug 2008”, she describes the things that happened during the first day of the trip: the journey from Rimini to Trento by train, the one from Trento to Cles by the local railway Trento-Malè, the nice chats she had with the owner of the B&B during the journey from Cles to the B&B located near Revò, a small village close to the Santa Giustina lake, and so forth. The second day, for example, is described in a second blog post providing detailed descriptions of the breakfast she had in the B&B and of the itinerary followed to go to the Tovel lake. In all posts, images illustrate snippets of text to enhance the visual impact of the blog. However, the full gallery of pictures is maintained in a separate online photo management system which is pointed to by a link included in the blog post. An excerpt of the first blog post follows:

“At Trento we wait for another train, this time on a local railway, the Trento-Malè. Our last stop is Cles from where buses depart for various villages, including Revò; however, the kind owner of the B&B waits for us there and gives us a lift by car...”

If an user-oriented personal media management system existed that allowed for an easy way to describe complex events, Danda would be supported in reliving the “trip event” by recalling salient events at the desired level of detail, the persons met, and the places she visited in a more active, experiential manner. Moreover, she would be able to experience pre- or post-trip visits by knowing more about the locations (e.g., facts and media), some co-located events and related stories.

2.5.2 Event types, metadata and services

2.5.2.1 Scenario 1: A trip in Val di Non

Event type hierarchy

- Event -> Leisure Event -> Trip

Metadata

- *name* (of the event) : My journey Diary

- *description* (of the event)
- *type*: trip
- *participants* (people and organizations involved in the event):
 - Organizations:
 - Trenitalia
 - Ferrovie Trento-Malè
 - Persons:
 - Danda, ROLE: writer/protagonist
 - Mate, ROLE: Danda's friend
 - Daniela, ROLE: B&B manager
- *location* (geo-localization) :
 - from Rimini (Emilia Romagna, Italy) to Val di Non (Trentino Alto Adige, Italy)
 - Revo', Santa Giustina, Tovel Lake (Trento, Trentino Alto Adige, Italy)
 - NOTE: since this is a travel, we wish to store both starting and end points of the trip and also intermediate stages
- *time range* (starting date, end date, duration): from 2008-08-11 to 2008-08-13
- *transport mode*: first Intercity train, then Trento-Malè train
- *run distance*: 400km

sub events

- each one day trip is a sub-event

Services

- get map with all journey stages
- get Trentino/Val di Non/ Revo'/.... map

2.6 INRIA Scenarios

2.6.1 Descriptions of Scenarios

2.6.1.1 Scenario 1: holidays

John just came back from a tourism trip in Chili. He was so enjoyed by his holidays that he would like to share and revive his experience with other people who went there. He particularly would like to find people that were at the same places than him in order to check if they have complementary nice pictures, e.g. at different seasons, or with different pieces of interest he did not see. He also would like to see pictures of other places he did not have the time to visit. To do that, John submits his own pictures to the GLocal system and the system returns him automatically the desired events posted by other users.

2.6.1.2 Scenario 2: concert

Erik did assist to Alanis Morissette concert last night. He took few pictures during the concert but he really would like to revive the event by reviewing some great moments that other people may have recorded. To do that, Erik submits his own pictures to the GLocal system and the system returns him automatically the related multimedia contents posted by other users.

2.6.1.3 Scenario 3: protests

Helena is a professional journalist working on an article about Myanmar protests in Thailand. She has a professional collection of pictures depicting several protests but she would like to find complementary contents created by the demonstrators themselves. She thus submits to GLocal its own collection of images representing the desired type of events and the system searches in UGC contents similar events.

2.6.2 Event types, metadata and services

2.6.2.1 Scenario 1: holidays

Event type hierarchy

- Event -> Leisure Event -> Trip

Metadata

- *name* (of the event) : holidays in Chili
- *description* (of the event) : John's holidays in Chili
- *type*
- *participants* (people and organizations involved in the event): John
- *location* (geo-localization) : Chili
- *time range* (starting date, end date, duration): 2 weeks
- *media*: John's pictures during his holidays in Chili.

sub events: Santiago, Valparaiso, Atacama, La Serena, Vina del Mar

related events: Other people holidays in Chili

Services

- Visual based event matching: the query event is only represented by a set of images, with embedded GPS and time. The searched dataset is typically an UGC pictures collection like Flickr.

2.6.2.2 Scenario 2: concert

Event type hierarchy

- Event -> Cultural Event-> Concert

Metadata

- *name* (of the event) : Concert of Alanis Morrissette
- *description* (of the event) : Concert of Alanis Morrissette
- *type*
- *participants* (people and organizations involved in the event): Erik, a huge crowd of other people
- *location* (geo-localization) :
- *time range* (starting date, end date, duration): last night, 3 hours duration
- *media*: Erik's pictures made during the concert.

sub events: different songs

related events

Services

- Visual based event matching: the query event is only represented by a set of images, with embedded GPS and time.

2.6.2.3 Scenario 3: protests

Event type hierarchy

- Event -> Political Event -> Political Conflicts

Metadata

- *name* (of the event) : Myanmar protests
- *description* (of the event) : protest in the street with Burma posters, etc.
- *type*
- *participants* (people and organizations involved in the event): Buddhist monks, etc.
- *location* (geo-localization) :
- *time range* (starting date, end date, duration):
- *media*: several sets of professional pictures representing several different protests (sub events).

sub events

related events

Services

- Visual based event modelling and search: the different sets of pictures representing different instances of the event category are analyzed in order to extract consistent visual objects represented by local visual features sets. The extracted visual objects are then used as visual matching queries in the UGC dataset.

3 Event Types

3.1 Common requirements

Here we summarize the resulting event model requirements, based on those identified in each scenario of Section 2, that are common to all scenarios.

Event type hierarchy

- Event -> Disaster -> Quake -> Earthquake
- Event -> Political Event -> Political Conflicts
- Event -> Cultural Event -> Film Festival
- Event -> Cultural Event -> Concert
- Event -> Leisure/Entertainment Event -> Firework
- Event -> Cultural Event -> Show
- Event -> Sport Event -> Soccer match
- Event -> Sport Event -> Yo-Yo Event
- Event -> Meeting -> Conference
- Event -> Ceremony -> Wedding
- Event -> House Hunting
- Event -> Leisure/Entertainment Event -> Trip
- Event -> Publishing event -> News event
- Event -> Show & Financial Event -> Motor show

NOTE: it may be that an event class inherits from two different event classes (e.g. Social Event and Financial Event)

Figure 3 shows event categories and their hierarchy in a graph.

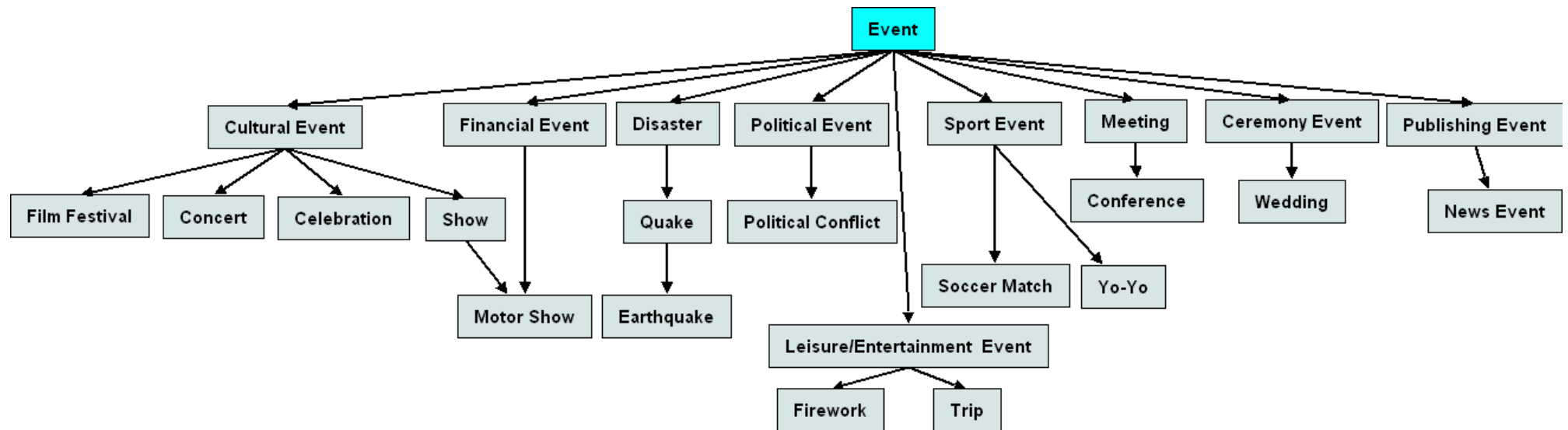


Figure 3: Initial Draft of Event Hierarchy

General Event Metadata

- **ID**
 - either a unique id generated and maintained by GLocal
 - either an external ID, such as OKKAM ID
- **name**
- **description**
- **type**
 - global or local
 - recurring: yearly, monthly, weekly, every XXX years, fewer than XXX times in a lifetime,
 - predictable or unpredictable or unpredictable but known sub event (e.g. quake)
 - large scale or small scale
 - long lasting
- **extra information:**
 - Data not parsed/understood by the framework but useable to provide useful information to users, this field can be searchable.
- **participants** (people and organizations involved in the event)
 - a participant is an entity: it has its attributes and it has links to other entities
 - each participant plays one or many *roles* in the event: for example, the UNITN could play the role of consortium member, consortium leader; Prof. Francesco De Natale, the role of project coordinator, representative of UNITN
- **location**
 - sometime the location is fixed or predicable (e.g. Geneva motor show) and sometime it is not predicable (e.g. Haiti earthquake)
 - a location may be a city (e.g. Florence) or a city quarter (san Giovanni, FI) or a building (e.g. Rosen Plaza Hotel, Orlando, FL) or a set of locations (DISI, room 7 and DISI room 12),
 - a location is an entity: it has its attributes, such as name, address, geographical coordinates (they can be obtained from the media and/or from the up-loader) and it has links to other entities, such as to other locations (e.g. near) or media
 - a location may be a set of places (see the trip scenario)
- **time range:**
 - it may be *predicable* or *unpredictable*: sometime it is always a fixed day (e.g. San Giovanni Fireworks), sometime the day changes each year but the month is fixed (e.g. Geneva Motor show), sometime it is totally unpredictable (e.g. Haiti earthquake)
 - it may be very *precise* (e.g. October 25th, 10.00am to October 29th, 6.00 pm)
 - it may be *incomplete* (e.g. from 13th of June 2009 until protest is finished)
 - it may be *relative* (e.g. the dinner was after the wedding ceremony)
 - it may be *fine-grained* or *coarse-grained* (e.g. some seconds, two hours, a day, a set of days, a month, a season, ten years,....)
 - it may be *continuous* or *with interruptions*

- **visual concepts**
 - concepts that can be extracted automatically through the picture analysis. It will depend on the capacity of this technology to extract those concepts, but normally they should be able to tag the content with visual concepts such as cars, buildings, sunsets or persons.
 - each visual concept has two related attributes:
 - *rights of the content* uploaded by the GLocal user (e.g. creative commons, commercial use, type licence)
 - *author of content* (= copyright owner)
- **media**
 - **image**
 - an image is an entity: it has attributes (e.g. type of camera, aperture setting, copyright, ...) and links to other identified entities (e.g. monument, person, ...)
 - an image may be used for publicity, advertising or documentation
 - **song**
 - a song is an entity, it has attributes (duration, date of release, ...,) and links to other entities (e.g. album)
 - note that a music motif related to an event may provide additional information on the event itself. For example, in a fashion show, a dance or pop music song will characterize an aggressive young generation type of cloths, while a romantic song might be related to a more traditional or old style fashion dress.
 - **video**
 - a video is an entity: it has attributes (language, duration, transcriptions of the audio, background music identifier) and is composed by segments
 - a video may be used for publicity, advertising or documentation

Relations with other events

- *Structural*: connect two events by explicating a “part-of” relationship (e.g. the press conference is-part-of Geneva international motor show);
- *Causal*: connect two events by explicating a sort of “caused-by” relationship (e.g. the stock value slump of YYY is-caused-by the announcement of XXX during the last Geneva international motor show);
- *Temporal*: connect two events by explicating a temporal (i.e. before, during, after) relationship (e.g. the party is organized during the Cannes film festival);
- *Spatial*: connect two events by explicating a topological relation (e.g., event A takes place in the same location of event B).

General services / Functionalities

In the following, we describe three kind of general services provided by AFP:

- services to users uploading content
 - help to fill in the metadata;
 - ability to see similar or related media objects from the GLocal community;
 - ability to put a frame with an annotation on a picture to highlight some part of the image (facebook-like feature);
 - suggest existing pictures of a person already in the system to help identification of the person;
- services to the info-mediators administrating the GLocal platform
 - check the content by linking to similar content on the internet;

- geo-localization of events;
- record user profile and confidence score;
- detect possible manipulation of images (could be through frequency analysis within the picture, quantification table, display of EXIF/IPTC/XMP metadata, or by comparison with existing objects in the database as location based image retrieval, or looking for the same object on the web using a visual signature database or services like tineye.com);
- allow to draw a frame on the picture to highlight some part of the picture;
- services to medias, clients of the GLocal system
 - allow to search by events (for example, proposing latest events recorded in the GLocal system, most popular events in terms of traffic, most recommended events by all users of the platform);
 - allow to retrieve visual concepts within the photo / video content such as logos;
 - navigation by events, by author, by location, by time range, by people /organizations involved in the events, sort sub-events within a macro-event, display of related events;
 - comparison of places before and after an event (earthquake, tsunami, blast ...);
 - similarity search (facial recognition also on celebrities);
 - provider profile and confidence score.

3.2 Specific metadata and services

Here we report event metadata and services that are specific to a particular event type, based on scenarios depicted in Section 2.

Motor Show

Metadata

- entry ticket price
- worldwide premieres

Services

- get previous Geneva Motor Show of year XXXX
- get previous Geneva Motor Show from year XXXX to year YYYY
- get financial events caused by Geneva Motor Show of year XXXX
- get all 3 star hotel near Geneva Motor Show venue
- get all cars presented during the Geneva Motor Show of year XXXX

Earthquake

Metadata

- magnitude of earthquake
- number of victims
- economic estimation of damages

Services

- get nearest past earthquake from year XXXX to year YYYY
- get a satellite map of damaged area
- get list of damaged buildings

Iran post-election protests*Metadata*

- number of deaths
- nickname (e.g., Green Revolution, Green Wave, Sea of Green and Persian Awakening)

Services

- get all sub events in chronological order
- get all events that caused the protest

Cannes film festival*Metadata*

- festival history
- awards: note that an award has a type (e.g. Palme d'Or) and a movie

Services

- get list of Cannes Film Festival of year YYYY awards
- get member of Cannes Film Festival of year YYYY jury
- get list of Cannes Film Festival of year YYYY selected movies

Sport Event*Metadata*

- match result

Services

- get winner

Soccer Champions League final*Services*

- get all yellow and red card events in chronological order
- get route from XXX (e.g. my home) to YYYY (e.g. Roma Stadium)
- get list of winner team from year XXXX to year YYYY

Conference*Metadata*

- acronym
- accommodations with special discounted rates
- paper submission deadline
- related web pages (e.g., conference home page, blog posts about the conference, etc.)

Services

- get list of presented papers
- get committee

- get key note speakers

Concert

Metadata

- ticket price
- charity concert
- numbers of listeners

Services

- get next concert of band XXX
- get next concert of a band that plays the same genre of band XXX

Wedding

Metadata

- wedding type (e.g., religious, civil)
- wedding style⁴ (e.g., traditional, elopement, same sex, etc.)
- number of wedding attendants
- flowers: note that flowers are often local and seasonal and some of their attributes (type, location) could be used to guess the location of the wedding or the season.

Services

- get pictures taken during the ceremony

Trip

Metadata

- transport mode
- run distance

Services

- get map with all journey stages
- get Trentino/Val di Non/ Revo'/.... map

⁴ See http://en.wikipedia.org/wiki/Wedding#Wedding_types

4 Requirements for Event-based Search Engines

4.1 Faceted search⁵

AFP needs to display facets with the metadata associated with events, such as participants (organizations and persons), locations (with a near notion: geographical range & geographical coordinates from the media and/or from the up-loader), categories of events, sub-events and related events, date range, visual concepts or media-type (e.g. photo, video).

AFP foresees two possible type of queries:

- **by keyword:** if, for instance, the keyword is *quake* the system proposes all events associated with quakes, earthquakes, ...
- **by event:** if, for instance, the event is *Haiti quake* the system proposes all contents associated with this particular event. Moreover, search by a sub-events (e.g. a company announcement), by related events (e.g. a car maker announcing at the time of the event that it recalls n vehicles because of mechanical problems) as well as by most popular events (or downloads) and by most recommended events (through rating of the community, info-mediators or media) may be useful.

4.2 Media by event

- Clustering and classification of media according to events hierarchy.
- Auto-tagging of media by similarity with previously categorised/tagged media
 - Linking pictures with video related to the same event

4.3 User friendly search engine

The search engine at its core has an interface that accepts a user query, searches an index of documents (or media objects), ranks the results according to their relevance to the query, and displays the results. The searching and ranking must be done very quickly, thus the system must be efficient and scalable.

The user query interface must be intuitive and easy to use, and allow the user to specify the type of information they seek as much as possible, without undue burden on the user. Typically there is a box to input textual terms, and several tabs to specify the vertical property (Web, Images, Shopping, News, etc.) to be searched.

The ranking of results should be effective, that is, the results presented to the user should satisfy the user's information need. If the user does not have an information need, for example the user is browsing for funny videos, or compelling images, the ranking of results should take this into account, without burdening the user for more interaction than necessary.

The results display should be visually pleasing and intuitive to use. Furthermore, the results display should reflect the information need, entertainment need, etc. as appropriate. Ideally the results display should reflect the proper granularity of information, for example, if the user asks for information that can be answered by a graph (as in a stock symbol), a number (such as a temperature conversion), a date (such as a natural language question about when an event occurred), or an image, the results display should present the required information clearly, in addition to other information the search engine supplies.

The search engine should display auxiliary information (such as contextual advertising, related links) in a manner that does not impede the user experience, or encourage the user to misinterpret the search results.

⁵ We think that faceted search is really interesting and we would like to explore it in more details in next steps.

5 Conclusion

In this document we collect scenario descriptions provided by GLocal partners. Starting from a textual description of each scenario, we have identified metadata and services requirements. In some scenarios specific event type metadata and services are provided, in other cases only standard metadata are instantiated. The result of this deliverable is the identification of common event metadata requirements and the description of some event types with specific metadata and/or services.

Analysing scenarios described in this document, we infer that an event may be private or public. Moreover, a private event, such as “my wedding”, can be described from my *personal* point of view but also from a *collective* point of view (e.g., the one of my friends, who attended my wedding). Same consideration can be made for a public event, such as Haiti earthquake: we can have a *personal* description of a friend’s death or a *collective* description, written by a journalist, about building damages. These considerations on event descriptions open an issue related to the event notion: does the GLocal notion of event correspond to the notion of fact⁶ or does it take into consideration also personal and subjective interpretations?

A second consideration emerges regarding the *type* metadata. As can be observed in Section 3.1, this attribute has different values with different semantics. For this reason we foresee the following new metadata:

- *scale*: indicate whether the event is public or private
- *frequency*: indicates whether the event recurs periodically (e.g., weekly, yearly)
- *predictability*: indicates whether the event is predictable or not
- *space impact*: it may be large scale or small scale. A user may provide this notion by specifying a location, e.g. Europe, Italy, Trentino, Trento or cathedral square;
- *time impact*: it may be long or short lasting (e.g., an earthquake has an impact of years)
- *social impact*: regards the number of people/organizations get involved/interested on an event. It may relate to the degree of interestingness on an event which could be measurable by exploiting social tagging (e.g., photo, video, blog, url tagged with the event keyword), i.e., by checking how many people uploaded content concerning that event.

The next step is to identify a subset of these scenarios and to explore in more details specific metadata. Finally, we will define an event model that takes into consideration requirements identified in this document and possible new requirements that can be discovered in the exploration of selected scenarios. We think that selected scenarios should include both private and public events with different social, space and time impact. For this reason we think that trip, wedding and meeting are good examples of private local event types, while conference, disaster, political event and sport event (e.g. soccer championship) are good examples of public global event types.

⁶ From the Dictionary.com, definitions of fact are:

- 1) Something that actually exists; reality; truth: Your fears have no basis in fact;
- 2) Something known to exist or to have happened: Space travel is now a fact;
- 3) A truth known by actual experience or observation; something known to be true: Scientists gather facts about plant growth;
- 4) Something said to be true or supposed to have happened: The facts given by the witness are highly questionable.

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Endnotes

ⁱ PU: Public; RE: Restricted to Group; PP: Restricted to Programme; CO: Consortium Confidential

In case of PU:

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ⁱⁱ F: Final; D: Draft; RD: Revised Draft