APIDIS

Autonomous Production of Images based on Distributed and Intelligent Sensing

STREP Project, 1st FP7-216023

D1.4 Project self-assessment plan (final)

Due date of deliverable: 31-12-2009
Actual submission date: 29-01-2010

Start date of project: 1st January, 2008 Duration: 36 months

Lead contractor for this deliverable: UCL [Revision Final]

D1.4	Project self-assessment plan (final)	
Project Acronym :	APIDIS	
Contract No :	FP7-216023	
Due Date :	31-12-2009	
Reply To:	Christophe De Vleeschouwer	christophe.devleeschouwer@uclouvain.be
Actual date of delivery	29-01-2010	

1 Executive Summary

This document presents the APIDIS project self-assessment plan. It consists in a list of objectives. For each of them, the consortium has defined milestones, indicators of success, but also assessment methods and corresponding threshold measures.
That information has been summarized in a set of tables, which have been introduced in D1.2, and revised incrementally to reflect the evolution of the project objectives and requirements.

During the second year of the project, the main achievements in terms of assessment have been:

- Assessment of the video-surveillance dataset with respect to the needs of the learning mechanisms considered to support interactive browsing. This assessment process has motivated the acquisition of supplementary video surveillance data in October 2009.
- Assessment of the second basket-ball acquisition system, which is important to drive final recommendations for data acquisition (see D3.3);
- Technical validation of image analysis algorithms, based on objective metrics, generally involving comparison to a ground truth. In particular, an important effort has been made to assess the player&ball detection and tracking mechanisms since the outcomes of those algorithms (1) provide the main inputs of the event recognition tools, and (2) were at the centre of a scientific challenge (ICDSC09). In particular, Deliverable 4.2 proposes an objective metric to assess player tracking algorithms in a way that is suited to the scene interpretation objectives of APIDIS, and compares several algorithms based on this metric;
- User consultations for autonomous production assessment. This has been done both through questionnaires (during WIAMIS09), and through subjective tests conducted at mid-project (see Deliverable 7.1). As a result of the assessment, some refinements have been brought to the autonomous production tools (see Deliverable 6.3);
- User consultations for assessment of the personalized summarization mechanisms. Those experiments have been conducted through subjective tests, and through online consultation through the web. Main lessons are reported in D7.1, and do confirm the relevance of the proposed resource-allocation summarization framework.
- Subjective experiments for perceptual assessment of the images interpolated in arbitrary viewing directions from omnicam (see Deliverable 7.1).

Deliverable Identification Sheet

Project ref. no.	FP7-216023
Project acronym	APIDIS
Project full title	FP7-216023
Security (distribution level)	Public (PU)
Contractual date of delivery	Month 24, 12, 31, 2009
Actual date of delivery	Month 25, 01, 29, 2010
Deliverable number	D1.4
Deliverable name	Project self-assessment plan (final)
Type	Report
Status & version	Final
Number of pages	19
WP / Task responsible	WP1 / UCL
Other contributors	BM, MP, EPFL, ACIC, QMUL
Main Author(s)	Christophe De Vleeschouwer
EC Project Officer	Marzio Morina
Abstract	This document defines the assessment methods and the measures of success for the main objectives of the project.
Keywords	Assessment methods, indicators, quality measures.
Sent to peer reviewer	MP
Peer review completed	Yes
Circulated to partners	Yes
Read by partners	Yes
Mgt. Board approval	Pending

Table of contents

2 Introduction

The Self-assessment Task and Process

As described in Deliverable 1.2 (=version 1 of the self-assessment plan), self assessment is a joint responsibility of all partners. It is an important task throughout the project, along with monitoring and reporting on the achievements of the project objectives.

The self-assessment plan sets out the indicators and measures associated to each one of the project objectives. Possible measures include: peer review, outcomes of satisfaction questionnaires, supervisory board approval, technical performance, results of trials, etc. Evaluation of how well a particular project objective has been achieved can be found in the 'validation and experiments' sections of the corresponding technical deliverable and scientific paper released by the project.

Template tables are used to define the self assessment plan associated to each project objective. These tables are found in Sections 2 to 7 of this document. They have been revised compared to the ones provided in D1.2, mainly based on the lessons drawn (i) from the proof of concept trials that have been described in D7.1 and have occurred in summer 2009, and (ii) from the user consultations that have resulted from the IBC show.

The self assessment work conducted in APIDIS since D1.2 (month 12) covers:

- Proof of concept trials report, including objective and subjective assessment of the proof-concept prototypes (D7.1, ~ month 20).
- Careful assessment of key signal processing algorithms, including the algorithms devoted to player&ball detection and tracking, but also the ones dealing with viewpoint selection (for automatic production) and activity detection (for learning of camera network topology in surveillance context).
- Organization of the external review of D1.2, and corresponding revision of the self-assessment plan.
- Preparation of the final Self-Assessment Plan (this document), including adaptation of the assessment tables to reflect the project advances.
- Definition of specifications for end of project trials, and corresponding assessment methodology (D2.4, month 20).
- Checking the continuing relevance of the project to the market needs, through the Market Analysis report (D8.3, month 24).

The work that has still to be conducted after month 24 includes:

- Report on final user-field trials, including technological and evaluation of the societal and commercial impact of the technology (D7.2) at month 34, October 2010.
- Final report indicating in details (i) the extent to which the objectives have been achieved, and (ii) what are the main outcomes of the project.

Overview of the Progress Assessment Tables

The APIDIS self-assessment process uses the tables presented in the following sections of this document to measure project progress toward each one of the APIDIS key objective. The tables present the relation between Objectives, Work Packages, the Assessment Indicators, Assessment Methods and Threshold Measures. It also includes judgments on the results achieved.

The "Assessment Method" column lists the partner who is responsible for defining the assessment method for each deliverable. This partner has briefly listed (in 1 or 2 phrases) technical criteria and performance indicators. The responsible partner has also added input to the "Threshold Measure" column.

The assessment methods will generally fall into the following categories:

P Physical measurements and laboratory tests (including benchmarking and system logs)
U User feedback using the following techniques:
Field Trials
Task Observations
Questionnaires
Semi-structured Interviews
Thinking aloud
Cost analysis
E Review by qualified experts

Overview of the project achievements

After 24 months, the main achievements of the project are:

- The acquisition and annotation of several datasets, both related to sport and surveillance context (see D3.1, 3.2, 3.3);
- The development and assessment of several ball& player tracking and detection algorithms (D4.2 and D5.1);
- The development and assessment of several algorithms for interpolating planar images in arbitrary viewing direction from omnidirectional sensors (D3.4 and D7.1);
- A running prototype for real-time autonomous production of basket-ball games, given the automatically detected player positions (see D7.1 and D6.3);
- A preliminary prototype for personalized summarization of basket-ball game, given the manually generated information about the game clock-events (see D6.3);
- A running prototype for real-time and personalized soccer game video summarization, given either (i) a set of sparse manual annotations defining the key events of the game (D6.2 and D7.1) or (ii) the set of instants detected as audio highlighted moments through automatic analysis of the signal including both the commentary and ambient sound (D6.3);
- The development and implementation of a methodology to learn a camera surveillance network topology from activity detection (D6.4);
- The development of a rudimentary interface to browse a video surveillance network (D6.1).

Overview of the remaining objectives

During the last year of the project, the main objectives will be to:

- Develop the automatic basket-ball clock-event recognition algorithm, based on the outcomes of ball&player tracking algorithms;
- To refine the initial prototype for basket-ball personalized summarization. Main refinements consist in (i) making the system fully autonomous by using the automatically recognized clock-events instead of the manually annotated ones, and (ii) improving the user satisfaction by offering appropriate personalization criterions and, if possible (subject to human resources availability), increased perceived quality of rendered summary (e.g. through the use of image stitching to cover the whole field with a single virtual camera);
- Exploit the knowledge learned about surveillance network topology within the browsing interface, and assess how well it supports efficient browsing. This might imply the design of several interfaces, and their comparison in terms of efficiency and usability;
- Disseminate the outcomes of the project, mainly through scientific publications, web publication of results, and IBC2010 attendance.

3 Sensor network deployment

Involved partners: ACIC, EPFL, QMUL, UCL and MP

Objective

The main goal is the cost-efficient and robust deployment of networked and bio-inspired omnidirectional sensors for the acquisition of visual inputs.
Main objectives for the first 2 years:

- Practical deployment of the system and data acquisition;
- Camera calibration, and integration of contextual information of the multicamera environment to enable joint processing of the multi-camera information;
- Development of a toolset for accessing and annotating the captured content;
- Reconstruction of conventional rectangular views in arbitrary viewing direction, based on omnidirectional signal processing.

Main objective for the last year:

- Generate images based on several (omnidirectionnal) sensors, using the second and synchronized dataset. For example, stitching the two images captured by the two central cameras should allow continuous panning from one side of the field to the other, instead of switching between the two cameras. This aspect, which is not critical for the project, will be investigated if EPFL can hire a researcher with appropriate skills. If not the case, EPFL will re-allocate its resources on (ball) detection and tracking issues.

Assessment table

See next page.

Objective	Cost-efficient and robust deployment of networked and bio-inspired omnidirectional sensors for the acquisition of visual inputs.				
Work Packages	Deliverables	Milestones	Completion/Progress Indicators	Assessment Method	Threshold Measure
WP3 Sensing network deployment: raw content acquisition and storage	D3.1 Deployment of the system (T12,PU) D3.2 Raw data content provisioning, including annotation (T12, PU) D3.3 Raw data content provisioning for end-of-project trials (T22, PU) D3.4 Omnidirectional vision (T24, PU) *(versions* at T9, *T18 and T24)*	Milestone 4 Deployment of the distributed acquisition system, and field data collection T6, T12, T22	Data available on the apidis.org portal. Calibration assessment, to ensure that data can be exploited for distributed analysis. (T6) Interface available to access and annotate the sport event content in accordance with the APIDIS requirements. (T12)	D3.1: **ACIC.** Through internal reviews. Performances in terms of (spatio-temporal) resolution, video quality, and synchronization are discussed with respect to the cost of the acquisition setting and its deployment complexity. D3.2&3.3: **All.** User feedback will be collected during field trials, to evaluate the relevance (with respect to the user needs) and quality (image quality and resolution) of the raw content. D3.2&3.3: Lab tests: **ACIC** Objective measures of quality, synchronization, and acquisition reliability vs acquisition rhythm. D3.4: Labs tests: **EPFL**. Evaluation of the gain provided by an (array of) omnicams, in terms of cost and video resolution, compared to conventional planar cameras.	Full acceptance of Deliverables by Internal Peer Review and Supervisory Board Rendered image quality should be considered as acceptable during subjective evaluations (see assessment criteria in deliverable 2.3). Multi-camera content should support automatic annotation through multi-sensor video analysis. Annotations should include 80% of the annotations that are considered as important by the users in D2.1. Advantages and drawbacks of omnivision are quantified through objective cost-distortion curves.
Assessment of Progress	As planned, the first and second basket-ball acquisition campaigns were successfully completed by month 15. Manual annotations have been generated to support the development of technical modules. Data and metadata related to the basket-ball scenario are available on the apidis.org portal, and have initiated the ICDSC09 scientific challenge in summer 2009. Several acquisitions related to surveillance context have also been run by October 2009 (see D3.3). Regarding omnivision, planar images have been generated in arbitrary direction based on omnidirectional sensors. Assesment has been conducted during proof-of-concept trials (D7.1).				

4 Distributed tracking and interpretation of visual content

Involved partners: QMUL, EPFL, UCL and ACIC

This task considers the extraction and tracking of discriminant audio and visual features within the monitored scene, so as to feed scene interpretation algorithms.

Regarding feature extraction and object tracking, the main challenge consists in taking advantage of the redundancy offered by the multiplicity of sensors to increase the relevance and reliability of underlying algorithms:

- For video, joint processing of conventional and omnidirectional images has been considered. We have considered the estimation of the spatio-temporal distribution of local features (e.g. motion field), as well as the extraction and tracking of specific objects (typically the basket-ball players and the ball). Significant effort has been allocated to ball&player detection and tracking (see D4.2 and D5.1). Concrete results have been achieved (definition of several algorithms + running codes implementation). During the last year, the proposed algorithms will be tuned and finalized through careful assessment procedures, and the results will be disseminated through journal publications.
- For audio, we restricted ourselves to ambiance sound detection and source position estimation, e.g. to detect the whistle of the referee and roughly estimate her/his position. The task is now completed.

Regarding scene analysis:

- The first objective consists in detecting and recognizing events of interest to identify salient segments in the captured video content. The task strongly depends on the applicative context. Hence, the underlying technology should be flexible enough to adapt to the case at hand. Two approaches are envisioned to rapidly come up with appropriate detection tools, either based on the enumeration of heuristic rules or the training of classifiers. Both solutions will be assessed with respect to their detection reliability and to their versatility. By versatility, we refer to their ability to be exploited in different applicative contexts, without the need for complex installation procedures. This task only started after 24 months, and is a key objective of the last year.
- The second objective consists in learning how to map the high-dimensional signal observed on the set of distributed sensors to a discrete set of appropriate rendering parameters (camera view, digital zoom, cropping, etc.). Here, the purpose is not to recognize a specific event or discriminate between different kinds of events, but to decide about the best way to render the scene at a given time instant, given a set of measures about scene activity. This task has been completed after 24 months of project (D5.1).

Assessment table: See next page.

Objective	Distributed tracking and interpretation of visual content				
Work Packages	Deliverables	Milestones	Assessment Indicators	Assessment Method	Threshold Measure
WP4 Distributed audio-visual feature extraction and tracking	D4.1 Low-level features extraction software module (T12, PU) D4.2 Local features extraction and visual target object representation tracking (T24, PU) D4.3 Software for distributed feature extraction (T27, RE) *versions at T12 and T18* D4.4 Audio features extraction (T12, PU)	Milestone 7 In-lab assessment of initial versions of feature extraction and tracking modules (T12).	D4.1 and D4.4 available including running prototype (T12). Internal preliminary versions of tracking prototypes are available (T12).	D4.1 QMUL Lab tests Performance evaluation of motion segmentation to be addressed as a two-class foreground/background) segmentation evaluation problem. Thus finding the correlation between this and the manually labelled segments of the dataset to perform D4.1 ACIC Objective measures of the spatio-temporal distribution of extracted low level features compared to manual annotations of the data set. For example, the performance of the local motion extraction can be determined in terms of true/false detection rates with respect to manually annotated moving objects. D4.2 QMUL Lab tests, Evaluation in terms of precision and recall using the manually labelled segments of the dataset D4.3 QMUL Lab tests, evaluation against ground truth	For low-level features extraction modules, we target a recognition rate of 75% of manually annotated metadata. The number of wrong detections should not exceed 15%. Moreover, low-level features would be used as an input to WP5, Hence the performance of D4.1 can be quantified at that stage using subjective evaluation and accuracy in terms of detection of events Tracking precision of 60 %(*) Distinguish ball and players in assessment metrics.

Objective	Distributed tracking and interpretation of visual content				
Work Packages	Deliverables	Milestones	Assessment Indicators	Assessment Method	Threshold Measure
				D4.4 QMUL Lab test, Evaluation of (whistle) event detection against ground truth.	As whistles is a high frequency event as compared to other ambient noise, we expect high (almost 75 %) in detection of the whistle event (**)
WP5 Scene analysis and salient content segments detection	D5.1 Mapping audiovisual features to production actions (T24, RE) D5.2 Event detection and recognition algorithms (T24, PU) D5.3 Software for event detection (T30, RE) version at T16	Milestone 9 In-lab validation of classifier-based and rule-based event detection and recognition (T16).	Internal check point T16 Internal version of software for event detection available **Delayed to T27**	D5.1**UCL** Lab tests and user feedback (see details in D2.3, Section 5). D5.2 **ACIC and UCL**, Labs tests. Precision and recall computations. D5.3**ACIC and UCL**, Labs tests. Precision and recall computations.	Subjective level 'acceptable'. Detection is guaranteed based on clock monitoring. Hence we target high recognition rate of at least 80%, as long as the ball is correctly detected and tracked.
Assessment of Progress	Mid-2008: Events of interest have been defined (see D2.1). October 2008: Third proof-of-concept trial has been defined to map visual percepts to production actions (see D2.3). End of November 2008: Initial tracks have been provided by QMUL to ACIC and UCL. Summer 2009: Assessment of player detection algorithms through organization of ICDSC09 scientific challenge. Summer 2009: Assessment of production actions mapping through proof-of-concept experiments and user consultations (D7.1) December 2009: Assessment of player tracking and ball detection algorithms (see D4.2 and 5.1). Performances are above expected thresholds. They remain acceptable even in case of a reduced number of cameras (2 on one side). December 2009: Assessment of audio event detection. In lab validations are OK (D4.4), but field trials results are below threshold (see D5.1). Note: In agreement with project officer, event recognition task has been postponed. First results are expected by T27.				

(*) This estimate is based on the results on the on the CLEAR surveillance dataset
M. Taj, E. Maggio, and A. Cavallaro, "Objective evaluation of pedestrian and vehicle tracking on the CLEAR surveillance dataset," in *Proc. CLEAR, Springer LNCS*, Baltimore, USA, 2007, The reported best results on this data set was ~65%

(**)This threshold is based on the in-house AV data set that was generated at QMUL, See D3.1 for the acquisition setup.

5 Flexible and interactive access to content

Involved partners: ACIC, UCL and BM.

Objective
The objective consists in defining tools for multi-camera content browsing assistance. In the context of interactive access to multi-camera content, APIDIS aims to facilitate browsing of recorded surveillance material by a user. The current state-of-the-art is to visualize each video sequence individually. The goal of the project is to guide browsing by suggesting video sequences to the user that are related to the current sequence being viewed. Thus, the user no longer has to search through the video sequences by hand to find related sequences. The idea is to use techniques from artificial intelligence to estimate the probability that two video sequences are related to the same event, and use those probabilities to form a ranking of related sequences. The highest-ranked sequences are then suggested to the user, much like the highest-ranked webpages are presented to a user as a result of a web query. The proposed process is completely automated and does not require manual annotation of the video sequences to learn the probabilities.

Note that this objective slightly differs and replaces the objective described in Task 6.5 in the DoW. Project partners came to that updated definition of the 'interactive production' tasks based on the surveillance use case definition (see D2.1).

After 24 months, the methodology to infer network topology from the observation of activities in the camera has been defined. Corresponding activity detection metadata have been generated, and appropriate learning algorithm has been designed to learn the network topology.

Main objective for the last year: Integrate the topology knowledge in a browsing interface, and assess the relevance of the browsing assistance mechanisms that can be supported by this knowledge.

Assessment table

See next page.

The table has been updated according to the evolution of project, as driven by user group consultations. Main objectives consist in assisting multi-camera browsing in a videosurveillance scenario.

Objective	Flexible and interactive access to content.				
Work Packages	Deliverables	Milestones	Assessment Indicators	Assessment Method	Threshold Measure
WP6 Automatic and personalized production of content	D6.1 Software environment definition (T12, PU) D6.5 Final version of the test-bed (T30, CO)	Milestone 5 In-lab testing of the test-bed for manually-controlled interactive navigation in the raw content, including the onmidirectional content T9 Milestone 14 Pilot System for field trials available T30	D3.4 available and D6.1 available. T12 Last version of D6.1 available	For D6.1 Labs tests **ACIC**. Objective evaluation of performance of testbed for manually-controlled interactive navigation in the raw content. Resolution and frame rate capabilities when playing back stored content. For D6.5 Labs tests **ACIC&UCL**. Objective evaluation of performance of testbed for automatic and personalized production of content in terms of processing time for off-line and on-line operations.	Full acceptance of Deliverables by Internal Peer Review and Supervisory Board The testbed should be able to play videos at their original resolution at the original frame rate. The processing time associated to browsing assistance should be "acceptable", and compatible with the deployement of a real-time interactive interface.
WP6 Automatic and personalized production of content	D6.4 Interactive browsing of content (T24, PU)	Milestone 13 In-lab validation of the interactive browsing process. T24	Tests successfully executed and evaluated by partners. Used as input to define assessment methodology for the corresponding field trial. D6.4 available. T24	Lab tests related to D6.4 : BM, UCL and ACIC	Tools that are used to predict future views are efficient (correct prediction) and useful (they facilitate the browsing).
Assessment of Progress	D6.1: Two versions of the test-bed has been released, respectively at T6 and T9. An interface to annotate multi-camera content has been released at T9. A functional browsing interface enabling view selection and switching has been released in October 2009. It fulfils all requirements in terms of access to content (more than 10 videos are played simultaneously, and displays can be switched interactively). D6.4: By end 2008, interactive browsing use case has been refined. Mid-2009: Surveillance data has been collected by ACIC, and analyzed through activity detection mechanisms. Results have been transmitted to BM. End of 2009: Algorithm to learn topology has been implemented and assessed. It matches initial expectations (see D6.4). Future work: integration of topology knowledge in browsing interface, and assessment of resulting browsing mechanisms.				

6 Automatic production of personalized summaries

Involved partners: UCL, BM and MP.

Objective
This objective considers the automatic production of a nice-looking and semantically-meaningful content summary, in response to a user request. By nice-looking, we refer to the fluency and semantic-relevance of the displayed content, rather than to its resolution or sharpness. As a research project, APIDIS wants to validate and demonstrate a set of innovative automatic production facilities, but does not target the production of high resolution content for broadcast. The inputs of the production process are the raw (multiple) streams directly captured by the camera network, as well as the outputs of the scene analysis mechanisms, to identify content salient segments. Given those inputs, the production consists in selecting the stream index, the timestamp, the resolution and the cropping parameters of the frames to display.
Indirectly, the work associated to the above objective also defines the kernel of an authoring tool that gives the content provider the possibility to define salient segments in the content, so as to allow for the automatic production of personalized summaries; thereby enabling the creation of a novel form of interactive access to content, e.g. for re-use of content in the production room.
In both cases, the production task assumes that the salient segments of the content are identified, either manually or based on the automatic algorithms. Here, it is worth noting that we do not make any assumption about the level of precision in the definition of salient segments. This is because the (in)accuracy in salient segment identification is often inherent to the application at hand, and has to be handled by the production/summarization process. Typically, the degree of personalization of the automatically generated summary directly depends on the amount of information available about definition salient segments. For this reason, APIDIS has investigated several scenarios (football vs basket-ball, manual annotation vs. coarse audio-based hotspots detection or accurate video-based automatic event recognition).

After 24 months, automatic production and summarization frameworks have been defined, implemented, and assessed with success in multiple contexts (see D7.1 and D6.3). Those contexts include (i) fully automatic summarization of broadcasted soccer game content, and (ii) fully automatic production of a basket-ball game from the raw images captured by a network of cameras. Summarization of the basket-ball game has also been implemented, but still exploits manual annotation of clock-events.

Main objective for the last year: Demonstrate the integrated and fully automatic (both the definition of salient segments and the production mechanisms are automatic) personalized summarization prototype.

Assessment table: See next page.

Objective	Autonomous production of personalized summaries.				
Work Packages	Deliverables	Milestones	Assessment Indicators	Assessment Method	Threshold Measure
WP2 Requirements and Functional Specs	D2.1 User requirements (T6,PU) D2.2 Knowledge associated to content production (T6, CO) D2.3 Proof of concept trials: specs and assessment methodology (T9, PU) D2.4 End-of-project trials: specs and assessment methodology (T20, PU)	Milestone 2 Requirements, functional specs, and architecture T6 Milestone 3 Proof of concept trials: specs and assessment methodology T9.	D2.1 is available and generated based on user group consultation. D2.3 available at T9 D2.4 trials specs and requirements, partly based on user feedback during proof-of-concept demos (before T21).	E- Expert Review by qualified experts from the Partners and external user group See above for table prepared by **MP** for D2.4 external review. Here, the reviewer appreciates the level of targeted personalization, and the completeness of the underlying annotations.	Full acceptance of Deliverables by Internal Peer Review and Supervisory Board. External experts rate requirements from D2.4 on average as 4 or "good" on a scale of 1-5.
WP6 Automatic and personalized production of content	D6.2 Initial version of autonomous content production prototype (T12, CO) D6.3 Autonomous production of content (T24, PU)	Milestone 6 In-lab testing of autonomous production for monocular content T12 Milestone 8 Subjective evaluation of the autonomous production process (see Task 6.2) T15	Interface to access and annotate the sport event content T12 D6.2 available T12 D6.3 scheduled at T24, used to define assessment methodology for the corresponding field trial.	The interface has been released by **UCL** at T9. D6.2 provided at T12: see D2.3 for assessment. To be organized by **MP and UCL**, in parallel to mid-project trials. D6.3 **UCL and BM**, evaluation are based on similar tests than the ones described in D2.3.	Fluent and flexible multi-views access, allowing for manual annotations generation. Production is adaptive w.r.t. user preferences and constraints. Subjective evaluation is better after optimization.
WP7 Integration and validation	D7.1 Proof of concept trials report (T20, PU) D7.2 Report on final user field trials (T34, PU)	Milestone 10 Proof of concept trials, around T18, probably during a workshop. Milestone 15 Field Trials and corresponding assessment T32	Proof-of concept trials assessment results posted on the apidis.org portal before T22 D7.2 available T34	Lab tests D7.1 **UCL**: see assessment method described in D2.3. D7.2 **MP**: has to quantify the impact expected from APIDIS, method will be defined after mid-project trials (see D2.4).	Full acceptance of Deliverables by Internal Peer Review and Supervisory Board Trials samples published on the apidis portal. Presentation of trials during scientific workshop and IBC.
Assessment of Progress	At T9: D2.3 available, and interface for multi-camera content annotation has been released. At T10: Demonstration of autonomous production tools during ECCV. Summer 2009: Proof-of-concept trials and IBC attendance, successful assessment of automatic soccer summarization, and automatic basket-ball production (D7.1). December 2009: Release of the first integrated prototype for basket-ball personalized summarization.				

7 Dissemination and exploitation

Involved partners: All, with an emphasis on MP and ACIC.

Objective

The objective consists in pro-actively fostering the dissemination and exploitation of APIDIS. The purpose is to increase the project visibility, stimulate the interaction and contacts with potential techno- and end- users, and encourage the dissemination of results to maximize the project impact. An interactive and user-friendly web site will be developed to inform the general public, the academic, and the industrial communities about the APIDIS concept and results. Video showcase production and attendance to IBC are scheduled. Knowledge-management and market analysis activities related to the APIDIS technological advances will be coordinated to release a business plan and IPR management strategy before the end of the project.

After 24 months, we note:
- Web site including news but also results from the project;
- More than 10 scientific publications in international journals or conferences;
- One patent pending: SYSTEMS AND METHODS FOR THE AUTONOMOUS PRODUCTION OF VIDEOS FROM MULTI-SENSORED DATA, GB PSP Patent Application GB0907870.0 (Priority date: 2009-05-07).
- ICDSC09 scientific challenge organization, and demos presented during Wiamis09 and ECCV08 workshops;
- Organization of the Eurasip JVIP special session on ‘Multicamera Information Processing: Acquisition, Collaboration, Interpretation, and Production’;
- IBC2009 attendance;
- Interaction with Telefonica to validate Apidis summarization technology with respect to real market needs;
- Market analysis and user consultations (see D8.3).

Assessment table

See next page.

Objective	Wide dissemination of the results and their incorporation into marketable products				
Work Packages	Deliverables	Milestones	Assessment Indicators	Assessment Method	Threshold Measure
WP8 Dissemination and exploitation	D8.1 Dissemination and IPR plans (T6, PU) D8.2 APIDIS exploitation plan, v1 (T12, Co) D8.3 Standards, Technology and Market analysis report (T24, CO) D8.4 Video Showcase (T34, PU) D8.5 Final Exploitation Plan (T36, PU)	Milestone 1 Web site and project dissemination material T3 Milestone 11 IBC 2009 T21 Milestone 12 Market analysis and exploitation plan T24 Milestone 16 IBC 2010 T33	Apidis portal popularity Number of papers accepted and quality of the journal / conference Degree of research integration in the project indicated by the number of papers with authors from different institutions IBC or other events attendance reported on web site Eventual incorporation of results into new or existing marketable products	E- Expert review D8.1 Log Dissemination Efforts. **BM** D8.2 **All** Log Exploitation efforts. D8.3 **All** Track Standards, Technology and Market analysis D8.4 **MP** Expert evaluation with trials and demonstration of the results D8.5 **All** Log Exploitation and Dissemination of results	Full acceptance of Deliverables by Internal Peer Review and Supervisory Board Five scientific journal or conference papers (by project completion) Interim and final result presentations at and IBC 2009 and 2010 Video showcase on APIDIS portal T34. Demo-showcase at 3 international events. One community wide event at one international conference. One special issue in international journal. One patent. One publicly available dataset (success metric: number of downloads).
Assessment of Progress	As planned, by month 6, Website and dissemination materials were produced and distributed. At T10, APIDIS participated to NEM summit and to ECCV workshop. Spring 2009: demos and user consultations during WIAMIS 2009. Summer-Fall 2009: Proof-of-concept trials, ICDSC09 scientific challenge organization, and IBC attendance. Winter 2009: Interaction with Telefonica + Market analysis through user consultations (see D8.3).				

8 Conclusions

This document has introduced the APIDIS project self-assessment mechanisms. For each one of the key objectives of the project, a Table has been defined to monitor the achievements of the corresponding objective. These tables are planned to be revised incrementally as the project objectives and requirements are evolving.

After one year, the main achievements in terms of assessment are:
- Assessment of the first basket-ball acquisition system, to prepare for the second acquisition campaign;
- Technical validation of image analysis algorithms, based on objective metrics, generally involving comparison to a ground truth;
- User consultations for autonomous production assessment. This has been done through questionnaires, during WIAMIS09;
- The definition of a methodology for subjective evaluation of autonomous production tools;
- The definition of a methodology for objective and perceptual assessment of the images interpolated in arbitrary viewing directions from omnicam.

During the second year, assessment tasks have been focused on:
- Assessment of multi-view detection&tracking algorithms;
- Collection of production decisions from experts, to support autonomous production assessment;
- Assessment of personalized summarization of broadcasted soccer games;
- Proof-of-concept trials assessment.
- Assessment through dissemination of results (publications, patent, demos, etc.) and resulting feedback analysis.

During the last year of the project, particular attention will be devoted to assessment of:
- Event recognition algorithms;
- Automatic and personalized summarization of basket-ball games ;
- Assisted browsing of surveillance network, as enabled by network topology learning.