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## Description of six scenarios and of the results of six validated trials

Aida Boukottaya, Michel Buffa, Bernadette Charlier, Amaury Daele, Nathalie Deschryver, Adil El Ghali, Sandy El Helou, Liliane Esnault, Christina Evangelou, Alain Giboin, et al.

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Project no. FP6-028038

## PALETTE

Pedagogically sustained Adaptive LEarning Through the exploitation of Tacit and Explicit knowledge

Instrument: Integrated Project

Thematic Priority: Technology-enhanced learning

D.PAR.03 – Description of 6 scenarios and of the results of 6 validated trials

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#### **Summary**

The D.PAR.03 aims at presenting and analysing the processes of elaboration and validation of the PALETTE scenarios. After having defined these two processes and situated them within the PALETTE methodology, the scenarios are presented. For each scenario, the specific methodology of elaboration and validation is described with a special focus on the participation of the concerned Communities of Practice (CoPs). Then the results of the validation are presented as well as the reports on their technical feasibility and the usability of PALETTE services from a user perspective. Finally we reflect on and we discuss about whole process of validation of the scenarios and we describe the next steps towards the development of the scenarios and their trials with the CoPs.

After the first annual review, the content of this deliverable has been adapted by adding a special section about the analysis of the usability of the PALETTE tools. It presents a first overview of the analysis and examples of how the outcomes of the analysis have been taken into account for the development of the tools.

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# 1 Introduction

The objectives of D.PAR.03 are:

- To describe the elaboration process of the scenarios of use of PALETTE services by the CoPs in relation with the PALETTE Participatory Design Methodology;
- To describe the validation process of the scenarios with the CoPs;
- To present the outcomes of these two processes: six validated scenarios of use of PALETTE services;
- To prepare the continuation of the development of the scenarios and of the PALETTE integrated services.

After the first half of the PALETTE project, D.PAR.03 takes stock of the outcomes of the collaboration with the CoPs. The cornerstone of this collaboration is constituted by the scenarios. As explained in D.PAR.01, the PALETTE scenarios constitute ‘boundary objects’, “i.e. objects “to-think-with” that facilitate mutual understanding and trust among participants with various backgrounds” (D.PAR.01, p. 7). In this sense, they directly and very concretely participate in the collaboration between the PALETTE developers and the CoPs. They constitute a concrete object that the actors can discuss, negotiate, change and refer to in order to state their opinions or ideas. As such, they participate in the *negotiation of meaning* described by Wenger (1998) as the core process between *participation* and *reification* into CoPs. From the participation of the actors in the elaboration of the scenarios to the reification of the scenarios in texts or schemas, the negotiation of meaning takes place as a process through which the actors discuss, share their ideas and opinions, and reach a consensus. The scenarios presented here are the concrete outcomes of this negotiation.

In this respect, we consider the processes of elaboration and validation of the scenarios as two facets of a same process of negotiation of meaning. In reality, validation is not a “final” step towards the elaboration of “validated scenarios”. It has been integrated from the beginning of the collaboration with the CoPs and applied in all the discussions about the description of CoPs’ actions and issues (described in the synthesis of interviews, see D.PAR.01), in the identification of CoPs’ needs and the definition of CoPs’ new actions, in the integration of the proposed services in the scenarios, etc. The so-called “validation” step at the end of the elaboration of the first versions of the scenarios is only a way to formally confirm the consensus reached by CoPs and developers. It is expected that the scenarios will continue to evolve throughout the project.

In addition, D.PAR.03, as stated in the PALETTE Implementation Plan 1, aims at reifying knowledge about the scenarios of use of different services. Throughout the elaboration and validation processes, information has been collected about the processes by the mediators: how the collaboration with the CoPs was carried out, through which activities, the way participatory design was implemented, how did the scenarios and the PALETTE services enrich each other? This information will be analysed during the second half of the project in order to elaborate strategies and activities to collaborate more efficiently and closely with the CoPs.






The D.PAR.03 is organised as follows:

- The section 2 reminds the definition of PALETTE scenarios and describes the methodological processes of their elaboration and validation. It also situates these processes in the Participatory Design Methodology. It finally presents the actors who are involved in by referring to the D.IMP.03.
- The section 3 presents the scenarios. It also presents the validation accounts for each scenario as well as a report about their technical feasibility and first outcomes of the analysis of the usability of the PALETTE services.
- The section 5 discusses the scenarios as ‘boundary-objects’ within PALETTE and presents a reflection on the real life of participatory design in PALETTE.
- The section 6 presents the future work throughout the second half of the project.

The D.PAR.03 is based on several previous deliverables, especially D.PAR.01 (description of the methodology of participatory design implemented in PALETTE), D.PAR.02 (its section about the scenario definition) and D.IMP.03 (identification of the actors involved in the processes and the first functional specifications of the services and their orchestration). It is also based on the WP1 report “Refinement and Instrumentation of the Participatory Design Methodology” that describes and refines the methodology processes, especially the “Participatory Design for use” (elaboration and validation of the scenarios, and development of the Integrated Technological Services and Learning Services). For the definition of most of the terms used in the present deliverable (services, scenario, Teams, etc.), the reader is asked to refer to the D.IMP.03.

Eventually, in order to read the models presented in this deliverable, the forms of the objects and the names of the relations between them must be translated as follows (Paquette, 2002; Paquette *et al.*, 2006):

**Table 1 – Legend of the figures**

Objects	Relations
 = Actors, principles	“C” means “is Composed of”
 = Processes, procedures, actions	“I” means “Instantiates”
 = Objects, products, concepts	“IP” means “Input/Product-Output”
 = Decisions	“P” means “Precedes”
 = Instances, tracks	“R” means “Regulates” (or “has an effect on” or “informs”)
	“S” means “is a Sort of”

## 2 The PALETTE Scenarios: Definition, Elaboration and Validation

In this section, we formally describe what PALETTE scenarios are and the methodology through which they have been elaborated and validated. In the sections 3 and 4, we will describe in practical terms how these processes have been carried out with each CoP.

### 2.1 Definition

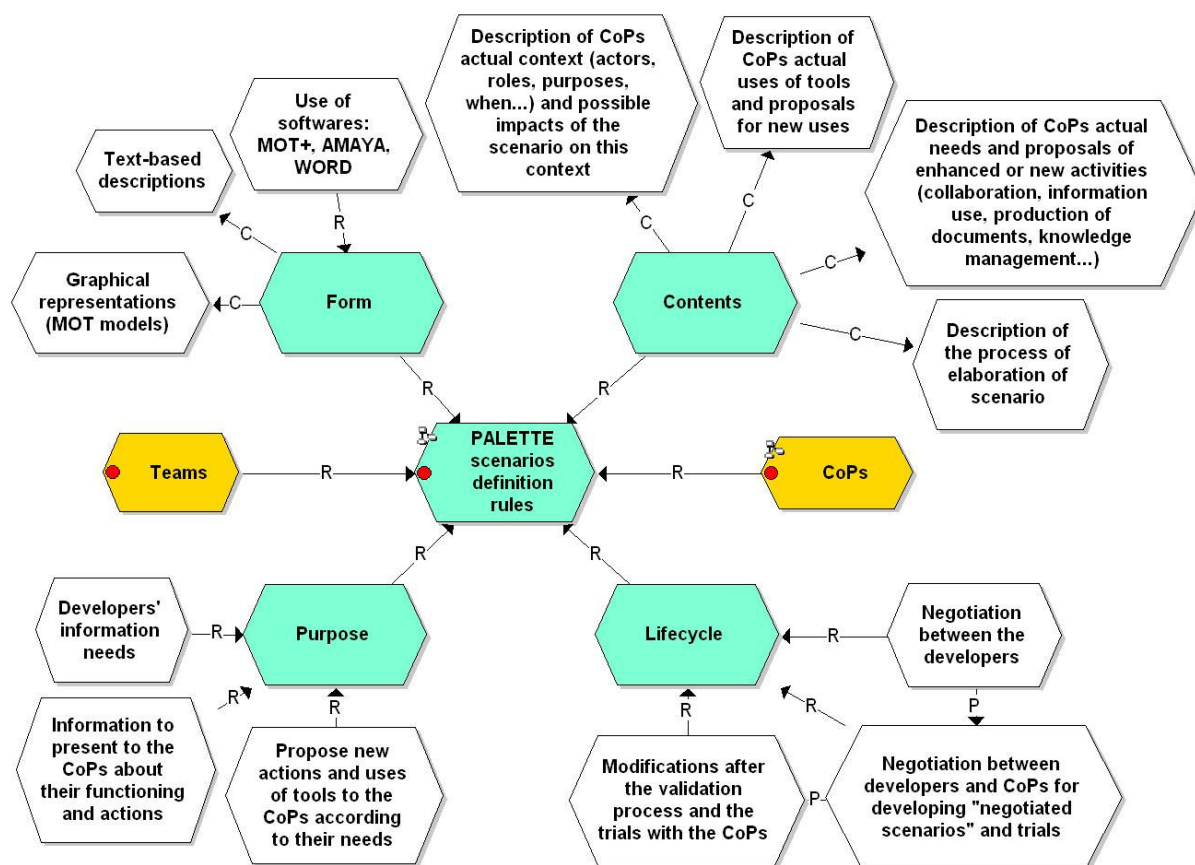
In the D.PAR.02, completed by D.IMP.03 and the WP1 report “Refinement and Instrumentation of the Participatory Design Methodology”, the notion of PALETTE scenario has been defined and described. We remind this definition with an excerpt from the WP1 report (published July 2007, p. 14):

- “The form of the scenarios is both graphical and text-based using graphical models and text editors such as MOT+, AMAYA or MSWord.
- The scenarios contents are composed of the actual CoPs’ context, uses of tools, and needs as well as a description of the process of elaboration itself. According to the needs and taking into account the actual CoPs’ context and uses of tools, the scenarios propose new activities and new uses of tools by the CoPs, and specify the possible impacts of the implementation of the scenario on the actual CoPs’ context and activities.
- The purpose of the scenarios are informed by three requests or needs: the developers’ information needs in order to develop Learning Services (LS) and Integrated Technological Services (ITS), the information about the actual CoPs’ functioning and actions to be presented in the scenarios, and the proposals of new actions and uses according to the CoPs’ needs.
- The scenarios have a life cycle characterized by ongoing negotiation within the Teams and between the developers and the CoPs, and by the fact that they are updated on an ongoing basis according to their validation and trials with the CoPs.”

The different elements of this definition are depicted in the figure below:



Figure 1 – The scenarios definition rules



In addition to this definition, the D.IMP.03 tells the difference between specific scenarios and generic scenarios: “In PALETTE we distinguish specific scenario (correspondent and answering the specific needs of a CoP) and generic one (answering similar needs of various CoPs, for instance to manage information)” (D.IMP.03, p. 5). This distinction is explained in section 2.2, Elaboration and validation of the processes.

Finally, in this report it is necessary to make a distinction between the terms *activity*, *action* and *operation* in the scenarios. According to Leont’ev (1978), the *activity* of an individual or a group aims at transforming the environment according to a motive:

“[...] the object of an activity is its true motive. It is understood that the motive may be either material or ideal, either present in perception or exclusively in the imagination or in thought. The main thing is that behind activity there should always be a need, that it should always answer one need or another.” (chapter 3).

So, typical CoP’s activities may be “to reify members’ professional practices”, “to discuss the responsibilities of each within the group” or “to share information about a professional domain”.

An *activity* is composed of *actions* that are often organised in chain and intends to achieve the object of the *activity*. As Leont’ev (1978) stated:

“Basic and “formulating” appear to be the actions that realize separate human activities. We call a process an action if it is subordinated to the representation of the result that must be attained, that is, if it is subordinated to a conscious purpose. Similarly, just as the concept of motive is related to the concept of activity, the concept of purpose is related to the concept of action.” (chapter 3).

Thus, the *actions* appear in order to concretely realize an *activity* and achieve its motive. Leont'ev (1978, chapter 3) adds: "Human activity does not exist except in the form of action or a chain of actions." For example, within a CoP, several *actions* may be set up in order to "reify members' professional practices": writing reports of discussions between the members, proposing to collectively describe aspects of practice in a common page, defining the members' practice into a glossary, etc. All these *actions* may be organised concurrently or in chain with several steps spread over time.

*Actions* are also divided in *operations* that correspond to practical, situated and automatic handlings of tools or machines in order to carry out the *actions*. Leont'ev (1978) stated:

"[...] in spite of its intentional aspect (what must be achieved), the action also has its operational aspect (how, by what means this can be achieved), which is determined not by the goal in itself but by the objective- object conditions of its achievement. In other words, the action being carried out is adequate to the task; the task then is a goal assigned in specific circumstances. For this reason the action has a specific quality that "formulates" it specifically, and particularly methods by which it is accomplished. I call the methods for accomplishing actions, operations. [...] Actions, as has already been said, are related to goals, operations to conditions." (chapter 3).

For example, each of the *actions* carried out by a CoP in order to "reify members' professional practice" can be supported by the use of a "mean" (object, tool, machine) situated in certain conditions. In order to achieve the *action* "defining the members' practice into a glossary", a CoP may choose to use a Wiki tool and organise its use by sharing tasks among members: some will train members to handle the tool; others will host the tool on a Web server, etc. More specific *operations* may even be specified: how to create a Wiki page, by whom and when, using a possible template, tagging the page with specific keywords, etc.

In the scenarios that are presented in the section 3, these three levels of the human activity are developed. However, in order to lighten the definition and description of the methodological processes in the section 2.2, the expressions *activity scenario* or simply *scenario* are used implying that a scenario is always composed of *activities*, *actions* and *operations*.

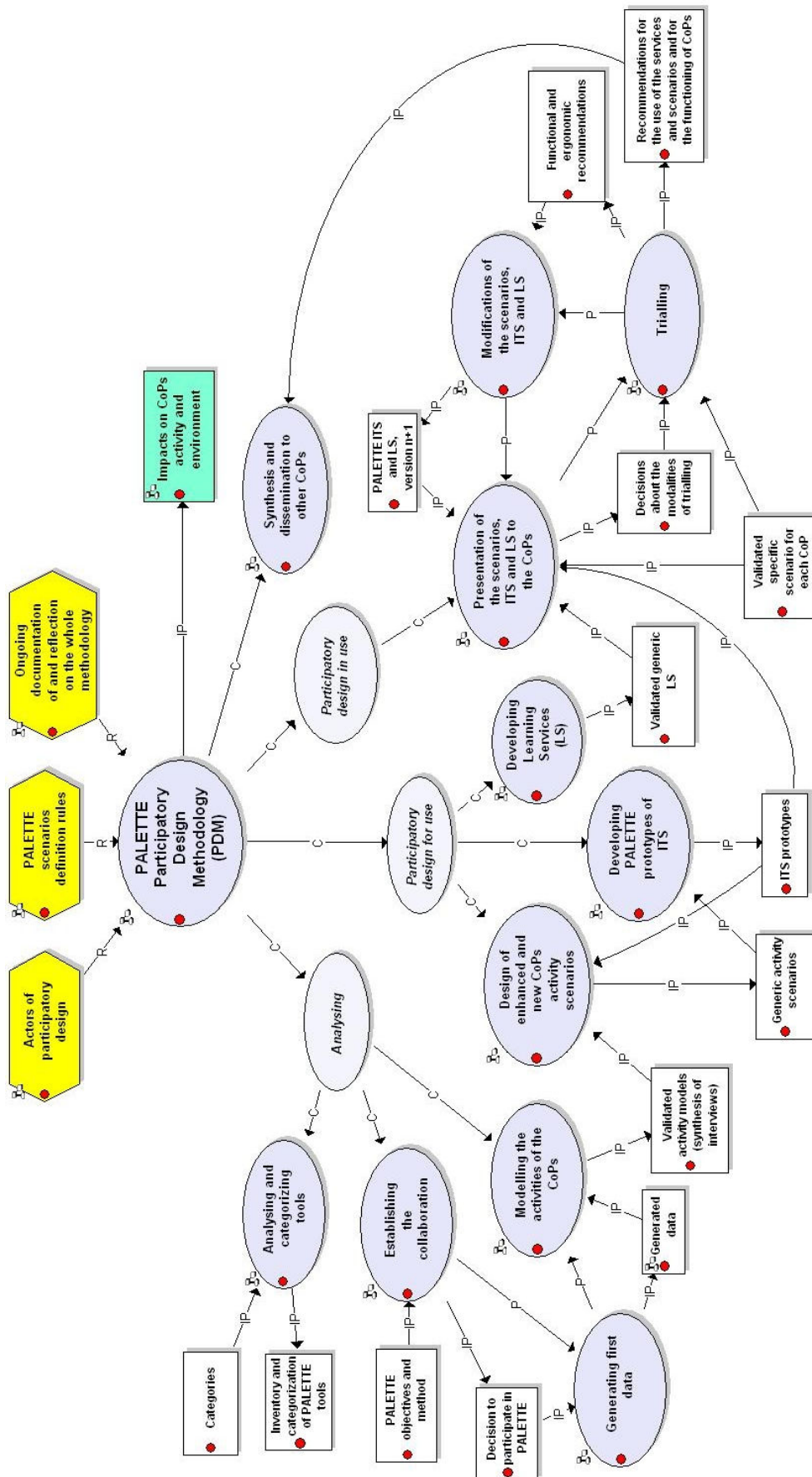
## 2.2 Elaboration and Validation Processes

In the PALETTE Participatory Design Methodology refined by the WP1, the processes of elaboration and validation of the scenarios take place in the "Participatory Design for Use" step. The expression "for use" has been chosen to put in contrast the next step named "Participatory Design in Use":

- "Participatory design for use" concerns the development of the Integrated Technological and Learning Services and related scenarios as well as the validation of the scenarios for each CoP and a reflection on the development of more generic activity scenarios.
- "Participatory design in use" relates to the ongoing development of services and scenarios while the CoPs trial them. The observation and analysis of these trials allow to continuously developing the services and scenarios.

In the figure below, one can notice that the design of the scenarios and the development of the Integrated Technological Services prototypes have been carried out together influencing each other. The activity scenarios are used by the developers in order to continuously refine the functional specifications of the services and the developed prototypes, and in return, their use in small activities by CoPs' members continuously informs the development of realistic scenarios. This work has been carried out by the Teams (see section 2.3, page 13) in which developers, mediators and CoPs' delegates are involved.

Figure 2 – The PALETTE Participatory Design Methodology



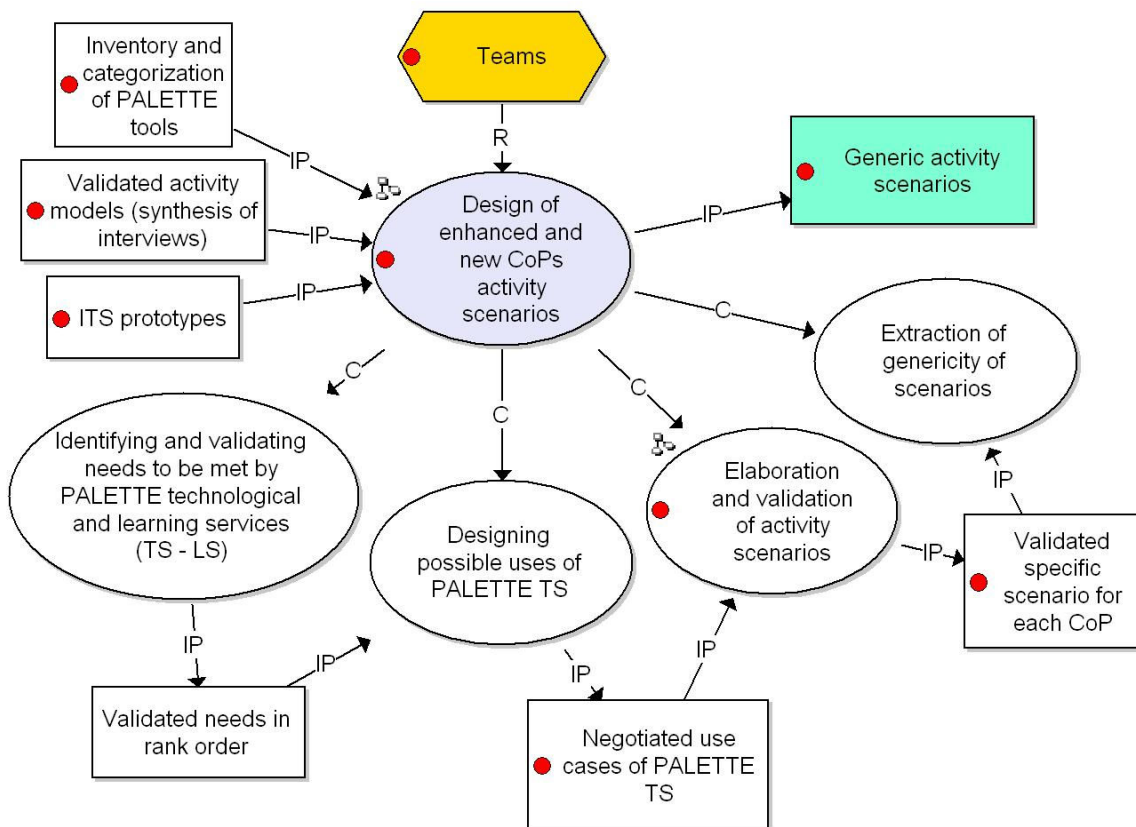
The elaboration of the scenarios takes place in a sub-process called “Design of enhanced and new CoPs activity scenarios” (figure 3). It is carried out by the Teams and it is informed by three inputs:

- The “inventory and categorization of PALETTE tools” that describes the basic functionalities of the tools developed by the PALETTE developers (see D.PAR.02);
- The “validated activity models (synthesis of interviews)”: i.e. the descriptions of the CoPs’ actual activities and functioning are described in these documents;
- The “Integrated Technological Services prototypes” that the mediators have started to handle and present to the CoPs’ delegates.

Four procedures follow one another:

1. The mediators suggested the needs of the CoPs through the validated synthesis and they discuss these needs with the CoPs’ delegates. The needs were then validated and listed in rank order.
2. On the basis of the list of validated needs, the developers designed possible uses of PALETTE tools in order to meet the needs. The use cases produced have then been discussed and validated by CoPs’ delegates or members.
3. On the basis of the first use cases, first scenarios have been designed by the Teams and validated by the CoPs. The outcome of this procedure was “validated specific scenario for each CoP”.
4. Finally the developers and the mediators read the specific scenarios trying to extract generic actions and proposed them to the CoPs. These scenarios are called “Generic activity scenarios” and can be submitted to several CoPs for validation.

**Figure 3 – Design of the PALETTE scenarios**



More precisely, the procedure of elaboration and validation of the specific scenarios can be described as follows (see figure 4). Informed by the Integrated Technological Services prototypes and the use cases, and carried out by the Teams, the procedure of elaboration and validation can be divided in three sub-procedures:

1. A first version of scenarios is produced by describing enhanced CoPs' activities and plausible "conceptual" integration of Technological Services. This description is informed by a common template (see appendix 1, page 53) and is based on the first use cases elaborated by the Teams in which the conditions of acceptability of the Technological Services by the CoPs and the competences required to use them were identified.
2. These first scenarios are validated on a larger basis (by a larger number of members) by the CoPs. This is done by:
  - a. Collecting data from the CoPs on the basis of validation criteria and indicators provided by the WP6 (D.EVA.02);
  - b. Analysing the technical feasibility of the scenarios in terms of available technology, development risk and human resource availability;
  - c. Analysing the usability of the PALETTE Technological Services.

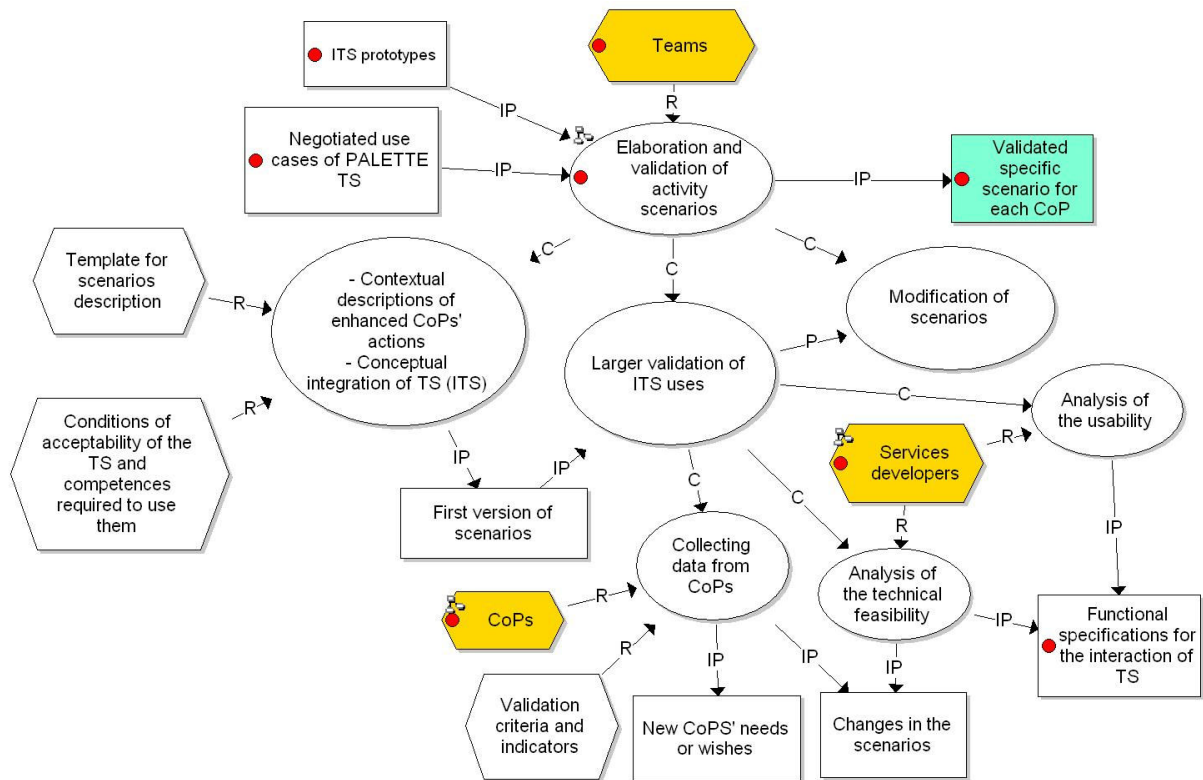
The sub-process 'a' is conducted by the Teams with the participation of CoPs' members while 'b' and 'c' are carried out by the services developers.

Three outcomes are produced here:

  - o New CoPs' needs and wishes are identified or not, and validated;
  - o Changes in the scenarios are proposed by the participants in the validation and by the developers in charge of the technical feasibility analysis;
  - o Adaptations in the interfaces and functional specifications of Technological Services are proposed by the developers in charge of the usability analysis in order to improve the services ergonomics and orchestration.
3. These three outcomes are used to modify the scenarios.

The final outcomes of all these processes are validated specific scenarios for each CoP. They will then be presented to the CoPs in order to begin their trials throughout the "Participatory Design in use" phase.

**Figure 4 – Elaboration and validation of the specific scenarios**



As stated in the introduction of this deliverable, the validation process is performed throughout the participation of the CoPs' delegates and members in the PALETTE Teams' activities. In the same sense, the "Larger validation of ITS uses" described here above and informed by formal criteria and

indicators also participates in the formative evaluation of the scenarios by a wider participation of CoPs' members. This evaluation relates to the actions to be performed with the PALETTE services and not to the quality of the texts of the scenarios or the interfaces of the services (see the validation questions in section 4).

### 2.3 The Actors Involved

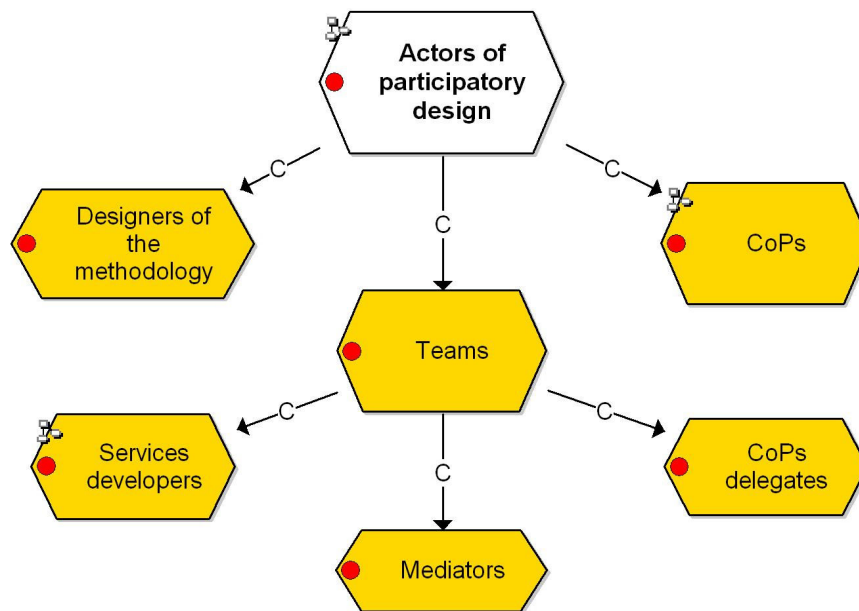
The main actor involved in the elaboration and validation of the scenarios is the Team. Currently there are three Teams in PALETTE that were formed within the WP5, and each one works with dedicated CoPs. According to the D.IMP.03 definitions (D.IMP.03, pp. 5-6), a Team is composed of:

- Services developers: PALETTE pedagogical or technological researchers involved in the development of Learning Services (LS) or Integrated Technological Services (ITS). They participate in the writing of the scenarios with the mediators and the CoPs' delegates and are more specifically in charge of the writing of functional specifications of the services. They possibly train CoPs' members if necessary for the use of the PALETTE services and can advise them about this use according to their needs.
- Mediators: PALETTE researchers who build a bridge between a CoP and some of the PALETTE services. They are key-actors in PALETTE as they know very well the activities and organization of the CoPs and are also able to understand the functions and possible uses of the services. On one hand, they are in close relationship with the CoPs, either through personal belonging, or with the CoP delegate, or with one or other group created in the CoPs to collaborate with PALETTE. On the other hand they participate in a Team to gain information on the services, be able to use them and, in the future, to possibly demonstrate them to the CoPs. They can be considered as "boundary actors" (Esnault, Zeiliger & Vermeulin, 2006) who play an active part in building and validating boundary objects such as the scenarios, the validating process for the scenarios, the functional specifications of the PALETTE services, and the specification of the necessary interactions between services.
- CoPs' delegates who are the representatives of their CoP towards PALETTE. They are the special interlocutors of the PALETTE partners (mediators, developers, researchers). They regularly give an account of PALETTE work to their CoP. The delegates can be a single person or a focus group.

The description of the Teams' work and responsibilities are detailed in D.IMP.03 section 3 "Methodology for Producing Functional Specifications and Scenarios".

The figure 5 below presents all the actors involved in the participatory design and among them, the Teams.

Figure 5 – Actors of Participatory Design Methodology



In addition, a specific role has been created among the PALETTE developers for the validation of scenarios: the validators. The validators are PALETTE researchers who are not directly involved in the writing of the scenarios. Their role, played during a limited period of time, is to act as external “critical friends” of the mediators. They assist them in the scenario validation process with the CoPs by preparing questionnaires, participating in meetings, and analysing the answers of the CoPs’ members to the questionnaires. They confront their view with the mediators about any issue concerning the development, implementation or validity of the scenarios. They also write an account synthesizing the members’ answers to questionnaires, discussing the results, and proposing actions and development trails for the scenarios. These validators’ accounts are presented in the section 4.

The CoPs’ members are involved in the project at different levels and for different activities, especially the formal validation of the scenarios. The first versions of the scenarios have been presented by the Teams to a larger group of CoPs’ members for validation. According to the organisation and structure of the CoPs, the larger groups may be all the members, a focus group, a team of delegates, etc. This will be described in detail for each CoP in the sections 3 and 4.

### 3 The Scenarios and Their Validation

#### 3.1 Six scenarios

In this section, validated specific scenarios are presented for six CoPs: ePrep, Did@cTIC, LEARN-NETT, Form@HETICE, @PRETIC and ADIRA. We adopted here the same format as the one that was used for their presentation and validation by the CoPs. For a brief description of these CoPs, the reader may refer to D.PAR.01. For a general overview of the PALETTE services used in the scenarios, the reader may refer to D.IMP.03: tables present the CoPs' generic needs and the related uses of PALETTE services.

In order to ease the reading of this deliverable, the scenarios are presented in appendix:

- for ePrep, on page 64;  
The ePrep CoP, gathering around 40 members from French-speaking countries, is devoted to the development of technology enhanced learning in “Classes préparatoires aux Grandes Écoles”. Arisen from the ePrep community of interest born in 2001, its creation, in 2006, has been inspired and facilitated by PALETTE.
- for Did@cTIC, on page 93;  
Did@cTIC organises CoPs of university teachers and lecturers involved in a staff development programme.
- for LEARN-NETT, on page 101;  
At first LEARN-NETT – Learning Network for Teachers and Trainers – gathered teachers and researchers in the field of educational technology from five Belgian universities. Their goals were to organise a computer-supported collaborative learning experience for future teachers. Since 1998 other universities joined the network that now covers Belgium, France and Switzerland.
- for Form@HETICE, on page 125;  
Form@HETICE is a network of Higher Education teachers of the French Community of Belgium addressing the integration of ICT in their educational practices.
- for @PRETIC, on page 132;  
@PRETIC is an association of Belgian teachers involved as resource-persons to support the uses of ICT in secondary schools.
- for ADIRA, on page 144.  
ADIRA is a professional association that regroups executives from medium and large companies in Rhône-Alpes (including Rhône-Alpes subsidiaries of large companies) in the IT area, both on users' side (mostly CIOs, but also General Managers) and on the suppliers' side.

In the appendixes, we have kept the initial numbering of titles, tables ad figures in order to present the scenarios as they have presented to the CoPs' delegates and members and discussed with them.

Other scenarios are currently under elaboration and validation for other CoPs: UX11, Doctoral Programme Lancaster, BADGE, Centre des Entrepreneurs, ARADEL and TFT. The table below briefly presents the steps reached for each of these CoPs so far.

**Table 2 – Step reached by the six other CoPs**

Name of the CoP	Domain	Country	Step reached (see figure 3 and figure 4 above)
UX11	Engineers (training)	F	Use cases
Doctoral Programme Lancaster	PhD students	UK	First version of scenarios
BADGE	Engineers (training)	F	Use cases
Centre des Entrepreneurs	Management	F	First version of scenarios
ARADEL	Management	F	First version of scenarios
TFT	Nurses	B	Use cases



In addition, as stated at the first PALETTE review, new CoPs from other domains are getting involved in PALETTE and the Teams are currently working with them in order to elaborate use cases and scenarios.

### 3.2 Validation Processes and Results<sup>1</sup>

The figure 4 in section 2 (page 12) presented the scenarios validation process. In order to be carried out with efficiency, the validation has been carefully planned with the Teams, especially the mediators, through common WP1, WP5 and WP6 meetings:

- A first face-to-face meeting has been organised in February 2007 in order to agree on the validation principles and strategies. The validation framework (see appendix 2, page 56) was presented and the mediators and potential validators agreed on the general process.
- A second face-to-face meeting was organised in March 2007. For each scenario, a first draft was prepared and discussed with the mediators and validators. More precisely, they “played” one scenario to point out their weaknesses and to improve them. The simulation of the scenarios helped the mediators and validators to organise formal validation with their CoP.
- A proposal for a common structure for the validators’ accounts was prepared in May 2007 (see appendix 3, page 63).
- A third face-to-face meeting was organised in June 2007 to clarify details pertaining to the writing of the scenarios and the validators’ accounts.

The 6 validation accounts are presented in the next sub-questions. The validation procedure with each CoP is detailed (actors, activities, questions of validation, etc.). Section 3.3 is devoted to the analysis of the technical feasibility of the scenarios. Section 3.4 presents the first outcomes of the analysis of the PALETTE tools usability.

#### 3.2.1 Validation of the ePrep scenario

##### Organisation and participants

ePrep members (be they coordinator of the CoP, “thematic referents”, or simple members) participated in the validation process together with the PALETTE Team (i.e. the CoP’s mediator, developers of SweetWiki, e-Logbook, Amaya and LimSee tools, and the validator) involved in the elaboration of the ePrep scenario. ePrep members and PALETTE Team participated in the validation over several formal or informal validation events, the main one being the Training Day on June 2, 2007 in Paris, where nine members (out of thirty) of the ePrep CoP were trained to SweetWiki, e-Logbook, Amaya and LimSee (one training session per tool); a series of validation questionnaires (one per “scenario-tool” couple, see below) were filled in by ePrep participants after the last training session.

##### Validation questions

The validation questions were constructed to take into account an important specificity of the ePrep scenario: *Each ePrep scenario was very soon associated with a PALETTE<sup>2</sup> tool by the mediator on the initiative of some members of the CoP; scenarios were hence elaborated as “interaction scenarios” or scenarios of use of a given tool to achieve given tasks.* As a consequence: (1) it is not the only scenario that ought to be validated, but the co-evolving couple “scenario&tool”; (2) for the validation we considered the meta-questions and criteria related to both scenarios and tools, and we consequently derived specific questions about both scenarios and tools. In the questionnaire, we also emphasized a crucial criterion: the *individual engagement* of the CoP’s members to realise the scenarios during the PALETTE project. Mutual engagement depending on “being included in what matters” (Wenger, 1998), it was important to identify what matters to the members of the CoP in order to see if what matters individually also matters collectively.

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<sup>1</sup> Before going through the validation accounts it is important to read the scenarios in appendix. Indeed the process of scenario elaboration, the content of the proposed activities and the description of the actors involved are detailed in the scenarios and important for the understanding of the validation accounts.

<sup>2</sup> “Wikiprépas” ↔ SweetWiki ; “Developing ePrep as a CoP” ↔ e-Logbook ; “ePrep francophone platform” ↔ Amaya ; “International cooperation with CPGEs and similar establishments” ↔ LimSee.

**Table 3 – Questions asked to the ePrep validation group**

	<b>Question topic</b>	<b>Question</b>
Q1	<i>Objectives of the scenario</i>	Can you shortly describe the objectives of the scenario underlying the presentation of the tool [SweetWiki   e-Logbook   Amaya   LimSee] (what is this scenario for)?
Q2	<i>Scenario/Needs appropriateness</i>	Do you think that this scenario meets your needs?
Q3	<i>Tool most appreciated feature</i>	What did you appreciate the most in the tool [SweetWiki   e-Logbook   Amaya   LimSee]?
Q4	<i>Tool less appreciated feature</i>	What did you appreciate the least?
Q5a	<i>Satisfied expectations regarding the tool</i>	Among the expectations you had about the tool [SweetWiki   e-Logbook   Amaya   LimSee] which ones have been satisfied? ...
Q5b	<i>Unsatisfied expectations regarding the tool</i>	... which ones have not been satisfied?
Q6	<i>Satisfaction with unexpected aspects of the tool</i>	Have you been satisfied by tool aspects you didn't expect?
Q7	<i>Planned usage of the tool</i>	Do you intend to use the tool afterwards?
Q8a	<i>Planned usage of the tool for realizing the scenario</i>	Do you intend to use the tool: (1) to realise the envisaged scenario?...
Q8b	<i>Planned usage of the tool for realizing other scenarios</i>	... or (2) to realise other scenarios (or tasks)?
Q9	<i>Scenario/Tool appropriateness</i>	Generally speaking, do you think that the tool [SweetWiki   e-Logbook   Amaya   LimSee] is adapted to the scenario [Wikiprépas   Developing ePrep   Francophone platform   International Cooperation]?
Q10	<i>Degree of realization of the scenario with the tool</i>	More precisely, do you think that the tool allows realising the scenario [Wikiprépas   Developing ePrep   Francophone platform   International Cooperation]?
Q11	<i>Adaptations to the tool for realizing the scenario</i>	According to you, which adaptation(s) are necessary to make to the tool (functionalities, interfaces, etc.) in order to better correspond to the scenario?
Q12	<i>Other tools for realizing the scenario completely</i>	Will you see other tools allowing realising the scenario more completely?
Q13	<i>Participation to the improvement of the tool</i>	If the tool [SweetWiki   e-Logbook   Amaya   LimSee] must be improved, will you accept to participate to its improvement?
Q14	<i>Participation mode</i>	In which form will you accept to participate to the improvement of the tool? (Several answers possible)
Q15	<i>Open commentaries</i>	Open commentaries

**Summary of the answers<sup>3</sup>****Table 4 – Answers to the questionnaire (ePrep validation group – 9 members)**

	<b>Question topic</b>	<b>Answer (summary)</b>
Q1	<i>Objectives of the scenario</i>	The scenario objectives are mainly understood the way they have been presented during the Training Day, i.e. an understanding close to the tools they are related to.

<sup>3</sup> Because the questionnaires concerning the couple <<“Developing ePrep as a CoP” ↔ e-Logbook> were not distributed during the Training Day, there is no answer available about this scenario-tool couple. The questionnaires will be distributed afterwards.

	<b>Question topic</b>	<b>Answer (summary)</b>
Q2	<i>Scenario/Needs appropriateness</i>	Scenarios correspond entirely or partially to the needs of the ePrep members. No CoP's member answered that they do not correspond at all.
Q3	<i>Tool most appreciated feature</i>	<ul style="list-style-type: none"> <li>• SweetWiki: its facility/simplicity of use, its “semantic side”.</li> <li>• Amaya: the richness of its functionalities, its HTML/MathML editor, the WYSIWYG aspect of its interface.</li> <li>• LimSee: its usefulness, its facility/simplicity of use, its interface.</li> </ul>
Q4	<i>Tool less appreciated feature</i>	<ul style="list-style-type: none"> <li>• SweetWiki: lack or limitations of its functionalities; lack of tool experience (the criticism here is on the user side).</li> <li>• Amaya: its difficulty of use; the complexity of its interface; the limitation of its mathematical functionalities; its unsuitability to disciplines other than the scientific disciplines.</li> <li>• LimSee: lack of video synchronisation; only in English.</li> </ul>
Q5a	<i>Satisfied expectations regarding the tool</i>	<ul style="list-style-type: none"> <li>• SweetWiki: its Wikipédia-like style; a tool simple for a community participating in the development of pedagogical contents.</li> <li>• Amaya: a tool to create pedagogical aids.</li> <li>• LimSee: —</li> </ul>
Q5b	<i>Unsatisfied expectations regarding the tool</i>	<ul style="list-style-type: none"> <li>• SweetWiki: —</li> <li>• Amaya: —</li> <li>• LimSee: to be able to modify a LimSee aid with Amaya.</li> </ul>
Q6	<i>Satisfaction with unexpected aspects of the tool</i>	<ul style="list-style-type: none"> <li>• SweetWiki: moving it up to Open Source will be one more asset.</li> <li>• Amaya: displaying the document structure; partially or globally modifying the document style.</li> <li>• LimSee: —</li> </ul>
Q7	<i>Planned usage of the tool</i>	<ul style="list-style-type: none"> <li>• SweetWiki: 5<sup>4</sup> “yes”; 1 “maybe”; 3 without opinion; not any “no”.</li> <li>• Amaya: 6 “yes”; 2 “maybe”; 1 without opinion; not any “no”.</li> <li>• LimSee: 1 “yes”; 8 without opinion; not any “maybe”; not any “no”.</li> </ul>
Q8a	<i>Planned usage of the tool for realizing the scenario</i>	<ul style="list-style-type: none"> <li>• SweetWiki: 3 “yes”; 6 without opinion.</li> <li>• Amaya: 1 “yes”; 1 “too soon to say it”; 7 without opinion.</li> <li>• LimSee: 1 “no”; 8 without opinion.</li> </ul>
Q8b	<i>Planned usage of the tool for realizing other scenarios</i>	<ul style="list-style-type: none"> <li>• SweetWiki: 3 “yes”; 1 “too soon to say it”; 5 without opinion.</li> <li>• Amaya: 4 “yes”; 1 “too soon to say it”; 4 without opinion.</li> <li>• LimSee: 1 “yes”; 8 without opinion.</li> </ul>
Q9	<i>Scenario/Tool appropriateness</i>	<ul style="list-style-type: none"> <li>• SweetWiki: 5 “yes”; 4 without opinion.</li> <li>• Amaya: 5 “yes”; 4 without opinion.</li> <li>• LimSee: 3 “yes”; 6 without opinion.</li> </ul>
Q10	<i>Degree of realization of the scenario with the tool</i>	<ul style="list-style-type: none"> <li>• SweetWiki: 3 “completely”; 6 without opinion; not any “not at all”.</li> <li>• Amaya: 1 “completely”; 1 “incompletely”; 7 without opinion; not any “not at all”.</li> <li>• LimSee: 1 “completely”; 8 without opinion; not any “not at all”.</li> </ul>

<sup>4</sup> Number of persons (out of 9) having answered to the corresponding questionnaire.

	<b>Question topic</b>	<b>Answer (summary)</b>
Q11	<i>Adaptations to the tool for realizing the scenario</i>	<ul style="list-style-type: none"> <li>• SweetWiki: personalisation (of image format).</li> <li>• Amaya: personalisation (of maths tables); starting from a “pedagogical document” DTD; importing LaTeX documents.</li> <li>• LimSee: —</li> </ul>
Q12	<i>Other tools for realizing the scenario completely<sup>5</sup></i>	<ul style="list-style-type: none"> <li>• SweetWiki: 1 “too soon to say it”; 3 “no”; 5 without opinion.</li> <li>• Amaya: 2 “yes” (Apple editor for teachers, OTESA, SCENARI); 1 “no”; 6 without opinion.</li> <li>• LimSee: 2 “yes” (Apple editor for teachers, OTESA, SCENARI); 1 “no”; 6 without opinion.</li> </ul>
Q13	<i>Participation to the improvement of the tool</i>	<ul style="list-style-type: none"> <li>• SweetWiki: 1 “yes”; 1 “no”; 7 without opinion.</li> <li>• Amaya: 3 “yes”; 3 “implicit yes”; 1 “no”; 2 without opinion.</li> <li>• LimSee: 1 “yes”; 2 “implicit yes”; 6 without opinion.</li> </ul>
Q14	<i>Participation mode</i>	<ul style="list-style-type: none"> <li>• SweetWiki: 3 “by suggesting modifications”; 2 “by testing new versions of the tool”; 1 “otherwise” (participation in debates); 3 without opinion.</li> <li>• Amaya: 3 “by suggesting modifications”; 3 “by testing new versions of the tool”; 3 without opinion.</li> <li>• LimSee: 2 “by suggesting modifications”; 2 “by testing new versions of the tool”; 5 without opinion.</li> </ul>
Q15	<i>Open commentaries</i>	<ul style="list-style-type: none"> <li>• SweetWiki: risks related to the multiplication of software with different formats; integrating the tool to existing tools (e.g. MAPLE); participating in the tool improvement if time availability.</li> <li>• Amaya: going towards simplicity of use; step-by-step tutorial; participating in the tool improvement if it evolves.</li> <li>• LimSee: impatience to get the tool; issue to deal with: the existence of similar tools.</li> </ul>

### Summary per indicator

*Preparation and expectations:* Globally the scenarios well reflect the main CoP’s objectives: the basic idea for each scenario comes from an identified need of the whole CoP or of a particular CoP’s member.

*Participation:* CoP’s members participated in the elaboration of scenarios as information sources or “needs providers”. They did not participate in the writing of the scenarios; scenarios were written by the mediator and the developers. However, the mediator being also the thematic referent for the scenario “Wikiprépas”, she was able to translate the CoP’s needs related to this scenario. Concerning the participation of the CoP’s members to supplementary actions such as gathering software documentation, developing software components, and developing further scenarios, the coordinator of the CoP will determine the possible future involvement of the members and the priority of each of these activities.

*Appropriation:* The members of the CoP did not yet adopt completely the scenarios (one of the reasons is that CoP’s members did not take part directly in the scenario writing; another reason is that they had not read all the scenarios in detail).

*Enabling of learning:* Among the four proposed scenarios, only one scenario concerns learning within the CoP; the three other scenarios concern learning within a broader community (which includes CPGE students, a category not being part of the CoP).

<sup>5</sup> Multiple responses were possible.

*Interoperability:* Except the interoperability between Amaya and LimSee (two tools designed by the same team), the interoperability between these tools and the two other ones (SweetWiki and e-Logbook) remains to establish. In any case, tool interoperability is asked by the members of the CoP.

*Usability:* SweetWiki and LimSee are perceived as simpler to use as Amaya.

*Acceptability: (Concerning the scenario.)* Even though the scenario is accepted formally by the CoP as an entity, its acceptance by the members of the CoP as individuals depends on a series of factors such as, for example, the degree of correspondence of the scenario with the real situation lived by a CoP's member (cf. the *Realism* indicator): the more the scenario reproduces characteristics of the real situation of a CoP's member (e.g. the actor of the scenario teaches the same discipline as the member of the CoP), the more this scenario is accepted by him (*concerning the tools*). The acceptance of the tools also depends on a series of individual factors such as: (a) the interoperability or integration of the tools; (b) the homogenisation of the formats; (c) the absence of similar tools; (d) some strong limitations of the existing tools.

*Commitment/Engagement:* Among participants in the Training Day, only a few were interested in participating in the implementation of the proposed scenarios. Several would prefer different scenarios<sup>6</sup> they proposed themselves (e.g., Using SweetWiki as an intranet for a working group). Among the reasons explaining the weak engagement of CoP's members' to date, one finds (a) CoP's members have still a surface knowledge of the scenarios; (b) they did not have enough time to participate actively.

### Discussion and further steps

*Actions towards a stronger participatory design: Acknowledging individual engagement to foster the emergence of mutual engagement emerge*

For participatory design to succeed, the *individual engagement* of design partners (especially here the engagement of the CoP's members) is necessary. We think that acknowledging individual engagement will help making *mutual engagement* to emerge. As Wenger stated, it is mutual engagement that effectively binds members together into a group, and leads them to achieve the group's joint enterprise (this joint enterprise being represented here by the scenario). Some members of ePrep are well engaged, others are about to engage, others did not decide yet on their engagement. To account for current engagement and to support the strengthening of future engagement, we suggest the following.

- *To confirm the participation of the CoP's members* other than the thematic referents *in the working groups around the specific activities* proposed in the scenario. Concretely, the confirmation could start with the organization of working groups including CoP's members formally involved or wishing to get involved and developers of the tools as shown in table 5. This table could be elaborated using the questionnaires where CoP's members expressed their will to participate. We could explicitly associate a "technical referent" to the "thematic referent". We see these groups as participative design groups.
- *To clarify the role of each participant in the design.* To fix the roles of the CoP's members in the groups, we can use the indications provided in the questionnaires, showing the kind of contribution to the improvement of tools ePrep members are ready to provide: suggesting modifications, testing new versions of the tools, taking part in debates, etc.

**Table 5 – Examples of ePrep working groups**

Working groups	Members	
	From ePrep	From PALETTE
Group "Wikiprépas" (SweetWiki)	Thematic referent (VLE) Active members (...) Interested members (LRE, MET, WFF)	SweetWiki developers (BFA, ELI)

<sup>6</sup> But some of these scenarios could be integrated into the envisaged scenarios.

Working groups	Members	
	From ePrep	From PALETTE
<i>Group “ePrep francophone platform” (Amaya)</i>	Thematic referent (DUT) Active members (...) Interested members (LRE, MET, WFF)	Amaya developers (VON, QNT)
<i>Group “International cooperation between CPGE and similar establishments” (LimSee)</i>	Thematic referent (GIER) Active members (...) Interested members (LRE, MET, WFF)	LimSee developer (MAC)

Moreover, we could also set up a complementary group on the generic activity “Developing ePrep as a CoP”, a group potentially including all the members of the CoP. This group could: (a) ensure coordination between developers and thematic referents in charge of the ePrep scenarios; (b) discuss the questions of tool interoperability and scenario interaction; (c) help increase collaboration between the developers of the different tools.

**Table 6 – Example of table of complementary group**

Complementary working group		Members	
		From ePrep	From PALETTE
<i>Group « Developing ePrep as a CoP » (e-Logbook)</i>	<i>Full Members</i>	CoP coordinator (VLE) Active members (...) Interested members (DER, ...)	e-Logbook developers (EOU, BGI)
	<i>Associate members for coordination aspects</i>	Thematic referents in charge of the three other scenarios	Developers of the three other PALETTE tools

#### *Actions for the development and implementation of the scenarios<sup>7</sup>*

- To determine the feasibility of each “scenario&tool” couple.
- To analyze what can be mutualized between scenarios.
- To reflect CoP members’ real activities more in the scenarios, e.g. by instantiating them using concrete examples provided by CoP’s members. This would require involving CoP’s members in the writing of the new versions of the scenarios.
- To elaborate and provide CoP’s members with a document describing more the scenario(s) from their point of view (the current document is mainly a document for the PALETTE members). This document may allow CoP’s members better appropriate their scenarios.
- To develop scenarios in connection with critical aspects of the tools, for example, the semantic aspect for SweetWiki.
- To unroll the scenarios “graphically”: translating the scenarios as textual documents into storyboards and mock-ups. This would help going from the models to the user graphical interface.

#### *Actions for the development of the services*

The answers to the questionnaires provided directions for future developments of the PALETTE services. Examples are:

- *SweetWiki*: to improve the organization of the tags; to add traditional Wiki functionalities; to include a function “Commenting a text without modifying it”; to integrate PowerPoint slides one by one; to import LaTeX documents; to improve the functions of mathematical text-

<sup>7</sup> Some of these actions would help manage constraints such as (1) CoP members’ request for tool interoperability, (2) lack of time of CoP members, (3) technical and scientific objectives of the developers.

editing; to integrate a button in the editor to download sound or video files easily (or to stick the source code of scripts coming from DailyMotion or Youtube).

- *E-Logbook*: see paragraph “Interoperability – Integration of different tools” in the ePrep scenario (appendix 4).
- *Amaya*: to simplify the interface; to improve graphical editing; to improve maths formulas; to include a “teaching document”-oriented DTD<sup>8</sup>; to personalize maths tables; to include a step-by-step tutorial; to import LaTeX documents.
- *LimSee*: to simplify video synchronization; to have a French version.
- *Interoperability – Tool integration*: to ensure the coherence of the data structures between tools; to integrate software like MAPLE or MATHEMATICA in the new tools; interoperability between Amaya and the SCENARI production chain; connecting Limsee to Audacity or the Tell software Me More (correction of the pronunciation by palatogram); interaction between LimSee and the Apple editor for teachers or OTESA.

Other actions to consider:

- To clarify collaboration between developers to cope with tool interoperability issues (CoP’s members have indicated interoperability requirements).
- To delegate development tasks to CoP’s members having computing competencies. We can rely on the CoP’s member who, during the Training Day, suggested reviewing the LaTeX-to-other-formats translators. We can also rely on the ePrep members interested in the semantic features of SweetWiki to go ahead with this important aspect of KM services.
- To determine what kind of engagement can be expected from CoP’s members and developers for each PALETTE tool currently envisaged, knowing that Amaya and SweetWiki are more advanced than LimSee, and that LimSee is more advanced than e-Logbook. This would imply reexamining the development goals and milestones: Must we, or can we, develop all the envisaged tools? Will not be it necessary to limit the development of some tools to specifications or to a mock-up?

*Information and training actions*

- In the questionnaires, some CoP’s members’ assertions seem inaccurate, for example: Amaya can’t be installed under Linux. Developers will be informed of these assertions and will be asked to verify them, and CoP’s members will be informed of the exact state of affairs.
- Online documentation: An important work has been already performed by developers to provide user-adapted online documentation. This work needs to be continued to satisfy the requests expressed in the questionnaires (e.g., a “step-by-step tutorial” for Amaya). Some CoP’s members could participate in this task.
- Specific documentation and training: the proposed tools having some specificity (e.g., the semantic aspects for SweetWiki), documentation and training focusing on these specificities are advised. The ePrep mediator recently provided such documentation and training. She edited and put online<sup>9</sup> a Wikiprépas quick help page for (a) convincing the ePrep members of the usefulness of a semantic Wiki and for (b) helping them to learn rapidly how to edit and tag Wiki pages.
- PALETTE training sessions: the PALETTE tools’ training sessions will be continued. A key event will be the second ePrep thematic workshop to be held in Lyon, France, on November 5 & 6, 2007, on “The ePrep CoP: which tools for which projects?”.

*Next validation steps*

- To deliver the validation account to CoP’s members and to developers for information and feedback.
- To submit the e-Logbook questionnaire to CoP’s members to collect their opinion about the tool and its corresponding scenario.

<sup>8</sup> A DTD or Document Type Definition/Declaration refers to the set of rules and properties to be satisfied by an XML (eXtensible Markup Language) document.

<sup>9</sup> <http://argentera.inria.fr:8080/wikiprepas/data/Main/AideRapide.jsp>



- To elaborate another validation questionnaire to be distributed to the participants of the second ePrep thematic workshop.
- From now on to the workshop, CoP's members will use the PALETTE tools. We will collect their comments and requests about these tools, and use them as data for an iterative validation.

### 3.2.2 Validation of the Did@cTIC scenario

#### Organisation and participants

The Did@cTIC scenario was elaborated in close collaboration with the CoP's members. Several spontaneous validation actions took place.

For the final and formal evaluation, a questionnaire was mailed.

#### Validation questions

Objectives of the scenario

1. Do you agree with this analysis and the formulation of the needs?
2. Do you agree with the goals?
3. Do the goals of the scenario correspond to the identified needs?

Proposed activities in the scenario

4. Do you understand the suggested activities?
5. Will other members of the CoP Did@cTIC understand them easily?
6. What types of learning outcomes the suggested activities will support in Did@cTIC and how?
7. Will the suggested "KM" activities (Knowledge Management) allow producing new knowledge or competences in the CoP Did@cTIC? Which ones? For whom?
8. In which circumstances will the suggested activities support social interaction in the CoP Did@cTIC?

Teaching and coordination

9. Will the suggested activities support the work of the teacher?
10. As a teacher, do you think it will be possible to implement the scenario?
11. Will the proposed activities support the work of the coordination team?
12. As a member of the coordination team, do you think it will be possible to implement the scenario?

Participation

13. How did you participate in the elaboration of the scenario?
14. Did you like the way you participated in the elaboration of the scenario?

Organisation of collaborative work to implement the scenario

15. Do you know with the scenario V3 the first steps-tasks of the implementation of the scenario?
16. Do you perceive well with the scenario V3 these first steps-tasks?
17. If not, please indicate the information to bring in the scenario to improve further the organisation of the implementation work.

#### Summary of the answers

*Objectives of the scenario and activities suggested:*

- Everybody agrees: the needs and the scenario are coherent.
- All agree that the activities are well understandable also by their fellows.
- The main profit is seen: i) in an enhancement of metacognitive activities such getting a distance and creating conceptual relations ii) in the fact that a whole cycle of information treatment cement of the competency of reflection iii) by stimulating socio-cognitive conflicts.
- Some are uncertain whether any change will occur.
- All agree that the coordination team will be supported by the scenario and that it may be put into practice.

- Critical point: The scenario must be shorter and better formulated. Some suggestions are in the full text.
- Decisions: A plan of the development process has been set up.

*Tutors and coordination:*

- The consensus is that the utility of the services and activities for the work of the tutors is given.
- Critical points: Needs good will.

*Participation:*

- The participation of the validators in the elaboration of the scenario happened in many different ways. Feelings are mixed.

### **Summary per indicators**

In the case of PALETTE this is very short. The scenario and its action are acceptable, understandable but much too long. It is feasible and coherent to the needs.

### **Discussion and further steps**

Development of the scenario:

- It must be shortened and the suggestions of the validators considering graphics and wording included.
- Globally, the scenario will evolve in function of the development of the services.

Development of the services:

- No particular message to the developers is formulated because the development of the scenario is already organised and launched
  - Organised: there are close contacts between the software developers and the CoP's members;
  - Launched: documents used for the CoP's activity were already given to the software developers to further develop and test the functions of the software's.

Organisation of the trials of the services:

- The Did@cTIC CoP is perhaps particular in the sense that only a very few persons are involved in the scenario and this makes the organisation of the trials quite simple with the foreseen steps as a beginning:
  - Documents of the CoP were given to the software developers. This will allow to generate templates and tags of documents through a versioning process and a close discussion between the software developers and the CoP's members;
  - Then the software developers will be able to test the interoperability of the two implied software's (DocReuse & LinkWidget);
  - Then the documents' repository will be discussed, implemented and tested through a close discussion between the software developers and the CoP's members.

### **3.2.3 Validation of the scenario for LEARN-NETT**

#### **Organisation and participants**

The validation of the LEARN-NETT scenarios was organized in the following steps.

1. Formation of a LEARN-NETT focus group (6 persons) with the LEARN-NETT coordinator and the delegate.
2. Online meeting to explain and discuss the scenario with the validation team and the developers (24 May)
3. Testing of the tools for 2 weeks, with a technical support provided by the developers via a Moodle forum
4. Questionnaire sent to the LEARN-NETT focus group (5 returned, one of them sent additional comments by email, two persons commented the scenario during the videoconference)

5. Discussion of the results and the further actions in a videoconference meeting with the delegate, the mediator and 4 members of the focus group. The coordinator of LEARN-NETT could not attend the meeting. (19 June)
6. Discussion of the meetings conclusions at an internal LEARN-NETT meeting. (21 June)

### Validation questions

#### Objectives of the scenario

1. Do you agree with the analysis and the formulation of the needs?
2. Do you agree with the goals?
3. Do the goals of the scenario correspond to the identified needs?

#### Activities suggested in the scenario

4. Do you understand the suggested activities?
5. Will other members of LEARN-NETT understand them?
6. Will the suggested Knowledge Management activities produce new knowledge or competences in LEARN-NETT? Which one? For whom?
7. In which circumstances will the suggested activities support social interaction in LEARN-NETT?

#### Tutors and coordination

8. Will the activities support the work of the tutors?
9. If you are a tutor: will the activities support your work?
10. If you are a tutor: will you be able to put the scenario into practice?
11. Will the activities support the work of the coordination team?
12. If you are part of the coordination team: will the scenario work in practice?

#### Participation

13. How did you participate in the elaboration of the scenario?
14. Did you like the way you participated in the elaboration of the scenario?

### Summary of the answers

#### *Objectives of the scenario and activities suggested*

Everybody agrees: the needs are to have a central platform (most important), the capitalisation of resources and the support of social interaction as augmented discussion.

Everybody agrees on the objective of the scenario: to introduce the use of services to capitalise knowledge and support the augmented discussion.

All agree that the activities are well understandable also by their fellows.

The main profit is seen in a better follow up of training sessions, a better access to the resources and better social interactions in the group of tutors, coordinators and participants. There is little hope to produce new knowledge.

Suggestions to further improvement of social interaction are better motivation and integration of people, better knowledge about the peers and tutors and the use of synchronous tools. It would be fine to have it in the central platform. However, it seems not possible to have an integrated platform with all the actual tools used: a teaching and learning platform and a Web-based videoconference platform.

#### Critical points

1. Some persons miss the CENTRA platform used for the first videoconference meeting.
2. Some warn from exaggerated multiplication of the platforms.
3. For all it is not clear for whom the scenario is written: for the tutors or the students.
4. Not for all is clear, when the activities will start.

5. Knowledge management in LEARN-NETT: not all is possible with the services because there is a lot of exchange by phone and in real sessions.
6. One need was to enhance the social relation between the people; the argumentation tool may be a too sophisticated answer.

#### Decisions

1. The scenario will be first applied by the tutors.
2. Start will be in October 2007
3. A synchronic discussion tool already used will be kept (decision made at the LEARN-NETT internal videoconference meeting on 21 June).
4. For further use the activities in the scenario shall be listed and attributed to specific actors.

#### *Tutors and coordination*

The consensus is that the utility of the services and activities for the work of the tutors depends on how easy the services are usable and whether the tutors will use it really.

#### Critical points:

- Will the tutors have enough time to learn to use the services?

#### Decisions

- We will try to use it in October (see above).

#### *Participation*

They agree that they have participated only on the periphery in the elaboration of the scenario, but once the scenarios presented they found them interesting. There is no need to go back to an earlier step.

#### **Summary per indicator**

In the case of LEARN-NETT this is very short: The scenario and its action are acceptable, understandable, feasible and coherent to the needs.

Per indicator this means: the preparation of the scenario has been based on the needs. This preparation was considered to reflect the view of the validators. The tools could be useful to attain the goals reflected in the needs.

One person feels that the scenarios, the activities and the services are too sophisticated given that the needs are simply to intensify the contacts between people.

- Usefulness: there is no unique or clear vision how LEARN-NETT would benefit from the services and the scenarios nor is there a strong idea that interaction between people will change.
- Acceptability: the acceptability seems to depend on the integration of the services in a platform or into the platform actually used.
- Enabling of learning: because the scenario was not perceived to be used by the students first, there was no specific answer.
- Participation was considered adequate.
- Enabling of knowledge building and reification: was considered to be realistic. There was some doubt whether enough effort could be put into it.
- Enabling of goals realization: with better access to documents and decision making procedures the goals of the tutors (coordination and managing the students) could be better attained.

## Discussion and follow up

### *Development of the scenario:*

It must be clear who the actors of the scenario are. If there are two groups in a CoP (tutors and students) and if they do not implement the scenario together, then two shorter scenarios shall be written. A table of the activities for each actor could be provided as well as the activities that should be organised at a distance *vs* face-to-face or synchronously *vs* asynchronously. For the moment, priority is given to the tutors' activities.

The scenarios should also describe the process of training (“people need to be trained for the activities and the services”) of the CoPs members to use the PALETTE tools: informal or formal, in group or individually, with specific activities or with free exploration, etc.

### *Development of the services:*

The added value of the services and even the main functionalities were not clear to everybody. This must be taken seriously. CoPs do not have much time to dive into complicated descriptions or have difficulty to handle prototypes. The quick guides or documentation for the services could be developed. In the scenarios, screenshots could be also added.

## 3.2.4 Validation of the scenario for Form@HETICE

### Organisation and participants

The validation process has been organized around meetings and discussions with CoP's members, the mediator of the CoP, developers of the service, and the validator. The validation was made for the part concerning the service BayFac. As explained in the scenario, the service Amaya is not meeting a present need for the CoP.

A first meeting has been organized in February 2007, with the mediator and the developers of BayFac, in order to present the functionalities of the service and the principle of operation of the Bayesian motor. During this meeting, no prototype was available, only some views of interface of the service were accessible. This meeting was intended to establish a first contact with the developers and to present the service.

A second meeting was organized in June 2007, to present the scenario of use of BayFac and the service itself to the core members of Form@HETICE.

The core members who attended this meeting are two of the four “Pérénisateurs” (persons making the CoP durable); they are invited to the validation because they are the most active members in the CoP, and will be the users of the service BayFac. A member of the developers' team was there in order to respond to the technical questions of the “Pérénisateurs”, the mediator of the CoP who makes the link between the technical partner and the CoP's members and the validator were attending this meeting.

This second meeting was planned around three activities:

- Presentation of the service BayFac to the “Pérénisateurs”,
- Presentation of the scenario to the “Pérénisateurs”,
- Discussions with the “Pérénisateurs” turned around the questions of validation presented below.

During the presentation of the service, the CoPs members attending the meeting began to ask questions and specifications on the service. This can show that they were interested in the service and its functionalities presented. At the end, the three activities were mixed.

A third meeting is planned in September 2007 to present a new version of the service, and to present it to peripheral members of the CoP, in addition to the core members. This third meeting aims at validating in a final way the part of the scenario concerning BayFac, and it could be considered as training to BayFac for the members of the CoP.

### Validation questions

The validation questions are inspired from the deliverable produced by the WP6, D.EVA.02 - The PALETTE Evaluation Toolset (see appendix page 56), but adapted to the context of the scenario of Form@HETICE.

The validation questions are classified in two categories by the validator:

- one part for the “Pérénisateurs”,
- the other part specific to the mediator.

Here below is the list of questions asked to the “Pérénisateurs”, sorted per indicator:

#### Preparation and expectations

1. Do the objectives of the scenario correspond to the needs identified by the CoP?
2. Are the activities presented in the scenario comprehensible?
3. Will the other members of the CoP understand them?

#### Enabling of learning

4. According to you, do these activities support learning within CoP? How?

#### Enabling of knowledge building and reification

5. Will the activities suggested in this scenario allow creating new knowledge? Which one? For who?

#### Utility

6. Will these activities allow increasing the exchanges within the CoP? To make the CoP more dynamic?
7. Will the activities suggested allow supporting the work of the “Pérénisateurs”?
8. Did these activities allow developing new competences?
9. According to you, which are the direct benefits of these activities for the CoP? For you?

#### Usability

10. Do you think it is necessary to have specific competences or knowledge to implement these activities?

#### Acceptability

11. As a “Pérénisateur”, are you ready to really implement these activities?

These questions were verbally asked to the “Pérénisateurs”; the validator discussed with them and oriented the discussion around these questions.

A written questionnaire has been sent to the mediator of the CoP. Here are the questions addressed in the questionnaire, sorted per indicator:

#### Preparation and expectations

1. Do you think that the different members who participate in the validation understood the objectives of the scenario?
2. Do these objectives correspond to the needs identified by the CoP?
3. According to you, are the activities suggested comprehensible for the other members of the CoP?

#### Participation

4. Do you have the feeling to be listened and understood by the developers?
5. How did you take part in the elaboration of the scenario?
6. Was the way in which you took part in the development and validation of the scenario appropriate to you?

#### Usability

7. Do you think it is necessary to have specific competences or knowledge to implement these activities?

#### **Summary of the answers**

During the validation meeting, we can have, in live, the reactions of CoP's members face to the service and the scenario.

The CoP's members are very interested in the service proposed, and they consider it as a mean to answer their classification need. They feel in adequacy with the activities proposed in the scenario. They perceived very early the benefit they could have from the use of this service. At the end of the meeting, they really want to be involved in development of the service for their CoP. However it remains technical issues to solve.

Since the need covered by the scenario corresponds to the need identified by the CoP, then the "Pérénisateurs" agree with the scenario, and validate it.

The mediator, who wrote in part the scenario, was inspired by his knowledge on the CoP and on the service. He participates in the validation meeting, both to make the link between the CoP's members and the PALETTE researchers, and from the point of view of a CoP's member. He could see that the service is not too complex to use, and that the scenario was realistic and correspond to a real need.

#### **Summary per indicator**

##### Preparation and expectations

The objectives of the scenario correspond to an urgent actual need of the CoP, which is to classify documents posted on the Web site. Activities presented in the scenario are clearly described and comprehensible for other members. The meeting planned in September will allow us to affirm that the activities are clear and comprehensible by the other members.

##### Enabling of learning

The service allows sorting documents, so it simplifies the search of documents, and consequently supporting learning in the CoP. In fact, the main problem of the CoP is the non use of the richness of the documents, because it was too hard to retrieve a document stored in the site. So resolving this problem by sorting and classify the documents as relevant as possible will able to fully exploit the documents base, and thus to support learning within the CoP.

##### Participation

The contact with the technical team is good; the mediator can discuss and ask for information easily. Until now, all the remarks and requests have been taken into account.

The participation of the mediator in the elaboration of the scenario was based on elements given by the developers for the service, and on his knowledge of the CoP. His role of point of contact between the CoP side and the technical side is well-done and useful to validate the scenario.

##### Enabling of knowledge building and reification

The activities presented in the scenario will permit to exploit in an efficient way the documents base of the CoP. By this way, it permits the creation of new knowledge, and to enhance exchanges between CoP's members.

##### Utility

The activities presented in the scenario could increase exchanges within the CoP, and make it more dynamic. The work of the "Pérénisateurs" is to make the CoP durable, and to make the CoP active. In a first time, increase the exchanges and facilitate the access to the documents are main activities to support the "Pérénisateurs" work.

### Usability

In order to implement correctly the activities presented in the scenario, it is necessary to have knowledge about the documents and about the CoP itself, in order to make a relevant classification. No specific competences are required to use the service, only to have access to the Web site.

### Acceptability

The “Pérénisateurs” attending the validation meeting are motivated to implement the activities; they propose to begin classifying the documents, dated of this year and to take part in the elaboration of relevant facets for BayFac.

### Discussion

As previously stated, the validation proceeded by discussions with the CoP’s members.

The future action for the short term is to use the BayFac prototype, in order to improve the facets, and to give feedbacks on its ergonomics.

During the summer, the CoP’s members are not very available. The developers will improve their service, taking into account the first remarks made by the “Pérénisateurs”, such as addition of new facets, reflect to have an easier access to the service, send a mail to the CoP’s members when a new document is classified...

Another meeting is planned in September 2007, with the CoP’s members and developers, to present the service BayFac and its new functionalities to other members.

The aim of this third meeting is to present BayFac to the whole of the CoP, and to show them how to use it. As this service is quite easy to use, a first session is organized. If a need of another session is identified, then a second session will be planned, according to the availability of the different participants.

The core team of Form@HETICE has to determine in which way the members could have access and use the service. In fact, CoP’s members will be designed to validate the classification made by the other members, in order to have a precise and relevant classification. Indeed access rights will be different according to the role of each member.

Concerning the development of the scenario, a second validation concerning the Amaya service remains to do. Amaya was presented to the CoP’s members, but it does not respond to an actual need of the CoP. So its integration in the CoP is delayed.

### 3.2.5 Validation of the scenario for @PRETIC

#### Organization and participants

- The validator read the documents produced by the mediator and discussed the CoP’s features with the him;
- The validator read both the scenarios critically, took notes on it and searched its weak or hard to understand parts;
- The validator then wrote two questionnaires, one about the Amaya scenario, one about the SweetWiki scenario, destined to CoP’s members;
- The validator invited CoP’s members for a meeting on June 19th, 2007;
- The meeting took place. The mediator and validator attended the meeting, as well as two CoP’s members. More were invited but the exams period in their school made it very difficult for them to be together at a same time, same place. Here is the sequence of events of the meeting:
  - The mediator made a brief summary of PALETTE work;
  - A full print of both scenarios was given to attending members;



- A reading/instant translation (from English to French) was made by the mediator (text in English, reading in French);
- His reading done, the mediator left the room in order not to interfere with the comments of CoP's members;
- The written questionnaire was filled by both the CoP's members;
- A session of discussion and debriefing between all parts involved took place;
- Notes were taken during this sessions;
- The validator wrote a synthesis of the meeting;
- The validator sorted his notes;
- The validator met the mediator. The synthesis and the notes were discussed, after what an exhaustive review of both the scenarios was done, focusing on weak or missing parts of the scenarios as well as what was to stay. The validator suggested both documents to be merged in one unified scenario.

### Validation questions

#### About both scenarios

- What is the perceived use of the scenarios?
- As core members of the CoP, you know it quite well. How would you evaluate the scenarios, relating to your own experience?
- Is the scenario coherent with the CoP's interests and concerns? If yes, how? If no, why?
- Are you personally involved in at least one of the scenarios? If yes, how? What do you think about it?
- Are there some scenario elements that surprised you? If so which one(s) and why?
- Are the scenarios feasible? What lead time would it take?

#### About Amaya

- Are you personally interested in working in the way described in this scenario?
- If yes, what uses would it have for you?
- If not, can you explain why?
- Have you actually used Amaya yet?
- If yes, could you describe its uses from your point of view in a few words?
- Do you have wishes, functionalities that Amaya could have to make it suit your needs better?
- How do you think that Amaya can help you actually (and your peers) in your day-to-day work as a resource person?

#### About SweetWiki

- Are you personally interested in working in the way described in this scenario?
- If yes, what uses would it have for you?
- If not, can you explain why?
- Have you actually used SweetWiki yet?
- If yes, could you describe its uses from your point of view in a few words?
- Do you have wishes, functionalities that SweetWiki could have to make it suit your needs better?
- How do you think that SweetWiki can help you actually (and your peers) in your day-to-day work as a resource person?

### Summary of the answers

Here is a list of what could improve the scenarios, merged from the answers, the discussion and the debriefing with the CoP:

- What has been proven to work should be emphasized, e.g., the mailing-list or a forum: they used a forum in the past but it vanished with the new CCM management (known as CGC - Cellule de Gestion Centralisée);
- There is a strong interest for a new service: a classic forum would help to make information emerge and replace the defunct official one;

- Recycled information should not be emphasized that much at that point. New questions should first be treated and then, in a second time, old treasures that are still relevant should be dug up;
- Teachers are not usually keen on asking questions publicly. The scenario should emphasize that asking question is a good thing and explain why;
- Teachers usually do not value information sharing. Making them change their minds is a hard process;
- The scenario should show why asking question and sharing information is a good thing and will actually reduce each CoP's member's workload (instead of increase it). Therefore, it should explain the pertinence of well written, standard compliant documents and the collaborative work they allow;
- The work done by the CoP should be more visible and become a way for the CoP's members to be acknowledged in their functions by their management and the government;
- This political acknowledgement seems one of the most important (if not the most important) *raison d'être* of the CoP;
- Both Amaya and SweetWiki would gain acceptance by being ergonomically levelled;
- The scenarios are already acceptable as they are, but only for people with a will to participate. They are coherent with the CoP's interests and concerns.

### Discussion

A first observation is that some 'science-fiction' aspects of the scenario should be watered down. For instance, the automatic ontology extractor, which was given a big role in the initial scenario, did not give worthy results. A more 'light' approach should be investigated, not only for the extractor part, but also in a transversal way.

The scenario would probably be more useful if it presented the CoP's past, present and future in a more focused way and with more humble but useful goals.

Being so ambitious, it was written in the first place with the promise of nearly-immediately available great, useful tools and services from the technical partners. It looks like most of them are late.

We can only hope that September '07 (M20) will give the CoP a working text editor within SweetWiki, which would replace Kupu, the editor it uses at the moment. The reason is that we have never seen Kupu working in a real production environment more than five solid minutes without a major error occurs. Technically, it should produce XHTML 1.1 documents to work as explained in the scenario (exchanges with other tools and services, such as Amaya). Another problem is SweetWiki ontology manager that differentiates it from the dozens of available Wiki engines, but is still in an alpha (as in not usable) stage.

In the same vein, the mediator chose to let the scenario be written 'as if' a brand new Amaya will be available in September 2007, as a result of developers' ergonomic work done on its interface.

The mediator let the scenario untouched for the parts using Kupu, SweetWiki ontology manager and Amaya interface, believing that the delay can still be reduced. But once again, if it is not fixed for September 2007, major problems will occur with the CoP, because most, if not all, @PRETIC members have stated at multiple times that they will not use the tools until they are fixed. They made this very clear every time the tools and services have been discussed.

The complexity of the scenario informed the organisation of the internal training for @PRETIC tools and services (to be held in Liège on October 8th and 9<sup>th</sup> 2007). Another scenario will be written, summarizing the official one and translating it in French (most of the CoP's members are not perfect English readers), using only the more 'realistic' parts of them. After a quick training to the tools and services used, the scenario will be played in real time and observations will be conducted about how the CoP deals with the softwares.

### 3.2.6 Validation of the scenario for ADIRA

#### Organisation and participants

- The “ADIRA CoPs’ workgroup” is composed of about 15 members of ADIRA. It is animated by the mediator for the PALETTE project.
- The main objective of this workgroup is to “foster the reflection about the interests for CoP(s) for ADIRA and for its members” (ADIRA members are professionals, who are, notably, interested in improving their professional activities).
- It secondly (and only secondly) aims at defining the appropriate tools for the development of CoPs in their companies or between the companies in their sector, and for ADIRA itself.

#### Specificities of the validation work with ADIRA

- The members of this group are not easily available. They have a professional activity which takes most of their time. The only possible moment to participate in the validation process is the periodic meeting of the group (about one each month, or about one month and half).
- The participants have no reason, at this moment, to use PALETTE services. The most important subject of the meetings, as said before, deals with what a CoP is, and what they should do to create and/or develop a CoP. They already use Web 2.0 services, and do not really see the interest of the PALETTE ones at this stage of their work in the group. The PALETTE tools seem, at this moment, to be more complicated, and not particularly well adapted to what they do (but some of them will be more usable soon). So, the ADIRA’s scenario is “activities centred” rather than “tools centred”.

#### Validation questions

- Does the context, described in the scenario, stick to reality (is there a good understanding of the functioning and objectives of the community?)?
- Are the chosen situations relevant, in this context?
- Is the scenario consistent?
- To what extent have the members of the community participated in the elaboration of the scenario?
- Is the scenario realistic?
  - Regarding technical skills of the community.
  - Regarding the actual uses of tools in the community.
- Is the scenario adaptable enough, to be easily modified and reused for other types of communities?

#### Validation process

- The successive versions of the scenario have been proposed by the mediator and the validator, and discussed during the monthly meetings of this workgroup. The group’s members have been involved in the process throughout the construction of the scenario, but the frequency of the meetings has limited the possibilities. The validation has been made, also, step by step. They have first validated the main principles and the description of the ADIRA activities, and secondly the situations described in the scenario. Third, the whole scenario has been validated during the last meeting, including what had appeared from the discussions.
- An ADIRA specific Wiki has been created with SweetWiki (this service being involved in the scenario), and tested by the ADIRA members, in a context corresponding to the scenario.

#### Summary of the answers

- Does the context, described in the scenario, stick to reality (is there a good understanding of the functioning and objectives of the community?)?

For this first point, the answer is clear: yes. Why? The mediator is herself a “core member” of ADIRA for a long time, and knows very well this community, and the person who animates, and organises the association accepts easily to discuss and explain many useful points.

- Are the chosen situations relevant, in this context?

The members of the group agreed on these situations, which seem to focus on the important points, even if they are, maybe, not very precise (but it, thus, make them more adaptable).

- Is the scenario consistent?

The scenario seems consistent to the participants, particularly the aspects concerning the way an ADIRA workgroup uses and produces knowledge.

- To what extent have the members of the community participated in the elaboration of the scenario?

The participation has been limited by the practical possibilities, but the members feel implicated, and consider that this was an important element of the work on the scenario.

- Is the scenario realistic?
  - Regarding technical skills of the community.

The members of the community have, generally, a very good technical level (it is a part of their job). They can easily switch from a tool to another.

- Regarding the actual uses of tools in the community.

We have to split this question into two parts: for the professional use by the participants, and by ADIRA community itself (but ADIRA is a link between these professionals). For the participants and the communities they intend to develop, it is an issue, because there is a competition between PALETTE services, and more “user friendly” tools, and because they sometimes already use and/or test some other services. For ADIRA, it is different: there is a utility for CoPe\_it!, SweetWiki and e-Logbook. These tools could offer to the community new possibilities (even if it is not exactly related to some “needs”), that the participants find interesting. But, it is not sure that they will be adopted.

- Is the scenario adaptable enough, to be easily modified and reused for other types of communities?

The scenario can be easily used with any community involving this sort of organization (small workgroups producing and reifying knowledge, etc.). It could, for example, be useful for ARADEL.

### **Discussion, further work**

- CoPe\_it! and e-Logbook will be presented soon, and, if possible (it is not sure, due to the lack of time of the participants), tested by the participants in “real” situations.
- Another group, which is, in itself, a beginning CoP (the “IS town planners group”) could be more implicated. A member of this group has already participated in the meetings of the “CoPs workgroup”.
- A member of the group has the opportunity to participate in the creation of a CoP in his company. It will be possible to examine the beginning and the development of this new CoP, what will be an interesting activity for the group. And maybe it will be possible to argue about this case with CoPe\_it!, for example.

### 3.3 Feasibility of Scenarios

This section comments on the feasibility of the PALETTE scenarios. We notice that the comments below are solely based on the descriptions of the validated scenarios.

The feasibility analysis of the scenarios takes into consideration the following issues:

- Technology: Do the PALETTE tools provide the necessary technology and functionalities that will support the scenarios?
- Development risk: In case new functionalities or changes of existing functionalities are required, can they be designed and implemented so that the necessary functionality and performance are achieved within the given constraints?
- Resource availability: Is the staff competent and available to make these modifications and changes?

These dimensions are usually used in Computer Science projects (see Pressman, 2000).

#### 3.3.1 Technology

All the services developed or extended in the context of the PALETTE project provide the necessary technologies to support the outlined scenarios to a great extent. The observation is based on the following facts, as they emerge from the scenarios:

- The CoPs are aware of all PALETTE services and the domain of their use has been well understood. The scenarios indicate that the CoPs have an overview of which tools are available within the PALETTE project and what their objectives are.
- The main functionalities provided by each tool are known to CoPs. Crucial functionalities of each tool has been assessed by the CoPs as it is indicated by preliminary uses of each tools and documented in the scenarios.
- Each tool has been associated with CoPs' processes and tasks. The alignment of needs, as they surface from the analysis of the scenarios to individual tools – in order to address particular needs – looks valid and convincing.
- PALETTE service integration. The framework upon which the interaction of PALETTE services is conceived and outlined in deliverable D.IMP.03 seems to be addressing most of the needs of CoPs.

Nevertheless, as the preliminary experience with individual tools suggests, some issues are raised that need to be carefully addressed by future releases of the tools:

- User interface: Initial feedback suggests that current ways of interacting with some systems is awkward, not very convenient and not obvious (e.g. adding documents in CoPe\_it!). Moreover, some tools present an interface that is aimed for expert users rather than casual users (e.g. Amaya editor).
- Language support: Some tools do not properly support languages other than English (e.g. French accented characters).
- Augmenting existing metadata: The scenarios indicate that additional explicit metadata needs to be made available in some tools.
- Capabilities of tools: The scenarios mention that although some tools provide the necessary functionalities, they either do not cover all required cases or cannot be used to cope with some requirements of the CoPs (e.g. the issues concerning the production of valid mark-up with SweetWiki Kupu editor).

A last comment is that some scenarios refer to needs that are currently covered very well by market solutions or open-source software and are widely used by communities (such as the use of forums).

### **3.3.2 Development risk**

The development risk of the required modifications mentioned in the previous section is low due to the following reasons:

- Participatory design process. The design approach taken by the project can help elucidate requirements quickly and effortlessly permitting quick estimation of the associated cost.
- Rapid prototyping. The prototyping approach adopted by the project ensures valuable feedback of CoPs in time.
- Incremental refinement of tools. Changes in tools are incrementally introduced contributing to a smooth execution of the development plan where the impact of changes to the work plan can be assessed and foreseen.

### **3.3.3 Resource availability**

As of today, there is no indication that suggests serious implications with respect to competences and availabilities of the resources required to steer the development of tools.

### 3.4 Usability of PALETTE Services

Good scenarios including use of ICT are not systematically playable without any particular attention. They call upon PALETTE services whose acceptance is related to the evaluation of different concepts we mentioned in D.IMP.03. One of these concepts is the usability of the services interface. It could appear like a minor point to respect but it is not. The interface is the artefact the user directly interacts with. If the interaction is not natural, intuitive, spontaneous, it becomes of utmost importance against the scenario increasing the working and cognitive charge of the user. So, to examine watchfully the interface and send feedback to the developers of the PALETTE services are tasks to lead. It should be a shame if some relevant scenarios were left by CoPs' members only because no care had been brought in the building of the services interface.

Usability analysis is ongoing (cf. task 7 of the WP1). Up to now, three services or tools are considered: Amaya, SweetWiki and LimSee3. Reports have been sent to the developers and improvement of the interfaces is under way. Others will be examined very soon and be reported in details in D.PAR.04.

#### 3.4.1 Description of the process

Usability analysis may be carried out either by a cross-section of users concerned by the task or by expert users using particular inspection techniques (Tricot *et al.*, 2003). In the first case, evaluation may be qualified as "empiric". Observation made by the users has to be validated with a more important number between them. We partially did that because we could get information from different groups of users. Indeed, some CoPs' members tried to use PALETTE services supported by mediators or sometimes by the developers themselves. So they could get feedback we used to mainly make some cross checking with the results of the second evaluation technique.

In the second case we can speak about "heuristic evaluation" based on an analytic method. That is why this kind of evaluation is also called "expert evaluation". Because of the existence of many available references (ergonomic criteria, interface standards, design rules, etc.), it needs a very short number of evaluators (two or three) to provide good results. It can be included in an iterative process. Observed problems can be balanced. This way of working has been and goes on to be the core of our usability analysis process. This section presents more details about this process.

A team of inspectors (two to four people, until now) deeply analyses a given service or tool. A first part of the analysis is based on the presumed task and a related list of relevant user's goals. For instance, using Amaya in a document edition purpose (the task), a user wants to cut and paste a text block including some links from one page to another (the goal). Inspectors try to carry out such a goal and identify potential problems. The analysis is completed by a more direct and systematic examination of the interface (Nogier, 2005). As an example, a menu may contain too many controls.

Analysis grids used by the inspectors will be deeply detailed in D.PAR.04.

As it has already been said, results are gathered with information coming from CoPs' members through the design and the future trial of some scenarios (see examples in the next section).

Concrete documents are established and namely: a detailed list of the problems identified and a synthesis focusing on the global points to improve. The list is a working document (see below) helping inspectors and developers to find agreements and solutions. It includes all the identified problems. Each problem is shortly described. It is linked to one or more ergonomic criteria (guidance, working charge, compatibility, etc. (Bastien & Scapin, 2000)) and/or to a too long distance between a defined goal of the user and its carrying out through the interface. Solutions are suggested and the names of the inspectors are added to help recovering the authors. Here is an example.

**Description**

The link 'Version pages' opens a page with a table whose results are not listed in a chronological order (see dates below). Notice that dates seems to be something different that dates...

Version	Date	
<b>PriveHome</b>	current version	
<b>PriveHome10</b>	2007-3-4	restore
<b>PriveHome9</b>	2007-3-3	restore
<b>PriveHome8</b>	2007-3-4	restore
<b>PriveHome7</b>	2007-3-4	restore
<b>PriveHome6</b>	2007-3-2	restore
<b>PriveHome5</b>	2007-3-4	restore
<b>PriveHome4</b>	2007-3-2	restore
<b>PriveHome3</b>	2007-3-4	restore
<b>PriveHome2</b>	2007-3-2	restore
<b>PriveHome1</b>	2007-3-1	restore
<b>PriveHome0</b>	2007-3-2	restore

**Suggestion(s)**

- To list the version in a chronological order
- (Otherwise,) if logic exists, to explain it
- To add the hour and the name of the author

**Reference(s)**

Prompting

**Main goal(s)**

To recover a previous version

**Initials**

RP, ML, EV

**3.4.2 Feedbacks from CoPs**

Before trying and validating the scenarios, CoPs' members experimented the tools and service in more simple ways like debating with CoPe\_it!, editing a document with Amaya, creating a personal web page with SweetWiki, etc. Evidently, their first comments were on usability rather than thinking about possible scenarios. A large part of these comments have been confirmed by the ergonomic analysis. Here are some examples. Notice that we do not mention comments about utility which were also numerous.

*Amaya*

"I tried to insert an image in a Web page. The image was particularly large and Amaya did not succeed in displaying it."



“After having inserted a table in a page, I tried to enlarge the columns but that did not work.”

“A lot of icons and controls in the menus do not mean anything for me. I do not understand for what kind of action they must be used.”

“When I want to insert an image in a page, I do not understand why I must provide an additional text. I must not do that when I insert an image in a document created with a word processing program.”

This last comment, for instance, shows how users are disturbed by all the implicit and explicit references to the HTML language.

#### *CoPe\_it!*

“...this arrow is black, because the user wanted it neutral or because he didn't know which colour to use?”

“From a user point of view, after a first activity of the LEARN-NETT focus group, CoPe\_it! seems easy to use but not intuitive: the different functions must be used in a not usual way (double click for creating objects, way to create links or to update descriptions of objects, etc.). This means the quick guide is absolutely essential for the users to enter the tool. Another very blocking problem is the fact that CoPe\_it! does not support the French accents.”

#### *SweetWiki*

“From a user point of view, the LEARN-NETT focus group has tested SweetWiki. A first little evaluation highlighted a problem with the management of colours and the creation of webs.”

“I would like to delete a page I have just uselessly created but I do not know how to do?”

“I would like to rename a page but I do not found the control.”

### **3.4.3 Feedback from inspectors and developers**

For months, contacts between developers and inspectors are frequent (face to face meetings, video or audioconferences, etc.). They aim at building (e.g. LimSee3), rebuilding (e.g. Amaya) or improving (e.g. SweetWiki) the interface. The case of LimSee3 is particular, because the last version of the tool is developed from scratch. It is interesting that the developers and inspectors cooperate for the design of its interface identifying *a priori* the task and the goals and being aware of general guidelines trying to standardize the overall PALETTE service.

Globally we may say that developers are fairly ready to hear comments about their service(s). After having received the report, they take the initiative to ask for a discussion. When speaking about a problem identified, usually they try, in an early time, to justify their choices rather than directly accept a change suggested. Of course, they do not want to make changes if they are not sure these are really necessary. So, they sometimes go on describing how users should do avoiding examining how they naturally proceed. But when they understand that users will leave their service if the interface does not work like they want, they often accept a change. On the other hand, they can describe from a developer point of view the difficulty level to make a change. And that allows inspectors balancing correctly the problem. It happens that a change is not so important considering the development effort to be produced. So, the discussion acts as a regulation process, a kind of negotiation whose users should be the winners.

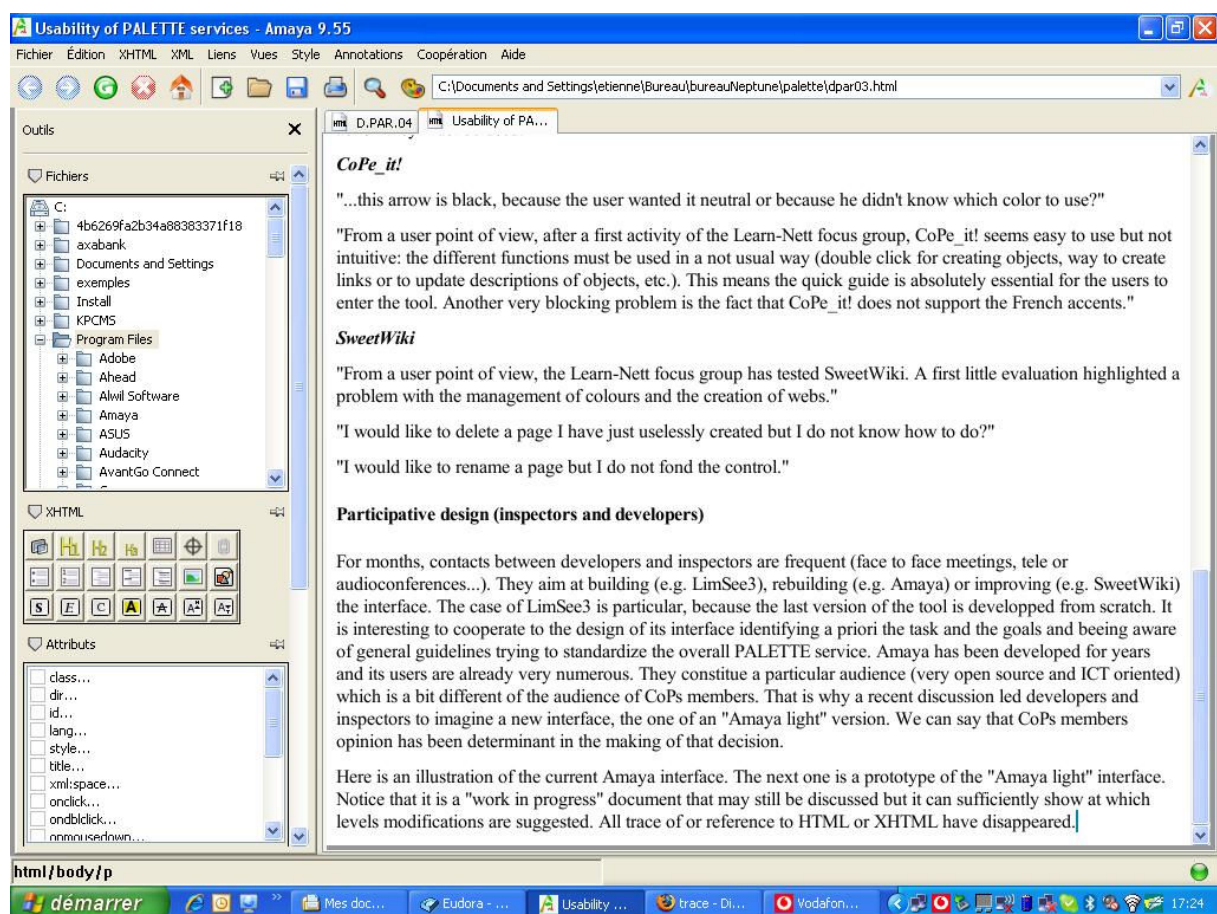
Arguing may also appear when an existing service should be improved and adapted to the PALETTE CoPs' audience. Developers argue that 'old' users outside the PALETTE community will maybe not appreciate the changes because they are accustomed to the present imperfect interface. So, they can refuse to alter their service with some specific changes. If changes are numerous (like in Amaya), the design of a new simplified version seems to be the only solution.

Previous remarks are related to usability choices. But sometimes, arguing concerns both usability and usefulness. Some services are built on principles and rules. They often aim at encouraging innovative practice. In that case, the opinion of the user is not always relevant. Developers insist on these particular points. For instance, a Wiki will not provide the user with the opportunity to delete a created page, because a Wiki is a collaboration tool that does not allow irreversible interventions. However, many users ask for such functionality. Intermediate solutions can be found and negotiated like a trash system without any possibility to empty the trash, for instance. This is another example of what can be collaboration between users, developers and inspectors.

For example, Amaya has been developed for years and its users are already very numerous. They constitute a particular audience (very Open Source and ICT oriented) which is a bit different of the audience of CoPs' members. That is why a recent discussion led developers and inspectors to imagine a new interface, the one of an "Amaya light" version. We can say that CoPs' members' opinion has been determinant in the making of that decision.

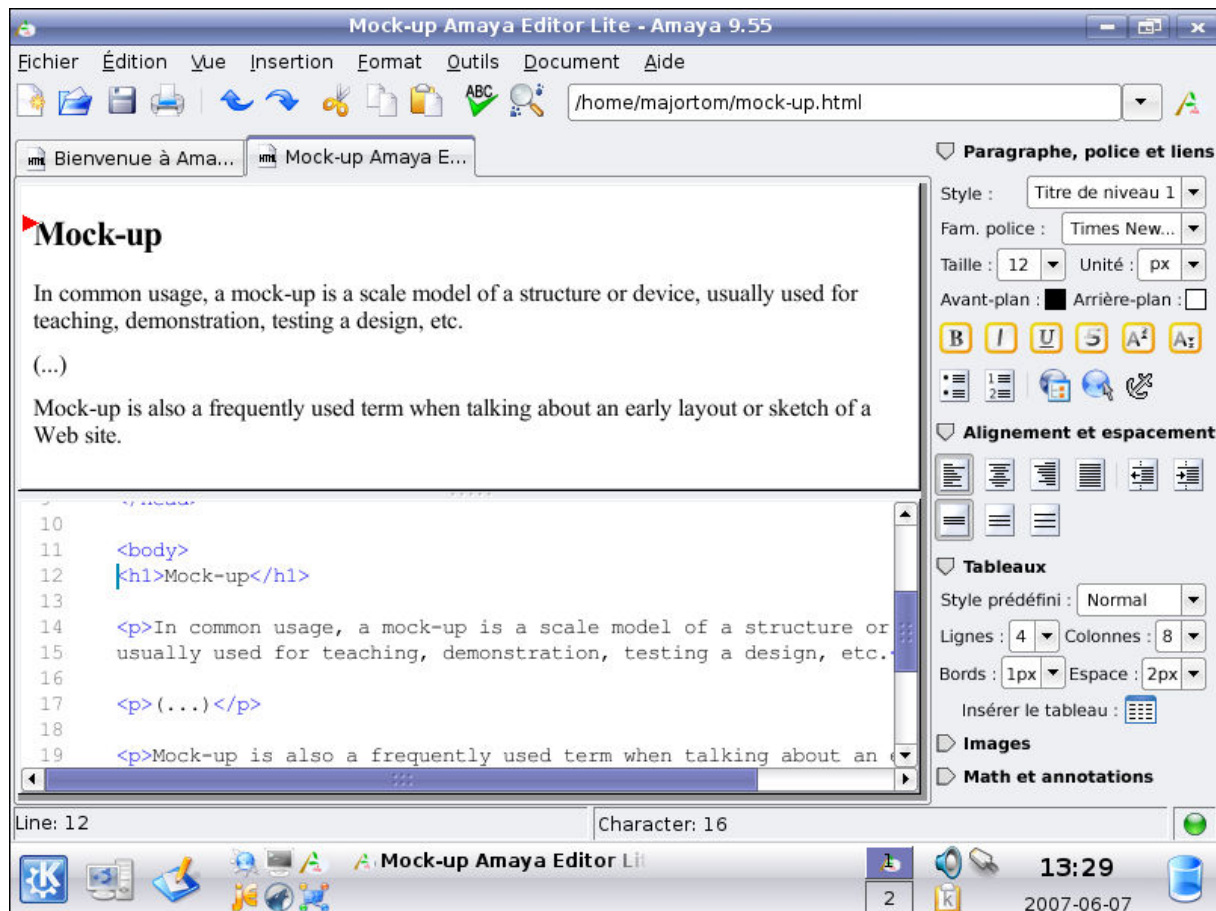
Figure 6 is an illustration of the current Amaya interface.

**Figure 6 – Amaya 9.55 interface**



The next figure is a prototype of the "Amaya light" interface. Notice that it is a "work in progress" document that may still be discussed but it can sufficiently show at which levels modifications are suggested. All trace of or references to HTML or XHTML have disappeared.

Figure 7 – Project of interface for Amaya light



Of course, such a transformation of the service interface is rarely necessary. As an example, the interface of SweetWiki has not been the subject of such important changes.

So we must admit that the first trials of the services, preliminary to the validation of the scenarios led to a series of first comments from the CoPs' members. These comments have confirmed part of what the inspectors carrying out the ergonomic analysis have identified like usability problems. By trialling the scenarios, CoPs' members will surely provide the mediators (and owing to them the inspectors) with supplementary problems that will be taken into account in a second feedback.

## 4 Discussion about the Scenarios and Their Validation

The purpose of this section is to carry out a transversal reading of the scenarios and their validation. This aims at:

- Reporting on the participation of the CoPs' members and delegates as well as the PALETTE developers in the elaboration and validation of the scenarios. As our methodology is based on participation, it is interesting to assess this important aspect of the collaboration with the CoPs.
- Paving the way for designing "generic scenarios". On the basis of the analysis of CoPs' needs provided in D.IMP.03, we analyse the scenarios in order to highlight common activities proposed to different CoPs. This prepares the Teams' work for the next months.
- Paving the way for designing Learning Services for CoPs. From the validation of the scenarios, we depict what Learning Services could look like. This prepares the WP1 works towards the development of these specific services.

### 4.1 Living through the collaborative elaboration and validation of scenarios

In this section we give a brief account about the implementation of the Participatory Design Methodology. In the validation section the indicator "participation" has already given accounts from CoPs' participants. In some cases (for example ePrep, LEARN-NETT, Did@cTIC), delegates of the CoPs have taken a major role in the elaboration and even the writing of the scenarios.

The degree of participation varied from one CoP to another:

- LEARN-NETT: the delegate participated in the elaboration of the scenario and afterwards, a focus group has been formed for testing two PALETTE tools and validating the scenario.
- ePrep: (from the validator's account) "CoP's members participated in the elaboration of scenarios as information sources or "needs providers". They did not participate in the writing of the scenarios; scenarios were written by the mediator and the developers."
- Form@HETICE: the mediator played a major role between the developers and the CoPs' delegates. "The participation of the mediator in the elaboration of the scenario was based on elements given by the developers for the service, and on his knowledge of the CoP." (from the validator's account).
- ADIRA: (from the validator's account) "The participation has been limited by the practical possibilities, but the members feel implicated, and consider that this was an important element of the work on the scenario."

However, in all the cases, members are volunteers to get more involved in the collaborative and participative process, but not necessarily towards the proposed scenarios. For example:

- ePrep: (from the validator's account) "Among the people having taken part in the "Training Day", not many of them still claim to want to engage on the envisaged scenarios. They are more to claim to engage on other or "external" scenarios (but some of these scenarios could be integrated into the envisaged scenarios). Among the reasons explaining this weak CoP's members' engagement to date, are: (a) CoP's members have still a surface knowledge of the scenarios and services; (b) they do not have enough time to participate actively."

In this particular case, the validation process shows its usefulness. The members have received proposals of activities and an overview of the tools; their answers clearly orient the next steps towards more realistic activities.

A close collaboration between the mediators and one or several CoPs' delegates is a key factor for elaborating a realistic scenario that meets the CoPs' identified needs. However, the participation of the services developers is also seen as very important through the presentation of the tools or their advice for developing new activities or uses for the CoPs.

- Form@HETICE: (from the validator's account) "The CoP's members are very interested in the service proposed, and they consider it as a mean to answer their classification need."
- ePrep: the organisation of the Training Day has been very useful and interesting for the CoP's members.

From the developers' point of view, D.EVA.03 has provided useful information about their vision of the implementation of the Participatory Design Methodology, especially about their collaboration with the CoPs. The quotations are from the answers of the PALETTE developers to the WP6 online questionnaire organised in May 2007, so at a time of intense collaboration within the Teams (see D.EVA.03).

To the question on the extent to which project members have an active and evolving understanding of the idea of participatory design, responses varied from the succinct "It means asking people who developed something 'do you think you did a good job?'" to the more complex:

"I work 'main dans la main' with CoP members and PALETTE researchers (P inside WP1-1, T inside WP5-4, the validating researcher...) to build a scenario for my CoP: that's participatory design, according to the ANT theory, I think, with the scenario as a boundary object between human actors." (from a mediator)

And

"It's the interaction between T, P and CoPs to design tools and services with functionalities that meet the needs of the CoPs and are of interest for the researchers to work on."

Both these conceptions however refer to the need for cross partner working and understanding. It implies an open feedback mechanism but more than that, a collaborative joint ownership of development. In other words, it is not simply a matter of checking whether or not requirements have been met. However, there were other depictions that we could understand as a more limited notion of participatory design. It is more or less a model that all good development would employ i.e. as long as end users are 'consulted', participatory design is taking place. It raises issues concerning the direct and indirect participation of different stakeholders within this project. This perspective is captured in the following: "Implication of the end users in the process, and importance of the opinions and needs of the end users."

And

"From a development point of view, it means that we take into account user comments at every stages of the development. From a deployment point of view, it means that users should evaluate preliminary versions continuously and adapt their work practices to benefit from the acceptable and useful additions."

As well as the 'positioning' of the different stakeholders in the process, as we describe above, participatory design also had a set of **values** concerning collaboration associated with it for some members: "Collaboration with people from various backgrounds. Efforts to understand new vocabulary and concepts. Negotiation. Adaptation. New ways of doing things."

Additionally, there were some observations that brought some caution to bear. They make the point that what has occurred so far in the project concerning participatory design has been limited:

"This is a little unclear still but this project has attempted to develop a participatory approach to project process. I doubt that there is much

participation on the part of the CoPs in the actual design of the tools although the developers have procured a lot of information from the CoPs. I hope it has informed the design process.”

“I have described the contribution of the Ts to the collaboration with the CoPs. However, I have difficulties to see how this collaboration is fruitful for them. What are they learning?”

This data raises the possibility of developing some interesting distinctions between participation, consultation, collaboration and ‘taking into account’ when project members are attempting to conceptualise participatory design. Developers, for example, seem more likely to see participatory design as ‘taking into account’ users’ needs. The researchers on the other hand, have a more collaborative understanding of the term. The mediations of CoPs practice through scenarios and depictions constructed by mediators and researchers are certainly forms of ‘indirect’ participation by the CoPs themselves. The authenticities of this kind of involvement will depend on the extent to which the depictions reflect the complexities of the CoPs working practices. Mediations in these cases produce ‘boundary objects’ which are intended to support the development of tools and services.

At this stage of the project, issues of a complex nature, like participatory design, have moved to the centre stage. For developers’ preoccupations, it is not only a matter of implementation but on more profound considerations concerning the way in which different stakeholders might work together to create services and tools for learning.

In conclusion, even if the scenarios have been elaborated in collaboration with the CoPs, their trials will provide other information about the realism and acceptability of the proposed activities. The outcomes of the “design for use” phase are only conceived activities. It is now time to “design in use” in order to trial the scenarios and the services in real conditions. More CoPs’ members will really take part in the trials and hence in the continuous evolution of the scenarios and services.

## 4.2 Towards generic scenarios

In this section we present an outline towards the elaboration of more generic scenarios. The purpose here is to compare the scenarios presented in this deliverable in order to sort the activities proposed to the CoPs regarding their needs and highlight the similarities. These common activities could then be considered as “generic” i.e. meeting similar needs of CoPs. These activity chains will be supported by specific configuration of integrated services. First, in the D.IMP.03, a correspondence was established between the identified categories of needs of the CoPs and the PALETTE tools and services (D.IMP.03, p. 14). The four main categories of CoPs’ needs were:

- Support to participation
- Constitution of common resources
- Support to commitment
- Support to realization of the activities

By using these categories of needs, we try now to develop a complementary analysis of the activities proposed in the six validated scenarios and relate them with possible interactions of services (see D.IMP.03). The following table gives a summary of this analysis. Then we further explain what was seen as common about the four categories of needs and examples from the CoPs are given to illustrate these common points.

Table 7 – Categories of CoPs’ needs, activities proposed in the scenarios and examples of services interactions (see D.IMP.03)

Category of needs	Activities (CoPs)	Requirements expressed in the scenarios	Technological services	Examples of interaction of services
<p><b>1. To support participation</b></p> <p>To support social interactions: verbal interactions (exchanges, experiences sharing, analysis, debate, confrontation, creation of new methods and practices) and presence</p>	<p><b>LEARN-NETT and Adira</b></p> <p>To debate, to take a collective decision</p>	<p>Different aspects seem important:</p> <ul style="list-style-type: none"> <li>The activities should be organised with different possible levels of participation of the members to allow them a variety of choices.</li> <li>Activities make a valorisation of the individual members in the group.</li> </ul>	<p>CoPe_it! services e-Logbook services</p>	<p>CoPe_it! services should call e-Logbook services for awareness information about the discussions in CoPe_it!</p>
<p><b>2. To constitute common resources</b></p> <p>To formalize tacit knowledge, to archive common resources and to make them retrievable and reusable</p>	<p><b>LEARN-NETT, ePrep, Adira, Form@HETICE, @PRETIC</b></p> <p>To formalize tacit knowledge, to archive common resources and to make them retrievable</p>	<ul style="list-style-type: none"> <li>The activities will allow to capitalise all the resources produced by CoPs members and to make them retrievable.</li> <li>It is important to recognise the diversity of data available.</li> <li>It is important to allow participants to retrieve these resources easily.</li> </ul>	<p><b>Document Production:</b> services offered by Amaya, Limsee3, SweetWiki tools</p> <p><b>Restructuring service</b> (to produce structured documents from existing ones)</p> <p><b>Metadata production:</b> e-Logbook and, SweetWiki tagging services. Amaya, LinkWidget, Generis, BayFac annotation services</p> <p><b>Information Retrieval:</b> Generis, Corese (LinkWidget and SweetWiki), e-Logbook search engines.</p> <p><b>Reusing of structured documents:</b> DocReuse matching service.</p> <p><b>Awareness :</b> e-Logbook services</p>	<p>Documents tagged within SweetWiki could be retrieved using Corese.</p>
	<p><b>Did@cTIC</b></p> <p>To formalize tacit knowledge, to archive common resources and to make them retrievable and reusable</p>	<p>Different aspects seem important:</p> <ul style="list-style-type: none"> <li>The activities have the function of a recorder that keeps tracks of the discussions and documents.</li> <li>The activities lead to an organisation of a structure of the knowledge of the CoP based on rules that define this knowledge.</li> <li>The activities try to improve exchanges and to make easier retrieval and reuse of existing documents.</li> </ul>		<p>Documents produced by Amaya should be consumed by DocReuse and restructuring services.</p>

Category of needs	Activities (CoPs)	Requirements expressed in the scenarios	Technological services	Examples of interaction of services
<p><b>3. To support commitment</b></p> <p>To develop the membership, to help members to clarify their own project and see how it can interact with the project of the CoP, etc.</p>	<p><b>Adira LEARN-NETT ePrep</b></p>	<p>There are two fundamentals for the commitment of people into a CoP:</p> <ul style="list-style-type: none"> <li>• Confidentiality</li> <li>• and « first hand ».</li> </ul> <p>A CoP is not a public space. This is why CoP's members agree to deliver first hand information inside a CoP. And this is why people want to enter a CoP or an activity organised by a CoP.</p>	<p>e-Logbook</p>	<p>e-Logbook services could interact with external services (e.g.calendar)</p>
<p><b>4. To support realization of the activities (common environment)</b></p> <p>To support organization, follow-up and management (the work of the coordinator(s), animator(s) or moderator(s))</p> <p>To have a common environment for all the activities of the CoP</p>	<p><b>Adira LEARN-NETT ePrep</b></p>	<p>To support the realization of the activities, CoPs use their past activities and practices, as a human being group, to settle down new activities:</p> <ul style="list-style-type: none"> <li>• Proposed activities appear as an evolution and an extension of activities created in the past.</li> <li>• The activities are also organised with different levels where presence remains a “cornerstone” of the activities.</li> </ul>	<p>e-Logbook</p>	



### Need 1: Support to participation

All the scenarios include activities such as conferences, booklets, workshops, discussion groups, web sites, etc. These activities allow participants to consider their own practice from different points of view.

Examples:

- ADIRA: “Many level process to discuss, to identify more interesting themes, to produce more in-depth knowledge”
- Form@HETICE: “training sessions for teachers and students, production and updating of training and self-learning resources, monitoring of teacher’s innovative projects about ICTE, stimulation and enlargement of exchanges inside the network”
- @PRETIC: “make their members aware that they could greatly benefit from having their ten-years-spanning knowledge easily accessible and retrievable”

The CoPs’ activities allow a variety of participation levels in order to meet the large variety of identities and personal objectives of the members. The organisers of an activity can therefore allow for a multitude of levels-roles: leader of a discussion group, expert to intervene, observer or even non participant.

Examples:

- e-Prep: “different roles: active member, observer, etc.”
- ADIRA: “permanent groups, ... work groups (task forces), ... people are not always present and active in an action, ... volunteers”
- LEARN-NETT: “coordination team, pedagogical teams, institutional partners”
- @PRETIC: “a core team to maintain SweetWiki and an ontology”

Furthermore, the participation in the activities will be enhanced in the CoPs if there is always a valorisation of individuals and what they exchange with others.

### Need 2: Constitution of common resources

People want to create, retrieve and reuse common resources. Several proposed activities are focused on keeping tracks of the interactions which are often the most “first hand” information that triggers commitment of new members.

For example:

- ePrep: “to keep track of all the events”
- @PRETIC: “The knowledge its members created for years is very hard to retrieve”
- LEARN-NETT: “storage of conversations, with tags and links to other documents”

Furthermore, there must be an organisation of all these tracks (documents and conversational exchanges) that must be structured in different levels, and organise the documents of the activities at different levels in time.

For example:

- Form@HETICE: “a tool that supports the preparation and the follow-up of the meetings”

The structure of documents must be structured in order to make easier the exchange, retrieval and reuse.

For example:

- ePrep: “a workspace to share information, to improve cooperation, to retrieve archive content, and should have awareness functionalities”
- Form@HETICE: “categorization of the plentiful documents available on the website to retrieve them”

- @PRETIC: “to distinguish different types of information: ‘cyclic’, ‘non-expirable’ or ‘topical’”

### Need 3: Commitment

Commitment can have two meanings:

- to be introduced in a CoP;
- to be already a CoP’s member and to become active in a proposed activity (in this acceptance, the term “engagement” is also used).

There are two fundamentals for the commitment of people into a CoP. First, a CoP is not a public space. There is thus an important notion of confidentiality to be taken into account in order to understand the proposed activities. When they are confident with the CoP, people agree to become members of a CoP and to participate actively in organized activities. The diffusion of the exchanged information is then discussed. It is not made, neither public nor “secret” by an automatic process. Some information remains private, i.e. for the CoP’s members only. Some other is largely diffused.

Examples:

- ADIRA: “workgroups or clubs are places where people collectively reflect upon a theme”
- Did@cTIC: The teachers exchanging about their teaching practices in the CoP can reveal very confidential parts of their life. What would be the deontology to make all of this always public?
- LEARN-NETT: The evaluation made by the tutors about the work of the course’s participants is not public.

The PALETTE project is based on the philosophy of Open Source Software where some people could think that no login is required. But CoPs and other public organised group operate on a large basis with private documents and discussions.

The second fundamental for commitment is “first hand” information and event. Because they are in a confidential area, CoPs’ members agree to deliver “first hand” information to their colleagues. And this type of information attracts people. For example:

- ADIRA: “to enable its member stay at the leading edge in IT/IS knowledge”

### Need 4: Realization of activities

If we now consider the realization and organization aspect of the activities, two main factors appear. First, the proposed activities are mostly the continuation of activities that existed before in the CoP. A keyword is evolution. Everything happens as if the CoPs are now fed up with a first messy phase of their history and want to evolve towards a more organized group for efficiency and identity reasons.

In the global organisation of the proposed activities, there are also different levels, for example presence and distance. Presence remains a “cornerstone” of the activities even if online events take their place. They complete each other in the activities to better meet the needs of the members.

Example:

- Form@HETICE: “Monthly face-to-face meetings are the cornerstone of the network”

## 4.3 Learning Services for CoPs

We want to enhance here some informal and non exhaustive ideas that are emerging from the previous transversal analysis of the six validated scenarios. We try to give preliminary answers to the question: what types of Learning Services could be developed for:

1. Organisational development of a CoP?
2. Learning process in a CoP?
3. Choice and use of tools?

As the Learning Services aim “at supporting CoPs in defining their development needs, supporting their members’ learning, and at assisting them in the choice, appropriation and adaptation of technological services” (D.IMP.03, p. 4), the validated scenarios can inform their development.

This is a short prospective work that relates to the document “Refinement and instrumentation of the participatory design methodology” written in the WP1 task 1 framework. In particular, in the figure 17 of this document (WP1, 2007, p. 27), Learning Services are composed of three aspects: methodology, information resource, and support strategy.

A first idea could be the organisation and development of a CoP of CoPs’ coordinators that could support the development of CoPs or the use of specific tools.

Secondly, as we said before, the scenarios describe activities of CoPs that have already a history and want to organize themselves. But why not to think also about specific Learning Services that would be dedicated to very young CoPs? The global aim of these services would be to help them during their first steps, for example for better defining their identity and main activities to be developed. More concretely: brainstorming supports, living with messy things, etc.

Thirdly, in the figure 20 of the pre-cited document (WP1, 2007, p. 30), a process is “recommendations for the use of services and scenarios”. These recommendations could be related on:

1. How to find an adapted form?
2. How to improve readability?
3. What tools to be given in order that people use them?

Finally, the validations of the scenarios for LEARN-NETT or ePrep have highlighted the need to clarify the different levels of participation of the CoPs’ members.

These ideas pave the way towards the development of Learning Services by the pedagogical developers. Several research activities are already planned within the WP1 task 5:

- Identification and analysis of “learning events” lived by CoPs’ members;
- Elaboration of models depicting:
  - learning and professional development within CoPs,
  - organisational development of CoPs;
- Elaboration of instruments, based on the developed models, aiming at supporting analysis of learning or organisation of CoPs.

Furthermore, the evaluation of the scenarios and their trials by the CoPs’ members will provide the pedagogical developers with guidelines for shaping and presenting the Learning Services through different ways, electronic, graphical, paper-based, etc.

## 5 Conclusion and Next Steps

The D.PAR.03 pursued four aims:

1. To describe the elaboration process of scenarios of use of PALETTE services by the CoPs and relate it to the whole PALETTE Participatory Design Methodology;
2. To describe the validation process of the scenarios with the CoPs;
3. To present the outcomes of these two processes: six validated scenarios;
4. To orient the next steps of the development of both scenarios and PALETTE integrated services.

Section 2 defines the concept of scenario in PALETTE and presents the methodology used for the elaboration and validation of the scenarios. Section 3 is devoted to the presentation of six validated scenarios and presents the specific scenario validation process for each CoP. Finally, section 4 discusses the whole process and their outcomes and suggests orientations for the next steps of PALETTE: the trials of the scenarios and services and their observation through the phase of “design in use”.

However, for this purpose, the validation accounts have pointed out several issues that the Teams will have to deal with. Even if the scenarios have often been considered as realistic and acceptable by the CoPs’ members, several crucial points must be taken into account for their enhancement and trial:

- The participation of more CoPs’ members will be required for the trials. This will require specific and carefully prepared organisation. Very early, mediators will have to decide with the CoPs the practical conditions to carry out the trials. The roles of each participant and the time line of activities must be very clear.
- The proposed scenarios sometimes did not entirely convince the CoPs’ members (for example in LEARN-NETT, ePrep or @PRETIC) because the purposes or roles of actors were unclear. The scenarios will have to be enhanced in this direction by the Teams before the trial.
- The use of the proposed services is sometimes not easy for the CoPs’ members. The first tests of the services highlighted usability issues and not yet or fully implemented functions. The CoPs’ members are not expert users of these tools. However, the short trainings organised by the mediators and developers have often been successful and of interest for the CoPs’ members. The services will have to comply with the usability and functional issues highlighted in this deliverable. The mediators and developers will also have to organise other practical trainings with the CoPs’ members.
- In some CoPs, the issue of privacy is of great importance (for example LEARN-NETT, Did@cTIC). The possibilities of the PALETTE services to preserve this privacy of discussions and documents are to be considered.
- CoPs’ members in general do not ask for sophisticated activities supported by heavy technologies. They rather often expect simple solutions requiring one, two or three services to very specific needs. When the scenarios and uses of services seem too complex regarding the needs and problems encountered by the CoPs, the members become quickly doubtful. The scenarios seem to be well received when they suggest simple activities to be implemented progressively rather than innovating activities changing too many things in the same time.
- The integration of the tools that the CoPs already use in the scenarios seems to be not sufficiently taken into account. Some CoPs’ members wonder why to use new tools in new activities while they already use tools, maybe not perfect, but that work. The Teams will have to carefully allow for this issue while developing the scenarios.

These issues as well as the more specific ones highlighted for each CoP in the validation accounts will inform the Teams’ work in the next steps of the implementation of the PALETTE Participatory Design Methodology.

## 6 References

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## APPENDIX 1 – PALETTE scenarios template

Scenario for *\*\*\*Name of the community\*\*\**

Document version:

Date:

Contributors:

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### 1. Document contents and target audience

Here is a brief description of the contents of the document as well as the target audience in the community (all the community? or only subgroup(s)? or only a coordinator?).

1.1 Contents

1.2 Audience

### 2. Community needs and scenario purposes

In this section, the validated needs that the scenario deals with are presented, with brief “vignettes” describing activities of the community in which the needs are particularly obvious. It is expected that the problems lived by the community be told and explained regarding its context. The objectives of the scenario regarding the identified needs are also presented. Note that this section fully complies with the “purposes” of a scenario as described in PALETTE D.PAR.02. (see p. 40).

2.1 Group of needs

2.2 Purposes of the scenario

Other groups of needs and scenario purposes can be described. In the example above, one PALETTE tool is proposed to deal with the chosen needs. But obviously, several PALETTE services can be interconnected (it is even strongly advised!).

### 3. Methodology

In this section, the “life cycle” of the scenario is described (see D.PAR.02., p. 40). Who participated in its elaboration, through which activities and when?

### 4. Scenarios design and description

Here, the scenario itself is described. The actors and the services offered by the PALETTE tools involved (see the Naudet’s paper about the connections between “tools” and “services” at <https://bscw.ercim.org/bscw/bscw.cgi/d199002/Services%26Tools%20meta-model.pdf>, restricted access for project members) are firstly identified. Then a range of plausible scenarios are presented. Finally, summaries of the scenarios are presented in tables and the use cases integrating the different services used in the scenario are depicted.

4.1 Actors and services

This section specifies:

- the actors of the community who are involved in the scenario
- the services and functions offered by the PALETTE tools that are invoked in the scenario (with the functional design considerations such as the need for login/passwords, the URLs, the location of the documents stored if any, etc.)
- the services/tools that the community already uses.

#### 4.2 Description of plausible scenarios

The scenarios are presented in a narrative form specifying the services offered by the PALETTE tools, the actors, the activities and their articulation. The description has to be as clear as possible indicating if need be a time line, locations, the relations (communication and collaboration) between the actors, the handling of the offered services, the connections between the services, etc.

Several scenarios can be developed, one per group of needs. In addition, several variations or alternatives in one scenario can also be developed.

It is also possible to propose pieces of scenarios without tools or services to be used! As the validated needs of the communities are related both to the uses of new tools and to the development of actions, it is possible to propose a scenario (or a part of it) that only deals with the development or the elaboration of actions or way to organize the work of the community.

#### 4.3 Scenarios schematic representation

A summary of the scenarios and their alternatives are presented in tables. One table is required for each scenario or alternative. The goal is to quickly have in one table the time line of scenarios' sequence of events. Here are two examples of tables.

##### Scenario sequence of events

Step	Sequence of events	Expected results and evaluation criteria	Tools requirements	Notes
0.0	Opening a discussion			
1.x	Invite contributors			
1...n	Prepare resources			

##### Scenario time line

	Event 1	Event 2	Event 3	Event 4	Event x
<b>Face-to-face</b>	Objectives of and actors involved in the event 1 of the scenario.				Objectives and actors of the event x that takes place face-to-face after 3 events at a distance.
<b>At a distance</b>		Objectives, actors and services of the event 2 that is organized at a distance.	Objectives, actors and services of the event 3 that is organized at a distance.	Objectives, actors and services of the event 4 that is organized at a distance.	

#### 4.4 Comments on the use of services in the scenario

This section allows adding comments or additional information about the services or software described in the scenario. For example, how will the PALETTE tools be connected together and be related to the community's existing tools? What does the user need to know about this? Another example could be the information that are not specifically chronological and that do not appear in the

time lines above such as possible alternatives or choices that the users could make during the scenario while in progress.

### **5. Conditions of participation**

This section is about the conditions required for implementing the scenario by the community: the specific technical skills required by the actors to use the PALETTE services, the competencies required to implement the scenario (for example communication or collaboration at a distance), the possible need for negotiation within the community for implementing the scenario, etc.

### **6. Validation procedures**

This last section is about how the scenario will be evaluated/validated with the community. The evaluation procedure that will be negotiated and carried out with the community will be described here (questionnaires, questions of interviews, indicators of evaluation from the D.EVA.02).

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## APPENDIX 2 – Meta-questions and Indicators for the Validation of the Scenarios

Excerpts from D.EVA.02

**Authors:** Murray Saunders (CSET), Bernadette Charlier (UNIFR), Joël Bonamy (GATE-CNRS), Amaury Daele (UNIFR)

**Version:** Final version

**Date:** 9 March 2007

**Purpose:** this document proposes a general framework for the validation of the PALETTE scenarios and services. The validation team has to determine indicators for the evaluation as well as to organize in practical terms the validation of the scenario with each CoP.

### 4.0 Evaluation questions

The evaluation framework has four levels.

- The first underscores the evaluation and is composed of 9 meta-questions which constitute primary ‘focusing’ concerns for the developers-CoPs working groups. They have been derived from participant/evaluator discussions particularly with the WPI participants. Their function is to aid the overall project in addressing the general value of the PALETTE services and scenarios and acting as an analytic framework. The WPI team will make reference to them when the reports on the validation of services and scenarios are written.
- The second level is in the form of a series of generic indicators each of which will have,
- At the third level, specific indicators associated with them.
- Finally, specific questions will form the basis of the inquiry instrument which has been designed for each specific indicator. It is the data collected from the specific indicators that will inform the meta-questions.

### 4.1 The Meta-Questions

What is the validity of the services and scenarios?

#### Internal validity

1. Is the scenario or service valid regarding its objective/the community’s need or project that it is supposed to take into account?
2. Is the scenario or service complete? Are some aspects missing to fully express the need? Is the scenario or service not too redundant?
3. Is the scenario or service consistent? Are the proposed activities, steps and uses consistent together?
4. To what extent has the community participated in the elaboration of services and/or scenarios (distributed participatory design)?
5. Is the scenario or service realistic (or “credible”) regarding:
  - The technical skills of the community’s members and their social competencies or usual ways to communicate and collaborate?
  - The actual uses of tools in the community?
  - The actual types of activities and the actual functioning of the community?
  - The objectives of the community and of its members? Is it representative of the objectives of the community as a whole?

#### External validity

1. Is the scenario or service easily reproducible (“re-adaptable”) for other types of communities? Is it easily modifiable and open?

2. Is the scenario in line with the PALETTE project objectives and with the D.PAR.02 guidelines?

**Pragmatic validity**

1. Do PALETTE services achieve a right level of interoperability, usability, utility and acceptability?
2. What are the actual uses of the PALETTE services and scenarios? (Communication practices, problem solving, knowledge building, learning)

**4.2 Types of Indicator**

The concept of an indicator is not straightforward. It is helpful to understand them in the following way with three ‘modes’ of use.

**Mode 1: Indicators interpreted as the evidence focus** (i.e., areas, activities, domains or phenomena on which evidence will be collected).

[Indicators as a focus]

Example: the area of student achievement in assessment is identified in advance in an evaluation plan as an area on which data will be gathered

**Mode 2: Indicators interpreted as the evidence itself**

[Indicators as the evidence]

Example: actual student achievement data or results are identified ‘post hoc’ [this is the important difference to mode 1] as indicators of the performance of an intervention

**Mode 3: Indicators as pre-defined or prescribed states to be achieved or obtained. In this way indicators constitute desired outcomes**

[Indicators as prescriptions of good performance]

Example: grade C or above passes in national examinations are prescribed in advance as an indicator of good performance. Evaluation focuses on the ‘gap’ between actual performance and prescribed performance.

Within the PALETTE project, we suggest to predominantly using mode 1 indicators i.e. an indicator is an area or aspect of the project on which data and evidence will be collected. It is essentially using a series of descriptive categories. What is important to note is that they are not mode 3 indicators, i.e. indicators that are ‘normative’ but analytic/descriptive.

The plan suggests the timing of the evaluative activity in line with whether it is enabling, process or outcomes. This framework does have a ‘temporal’ dimension in that enabling indicators (see below) are likely to be the focus at the ‘front-end’ of a project, the process indicators are usually used in the middle stages and the outcome indicators are left to the latter stages or after the project ends. These foci therefore do have a logic that depends on when it is sensible or feasible to look for different types of project characteristics.

This model identifies the following definition of enabling, process and outcome mode 1 indicator:

**Figure 8 – Types of [Mode 1] indicators**

<b>Enabling</b>	<b>Process</b>	<b>Outcomes</b>
Aspects that need to be set up	Actions	Goals

Frameworks for action Policies Protocols Space Time People Resources	Ways of doing things Styles Behaviours Practices	What you want to see as a product Services Numbers Impact Changes New practices
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### 4.3 Generic Indicators

A list of generic evaluation headings have been derived from discussions amongst members of the evaluation team. See such headings below

#### Enabling

1. PREPARATION AND EXPECTATION

#### Process

2. ENABLING OF LEARNING
3. PARTICIPATION
4. ENABLING OF KNOWLEDGE BUILDING AND REIFICATION
5. ENABLING OF GOALS REALISATION

#### Outcomes

6. STATES OF KNOWLEDGE
7. NEW PRACTICES
8. EFFECTS ON INSTITUTION/ORGANISATION
9. INTEROPERABILITY, USABILITY, ACCESSIBILITY AND ADAPTABILITY

### 4.4 Core Questions/Indicators

The Core Questions and indicators will be derived from the generic indicators. See for each generic indicator the following examples:

#### 1. Generic indicator: Enabling

**Specific Indicator:** preparation and expectations

#### Questions

1. What are the perceptions of the PALETTE scenario aims and objectives by the communities?
2. What are the perceptions of the community about the understanding of their needs by the PALETTE developers?
3. What are the perceptions of the community about the process of elaboration of the scenario which is made explicit in the scenario?
4. Are the protocols easily understood?
5. Is the form of the scenario suitable and understandable by the community?

Target Group: Delegates or focus groups from the communities

Instrument: Group discussion, Semi-structured interviews

#### 2. Generic indicator: Process

**Specific Indicator:** Enabling of learning

### Questions

1. What the conditions that best support learning in CoPs (sociability, social links) and how are they fulfilled?
2. How do the PALETTE services and scenarios support these processes?
3. What kinds of institutional factors influence the scenario (policies, space and resources)?

Target Group: Delegates or focus groups from the communities

Instrument: Group discussion, Semi-structured interviews, Analysis of on-line discussion

### 3. Generic indicator: Process

**Specific Indicator:** Participation

### Questions

1. To what extent do all the actors of PALETTE participate in the scenario and services building?
2. How are the participatory activities perceived?
3. Is it possible to identify 'participatory' practices?
4. What are the factors that are most supportive of participatory practice?

Target Group: Delegates or focus groups from the communities

Instrument: Group discussion

### 4. Generic indicator: Process

**Specific Indicator:** Enabling of knowledge building and reification

### Questions

1. What factors are conducive to capturing and building knowledge?
2. Are the knowledge produced useful, and for whom?
3. In what ways are reified knowledge used?

Target Group: Delegates or focus groups from the communities

Instrument: Analyze of the uses of the Knowledge Management services, Group discussion

### 5. Generic indicator: Process

**Specific Indicator:** Enabling of goals realization

### Questions

1. Does the use of PALETTE services and scenarios support the achievement of CoPs' goals and how?
2. Were adapted PALETTE services and scenarios for the achievement of specific goals?
3. Was the wider institution aware of the role of PALETTE services and scenarios in achieving the CoPs' goals?

Target Group: Delegates or focus groups from the communities

Instrument: Group discussion

**6. Generic indicator:** Outcomes

**Specific Indicator:** States of knowledge

**Questions**

1. What are the new knowledge and skills developed by all the PALETTE actors? (human and non human)

Target Group: PALETTE partners, Delegates or focus groups from the communities

Instrument: Group discussion, analysis of the scenario and services provided

**7. Generic indicator:** Outcomes

**Specific Indicator:** New practices

**Questions**

1. What are the new practices developed by the CoPs and their members? (human and non human)
2. In what ways are the new knowledge and skills manifest in changed practices at individual level?
3. In what ways are the new knowledge and skills manifest in changed practices in groups?

Target Group: Delegates or focus groups from the communities

Instrument: Group discussion, interviews, analysis of on-line exchanges

**8. Generic indicator:** Outcomes

**Specific Indicator:** Effects on institution and organization

**Questions**

1. How is the institution or organization related to the CoP impacted?
2. In what ways are the new knowledge and skills manifest in changed policies?
3. In what ways are the new knowledge and skills manifest in changed systems?

Target Group: Delegates or focus groups from the communities

Instrument: Group discussion, interviews of members and non members

**9. Generic indicator:** Process and Outcomes

**Specific Indicator:** Interoperability, usability, accessibility and acceptability

Tricot et al. (2003, p. 394) propose a framework for the evaluation of these three quality dimensions in the field of the development of systems for learning. We adapt in the table below the framework and indicators for PALETTE services and scenarios validation.

**Table 8 – Evaluation of utility, usability and acceptability**

	<b>Empirical evaluation (by global observation)</b>	<b>Systematic inspection by an expert</b>
Utility	<ul style="list-style-type: none"> <li>▪ Appropriateness of the system's declared objective to the achieved objective</li> <li>▪ Appropriateness of the community's declared objective to the achieved objective</li> </ul> <p>Can be measured by organizing different tasks with the users:</p> <ul style="list-style-type: none"> <li>▪ Production</li> <li>▪ Detection of errors</li> <li>▪ Reminder of the contents/structure</li> <li>▪ Resolution of users' problems</li> </ul>	<p>Indicators:</p> <ul style="list-style-type: none"> <li>▪ Presentation of the system's objectives</li> <li>▪ Appropriateness of the functionalities to the objectives</li> <li>▪ Appropriateness of the suggested scenarios to the objectives</li> <li>▪ Regulation and feedback opportunities</li> </ul>
Usability	<ul style="list-style-type: none"> <li>▪ Management and prevention of errors</li> <li>▪ Memorization of the functioning by the user</li> <li>▪ Efficiency</li> <li>▪ Feeling of satisfaction</li> </ul> <p>Can be evaluated by observations, interviews or analysis of traces at different levels (members, animators, community as a whole).</p>	<p>Indicators:</p> <ul style="list-style-type: none"> <li>▪ Guidance</li> <li>▪ Grouping/Distinction of the items/menus</li> <li>▪ Nature of feedbacks from the system</li> <li>▪ Workload</li> <li>▪ Explicit control</li> <li>▪ Adaptability</li> <li>▪ Management of errors</li> <li>▪ Quality of messages</li> <li>▪ Homogeneity and consistency</li> <li>▪ Meaning of codes and labels</li> </ul>
Acceptability	<ul style="list-style-type: none"> <li>▪ Motivation</li> <li>▪ Affects</li> <li>▪ Culture</li> <li>▪ Values</li> <li>▪ Cost</li> </ul> <p>Can be evaluated by observations, interviews or questionnaires.</p>	<ul style="list-style-type: none"> <li>▪ Appropriateness to: <ul style="list-style-type: none"> <li>○ Needs or objectives of the community</li> <li>○ Expectations of the users</li> <li>○ Characteristics of the users</li> </ul> </li> <li>▪ Compatibility with: <ul style="list-style-type: none"> <li>○ Organization of community's time</li> <li>○ Organization of community's place of work/meeting</li> </ul> </li> <li>▪ Clear and consistent planning</li> <li>▪ Visibility and communication of the results</li> <li>▪ Reliability</li> </ul>

Regarding the evaluation of the interoperability, D.IMP.01 has provided clear guidelines (pp. 4-5). The notion encompasses both technological and operational capabilities.

Technological:

- Interconnection of services (exchange of pieces of information)

- Acceptation of standards
- Acceptation of specification of APIs (Application Program Interfaces)
- Consideration of users' needs and objectives in order to precise the functionalities

Operational:

- Consideration of different communities' profiles (domain, organizational aspects, etc.)
- Consideration of different members' profiles (member, animator, etc.)
- Consideration of technical constraints (software, servers or OS already used by the communities)

The inspection by an expert will be namely realized through a specific task suggested in the next work plan of WP1 by ULg.

## 5.0 Reference

Tricot, A., Plégat-Soutjis, F., Camps, J.-F., Amiel, A., Lutz, G. & Morcillo, A. (2003). *Utilité, utilisabilité, acceptabilité : interpréter les relations entre trois dimensions de l'évaluation des EIAH*. Actes du colloque EIAH 2003, Strasbourg, pp. 391-402.

## APPENDIX 3 – Common structure of the validator’s accounts

Proposed by Amaury Daele and Manfred Künzel (UNIFR) - 4 June 2007

**Purposes:** The validators’ accounts are expected to be part of the D.PAR.03 (scenarios and their validation). Their purposes are:

- to report how the validation process happened (organisation, participants, meeting, questions asked, etc.);
- to summarize the participants’ answers to the validation questions;
- to discuss the results of the validation by proposing future actions for the development of the scenario and PALETTE services.

The validation consists in the formative evaluation of the scenario from the CoPs’ point of view (according to the evaluation indicators provided by the WP6) and in a discussion of the results. The accounts will be integrated in the D.PAR.03 and will be used by the WP5 Teams for improving the scenarios and services and preparing the test-beds of the services after M20. As the validation is formative, it will be addressed to the authors of the scenarios as well as to the CoPs’ participants for them to highlight the utility, pertinence, coherence, etc. of the scenarios.

### 1. Organisation and participants

In this section, the validator describes how the validation process has been organised (meeting-s, participants, possible methodology used such as rapid prototyping, etc.). The participants from the CoPs are also introduced (with their role in the CoP, why they have been asked to participate in the validation, etc.). The participants from PALETTE are also presented with their specific roles: mediator, validator, developers.

### 2. Validation questions

Here, the validation questions are presented. They are sorted per indicator (see excerpt of the WP6 D.EVA.02 at <https://bscw.ercim.org/bscw/bscw.cgi/233828>, restricted access for project members). In the excerpt, the indicators are presented with several examples of questions. The validators and mediators adapt these examples to their CoP. According to the organisation of the validation, the questions can be for instance verbally asked or sent to the CoPs participants as a written questionnaire.

### 3. Summary of the answers

The validator summarizes the answers of the CoP’s participants to the validation questions.

### 4. Summary per indicator

For each indicator (preparation and expectations, enabling of learning, participation, etc.), the validator summarizes the answers of the CoP’s participants.

### 5. Discussion

This section is very important. According to the generated answers, the validator proposes future actions in the short or medium term:

- For the organisation of the trials of the services with the CoP: what could be the best organisation, the appropriate piece of scenario to trial during 2 or 3 weeks, the roles of the participants, etc.
- For the development of the scenario, addressed to the mediator and developers.
- For the development of the services, addressed to the developers.



## APPENDIX 4 – Scenario for ePrep

**Document version:** 4

**Date:** June 14, 2007

**Authors:** Nathalie Van de Wiele (ePrep), Sandy El Helou (EPFL), Jan Mikáč (INRIA Rhône-Alpes), Irène Vatton (INRIA Rhône-Alpes), Vincent Quint (INRIA Rhône-Alpes), Michel Buffa (INRIA Sophia Antipolis)

### 1. Contents of the document and target audience in the community

#### 1.1 Contents

The scenario described in this document proposes activities and uses of tools for the ePrep Community of Practice that is composed of teachers in “classes préparatoires aux grandes écoles” (CPGEs), professors and researchers of “grandes écoles” and universities, members of institutions, representatives of companies, geographically disseminated in France and French-speaking countries, all involved on a voluntary basis to conduct activities for the development of “classes préparatoires aux grandes écoles” through the use of ICT (CoP’s member list online, in French: [www.eprep.org/Communaute/Annuaire.htm](http://www.eprep.org/Communaute/Annuaire.htm)).

The remainder of this document is structured as follows. First of all, the needs of the community are described as well as the objectives of the scenario in response to these needs. Then, the section “methodology” presents the steps of the elaboration of the scenario in a participatory design perspective. In this, information regarding the involved parties from the community and from PALETTE in the elaboration of the present scenario as well as the time sequence of actions is provided. The section “Design and description of the scenario” describes the scenario itself and its different possible options. It also presents in summary the sequence of events of the scenario (in tables) and some comments on the use of PALETTE tools in the scenario. At the end, the conditions of participation (i.e. the conditions required for implementing the scenario by the community) are presented as well as the scenario validation procedures planned with the community. Finally, a further development, in response to a need that the ePrep CoP’s members will have in a soon future, is evoked.

#### 1.2 Audience

The target audience is:

- the ePrep manager who is the coordinator of the ePrep CoP,
- the ePrep CoP’s members themselves, dispatched in subgroups (one subgroup per specific activity - see section 2.1 below).

### 2. Needs of the community and purposes of the scenario

#### 2.1 Needs of the community

At the time when the ePrep CoP is emerging from the ePrep community of interest which has grown over the years (on a voluntary involvement of the members), a crucial need has been identified: the ePrep CoP needs a new tool that will be used for all its activities (“Activity of managing ePrep as a CoP” and “Specific activities”). This tool should be a workspace to share information, to improve cooperation, to retrieve archive content, and should have awareness functionalities. This workspace should be structured activity-per-activity, including non-moderated specific mailing-lists (with structured email archives - at the time being, the ePrep CoP has not identified a forum<sup>10</sup> as a short term need), specific space for documents sharing and agendas for each activity, etc. Beyond this tool, other specific tools have been identified as needs for specific activities.

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<sup>10</sup> The PALETTE forum for the ePrep CoP is not concerned by this remark (this forum is dedicated to exchanges between PALETTE researchers and ePrep CoP’s members about the PALETTE tools invoked in the present scenario - see section 3).

### 2.1.1 Needs for the activity of developing ePrep as a CoP

The role of the coordinator of the ePrep CoP in developing the CoP is to:

- establish contacts with existing and future members to motivate them to participate to the specific activities defined inside the CoP,
- plan and coordinate these activities.

In response to this organisation, the role of the members of the ePrep CoP is to collaborate inside the specific activities they are involved and to collaborate with the coordinator.

The workspace evoked above is the main need for this activity.

### 2.1.2 Needs for the specific activities of the ePrep CoP

The specific activities described below have been defined by the CoP's members themselves, in relation with the coordinator of the ePrep CoP and after the advice of the ePrep Orientation Committee, chaired by the President of the Conférence des grandes écoles, and the ePrep Development Committee, chaired by the Director of the CNED Institute of Lyon. With time some new activities may be defined.

1. Needs for the specific activity "Wikiprepas" (Wikipedia for CPGEs – project launched at the first ePrep thematic workshop - October 30, 2006)
  - The main idea is to create and develop a Wiki gathering definitions useful for the whole CPGEs' educational community (teachers, students, and people helping the students in their studies - students' parents for instance).
  - During its exploratory phase (until the second ePrep thematic workshop to be held on November 5 & 6, 2007), the project is strictly limited in the elaboration, by ePrep CoP's members, of a dictionary gathering useful definitions in mathematics, chemistry, physics... (probably limited to Science in a first time) in the respect of the CPGEs' pedagogical programme established by the French Ministry for Education. The foreseen development of the project will be defined after the second ePrep thematic workshop (Wikiprepas could be more than a dictionary: an encyclopaedia for instance).
  - It seems that a semantic Wiki could be used.
2. Needs for the specific activity "ePrep francophone platform" project launched at the first ePrep thematic workshop - October 30, 2006)
  - The project to create an ePrep francophone platform is following the Feasibility study for a Federating Digital Workspace for CPGEs and similar establishments realised by ePrep in 2003. The national part of this project is being developed by the French Ministry for Education. The ePrep francophone platform will add an international level, in particular to reply to Africa's urgent needs in terms of pedagogical content for CPGE teaching.
  - ePrep CoP's members need a Web editor for developing pedagogical content to be put on this platform (the platform itself is provided by an external company).
3. Needs for the specific activity "International cooperation between CPGEs and similar establishments"
  - This activity consists in International cooperation between francophone CPGEs and similar establishments in France, Côte d'Ivoire, Gabon, China (for the French-speaking Ecole Centrale de Pékin)... All the contributors of this project know each other through the contacts made within the ePrep CoP.
  - ePrep CoP's members need a tool to build multimedia courses to be exchanged in the framework of distance training.

### 2.1.3 Further need

See section 7.

## 2.2 Purposes of the scenario

The aims of the present scenario towards addressing the needs of the ePrep CoP are:

- to propose uses of a tool to help the ePrep CoP in all its activities (activity of developing ePrep as a CoP as well as specific activities) to improve information sharing, cooperation, archive content retrieval, with awareness functionalities,
- to propose uses of specific tools for each specific activity of the CoP:
  - uses of a semantic Wiki for its “Wikiprepas” project,
  - uses of a Web editor for developing pedagogical content to be put online for its “ePrep francophone platform” project,
  - uses of a tool to build multimedia courses to be exchanged in the framework of distance training for its “International cooperation between CPGEs and similar establishments” project.

## 3. Methodology

The people involved in the production of the present scenario as well as the time sequence of events are as follows:

1. June 2006: according to a suggestion of the PALETTE scientific coordinator, who is also a member of the ePrep community of interest since 2001, the decision to formalize the existence of the ePrep community of practice, which was naturally emerging over the years from the ePrep community of interest, is taken by the ePrep manager, member of the PALETTE project.
2. June 2006 – October 2006: a reflection about the emergence of the ePrep CoP is conducted inside the ePrep community with the help of PALETTE researchers.
3. October 30, 2006: the launching of the ePrep CoP is officially announced at the first ePrep thematic workshop in Sousse - Tunisia (see [www.eprep.org/thematic\\_workshops.htm#first](http://www.eprep.org/thematic_workshops.htm#first)). On this occasion, the PALETTE scientific coordinator and the Team A PALETTE leader, both invited in Sousse, present the PALETTE objectives and the first PALETTE developments. The workshop attendees are invited to join the very new ePrep CoP and to have a reflection aiming at defining the way for conducting their projects inside this CoP. The ePrep manager becomes the coordinator of the ePrep CoP.
4. Since October 2006: members of the ePrep community of interest are invited to join formally the ePrep community of practice to participate to the specific ePrep projects launched in Sousse, while the members who have already joined the ePrep CoP in Sousse begin to work on these projects, discovering PALETTE tools.
5. November 2006: the ePrep manager, coordinator of the ePrep CoP, participates in an interview conducted by a PALETTE researcher (a record and a synthesis of this interview have been produced). Then, a list of wishes/urges to complete the list of needs included in this synthesis is produced.
6. December 2006: PALETTE researchers decide to open a specific forum (in French) to allow ePrep CoP’s members to discuss about the tools needed for conducting their projects. In the same time, PALETTE researchers propose that two specific tools can be tested by the ePrep CoP’s members:
  - Amaya, to develop contents to be put online in the framework of the “ePrep francophone platform”,
  - SweetWiki, to develop “Wikiprepas”.
7. January 2007: after discussions involving PALETTE researchers and the coordinator of the ePrep CoP, the structure of the forum dedicated to the ePrep CoP is defined: a main forum composed of four forums (one forum per groups of needs - see section 2.1). In the same time, a member of the ePrep CoP especially involved in the “ePrep francophone platform” begins to test Amaya to develop his own pedagogical content online.
8. February 2007:
  - After discussions involving PALETTE researchers and the coordinator of the ePrep CoP, a SweetWiki version, dedicated to the “Wikiprepas” project, is implemented by

the developers - <http://argentera.inria.fr:8080/wikiprepas/>. ePrep CoP's members begin to edit this Wiki.

- The PALETTE forum dedicated to the ePrep CoP is implemented by PALETTE developers - <http://palette.ercim.org/forum/>. The ePrep CoP's members initiate first discussions on this forum. (NB. ePrep CoP's members are provided with a unique username/password for both tools - the Wiki and the forum). This forum is structured in four sub-forums, each of them being dedicated to a specific activity of the ePrep CoP necessitating specific PALETTE tools:
    - sub-forum: "activity of developing ePrep as a CoP" - tool: e-Logbook,
    - sub-forum2: specific activity "Wikiprepas" - tool: SweetWiki,
    - sub-forum3: specific activity "ePrep francophone platform" - tool: Amaya,
    - sub-forum4: specific activity "International cooperation between CPGEs and similar establishments" - tool: LimSee3.
  - The coordinator of the ePrep CoP is asked to validate the needs pointed by the "transversal analysis".
  - The mediator of the ePrep CoP begins to write the present scenario in cooperation with the technological and pedagogical partners.
9. March 2007:
- While ePrep CoP's members are testing the first PALETTE tools and exchanging on the forum with PALETTE researchers about these tools, the mediator of the ePrep CoP, in cooperation with CoP's members and PALETTE researchers (especially the e-Logbook developer), carries out of the writing of the first version of this scenario. (NB: In the same time, the A6 society provided the ePrep CoP with a platform to conduct its "ePrep francophone platform" project.)
  - The first version of the scenario is presented to the ePrep Committees (see [www.eprep.org/Presentation\\_GB.htm#Committees](http://www.eprep.org/Presentation_GB.htm#Committees)) on the occasion of the ePrep Steering Committee meeting (March 19, 2007) and on the occasion of the ePrep Development Committee meeting (March 29, 2007). The PALETTE mediator of the ePrep CoP, the PALETTE validator of the scenario for the ePrep CoP, and twelve ePrep CoP's members have attended the March 29 meeting: their constructive discussions, added to the orientation given on the March 19 meeting, allowed to further detail the present scenario.
  - The mediator of the ePrep CoP is asked to validate the last version of the "transversal analysis" (document "description of the CoPs").
10. April 2007:
- The mediator of the ePrep CoP prepares the second version of the scenario in cooperation with technological partners (the SweetWiki developers, the Amaya developers and the LimSee3 developers) according to the wishes expressed by the ePrep CoP on March 29, 2007.
  - The second version of the scenario is discussed with PALETTE researchers on the occasion of a technical meeting in Lausanne (May 2 & 3, 2007).
11. May 2007
- The mediator of the ePrep CoP prepares the third version of the scenario, taking into account the discussions on the forum and the conclusions of the technical meeting in Lausanne.
  - PALETTE researchers (the mediator and the developers), in cooperation with the coordinator of the ePrep CoP, prepare training sessions for ePrep CoP's members in the framework of an "ePrep CoP day" to be held in Paris, on June 2, 2007. In the same time, the mediator of the ePrep CoP and the validator of the scenario for the ePrep CoP prepare a "validation meeting" to take place at the end of the "ePrep CoP day".
12. June 2007
- 11 ePrep CoP's members and 11 PALETTE researchers attend the "ePrep CoP day" (see the account in French: [www.eprep.org/Communaute/CoP1.htm](http://www.eprep.org/Communaute/CoP1.htm)): CoP's members, helped by developers, are invited to play the scenario (available on the ePrep Web site, in English for its entire version, and in French for summaries of each specific

sub-scenario) and to respond to the validation questions prepared by the validating PALETTE researcher.

- At the end of the “ePrep CoP day”, the scientific coordinator decides, in order to discuss the interoperability of the tools invoked in the scenario in a participatory design approach, to open a new sub-forum in the PALETTE forum dedicated to the ePrep CoP:
  - sub-forum 5: interoperability of tools.
- The mediator of the ePrep CoP prepares the fourth version of the scenario (this last version) taking into account the discussions between CoP’s members and PALETTE researchers during the “ePrep CoP day”.

The next steps are described in the section 6 (Validation procedures).

## 4. Design and description of the scenario

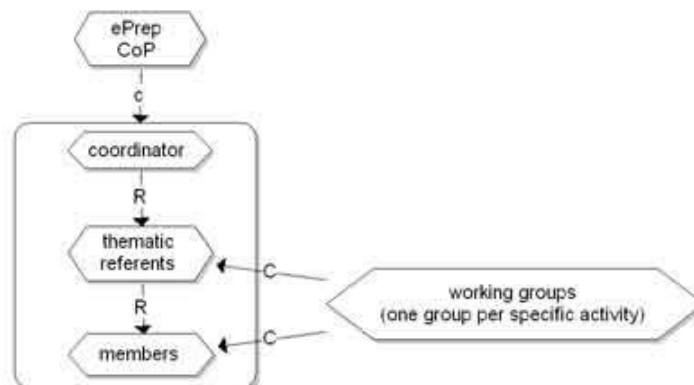
### 4.1 Actors and services

#### 4.1.1 Actors of the community involved in the scenario

- The whole ePrep CoP is involved in the scenario depicted below.
- The coordinator of the ePrep CoP plays a particular role: he is involved in each activity (see section 2.1: “Activity of developing ePrep as a CoP” and “Specific activities”)
- The other ePrep CoP’s members are involved in these activities at a different level:
  - Some of them are active members regarding one, or two, or three specific activities – they take part in the development of the projects planned for these activities (for each activity, a member of the CoP plays a particular role: he is the “thematic referent”, in charge of the coordination of the project planned for this activity).
  - Some of them, less-active members, are only interested in the theme and the results of the projects developed, but not participate in the elaboration of the projects themselves.
  - The more often, ePrep CoP’s members are active members for one specific activity and less-active members for the others.
  - Naturally, the active members play an important role in the activity of developing ePrep as a CoP.

The following diagram (Diagram 1) describes the actors of the ePrep CoP involved in the scenario using a Mot representation:

*Diagram 1: actors of the ePrep CoP involved in the scenario*



#### 4.1.2 Services and functions offered by the PALETTE tools invoked in the scenario

1. e-Logbook – collaborative Web-based environment offering mediation and awareness services for CoPs

The functions offered by e-Logbook that are invoked in this scenario are summarized below.

- **Create activities** with a title, a description of its objectives, and optionally a set of expected deliverables. For each activity, role(s) with predefined rights should be defined. By default, the creator of the activity has the role admin over it and from there, he can invite other people to join his activity with a specific chosen role for them.
- **Invitations** to e-Logbook activities can be done statically (on a personal basis) or dynamically. A user which has been invited to an activity should explicitly accept the invitation, unless he/she has chosen to turn on the option “automatically accept all invitations”. In that case, his status will be automatically changed to “join” whenever he/she is invited to an activity.
- **Dynamic invitations** for each activity can be performed by creating a dynamic link between activities. This is equivalent to say that members of activity 1 are invited to activity 2. Dynamic invitation can also be done on a role basis, by saying: members with the role X in activity 1 are invited to activity 2. This means that whenever a new member joins activity 1, he/she will be automatically invited to activity 2 and when he/she is no longer a member of activity 1, access to activity 2 will be forbidden.
- **Actions over activities** are of two kinds, either administrative (editing deliverables, editing roles, changing the description of the objective, inviting people) or operational (such as semantically linking, tagging and rating activities).
- **Actors can manage user profiles and notification preferences:**
  - the user profile of each member includes his/her contact information, as well as his/her level of expertise and domain of interest,
  - the notification preferences of each member include the specifications of what, how and when he/she would like to be notified (some notifications rules are existing by default for all the community members).
- **Access rights over assets can be of two types: read-only or full-access rights. There are different levels in exchanging assets or giving rights of access to assets (per activity members, per role within an activity, per person). Assets can consist of images, simple text, graphs...:**
  - with the possibility for each member to define private or public tags over the assets he/she can access (private tags can only be seen by the one who tagged the asset while public ones are viewable by all people who can access assets),
  - with the possibility for each member to link assets specifying the appropriate type of link (e.g. asset x is ‘a comment on’ asset y),
  - with the possibility to submit or deliver an asset as a response to a specific delivery requirement within an activity,
  - with the possibility, for members who have access to the assets, to rate or evaluate them.
- e-Logbook keeps track of all the events that are happening within the community (**member actions logging**, in the respect of the privacy of each sub-group, members being informed of actions and events that only concern the activity in which they are involved).
- e-Logbook provides every user with three main interconnected types of **awareness**:
  - **artefact-based awareness**: concerning all actions that revolve around the assets that are being exchanged (informing the members about the creation of new assets as well as the evaluation or submission of assets, including statistics about how many members have access over a specific asset and how many have read it, tagged it, evaluated it, etc.,
  - **actor-based awareness**: informing every member of the state of other members involved with him in sub-activities (connected, absent, busy) and including notification of the arrival of new members,
  - **activity or task-based awareness**: reminding the members of their dues when they are expected to deliver something or evaluate something within a specific activity.

Note that other functions may be included after the validation of this scenario by the target audience (see section 1.2) and the validating PALETTE researcher.

## 2. SweetWiki – semantic Wiki

SweetWiki is a new semantic Wiki engine, developed using semantic Web technologies.

SweetWiki implements the concept of “social tagging”: using a WYSIWYG editor, the user can tag pages, pictures, add new tags just by typing them, etc. The semantic search engine Corese is then used transparently on these tags. If the user types a given tag in the tag search form, he/she will get all objects tagged with this tag or its sub-tags. The user will be proposed all the related tags that, in turn, link to other relevant documents.

SweetWiki also offers a folksonomy editor (the set of tags is called a “folksonomy”). Any user may “organize the tags”.

SPARQL queries can be embedded in any page so as to provide dynamic content, for example all the pages about a given topic. The same mechanism is used for awareness: at the bottom of each page, a user can find the pages related to the tags he/she is interested in.

SweetWiki ontology defines the main concepts in a Wiki and can be queried at any time using SPARQL requests. The user can even embed SPARQL requests in the middle of a document and display the results in a table or any other presentation. Users are provided with a library of queries that they can use to include dynamic content in their pages.

SweetWiki works with two search engines: the Lucene search engine (à la Google) as well as the Corese semantic search engine for semantic search.

## 3. Amaya – Web editor

Amaya is a Web editor, i.e. a tool used to create and update documents directly on the Web. Browsing features are seamlessly integrated with the editing and remote access features in a uniform environment. This follows the original vision of the Web as a space for collaboration and not just a one-way publishing medium.

Web documents are structured documents described in HTML and more recently in XHTML. XHTML defines a set of structured elements like divisions, headings, paragraphs, lists, list items, inline elements, tables, cells, etc. The presentation of Web documents exploits the document structure and it is clearly separated. With CSS (Cascading Style Sheets), the user may attach a set of presentation rules (colours, fonts, etc.) to a selected piece of its structured document.

Amaya includes all editing functionalities of a Word processing, but it also provides help to manage the document structure and its presentation. With Amaya, the user can easily insert, delete, copy, paste, and transform the XHTML structure of edited documents. A document generated by Amaya is always correct and is accessible by any Web browser.

Hypertext links are important elements on the Web. Amaya provides specific commands to create and manage these links, and it allows the user to work on several documents at a time to facilitate this management.

Amaya supports several of XML syntaxes. It allows users to browse and edit Web documents containing mathematical expressions based on MathML (a XML language to represent maths). This functionality is quite useful for some users in the educational domain. Amaya is also able to display scalable and animated graphics coded in SVG (a XML language to represent vector graphics).

Finally, Amaya includes a collaborative annotation mechanism. Annotations are external comments, notes, remarks that can be attached to any Web document or sub-part of document. This mechanism lets one add information about a document he/she cannot edit.

### *PALETTE version*

With Amaya, it's possible to build a large variety of Web documents. Some are institutional pages, technical reports, and slides shows; others are curriculum vitae, address books, agendas. All these kinds of Web documents have their specific conceptual components. By example, menus and events for institutional pages, chapters and sections for technical reports, slides for slides shows, etc. Today, document authors have to manage the mapping between these specific components and the current edited XHTML structure. This implies for document authors some XHTML expertise and a well known of the target document structure.

New Amaya version will be extended with the notion of templates. A template is a document with fixed contents and holes where the user can insert information. In some cases templates look like a form as those provided by content editors. A template defines the skeleton of the document, by example a slide show. It declares components that are specific to that document type. By example, a slide show template declares a slide component that generates a division with a class attribute "slide" and includes a heading followed by a list of items. At the same time, a template indicates where components must or may appear in the document, how many occurrences is mandatory or possible, etc. Often, a template comes with a complete set of presentation rules.

Once an expert has described a template and its presentation, a common user can quickly and easily generate a document instance belonging to this template. The document skeleton is automatically generated and the user has just to add personal information. In accordance with the template, components are proposed to the user to be inserted at the right position in the edited document instance. With that approach, Amaya becomes a customized document editor for the user.

#### 4. LimSee3 – authoring application for SMIL languages

LimSee3 is a multimedia authoring tool that proposes simple and efficient document editing through an extensive use of models (also called templates or patterns) and an adaptive user interface.

Basically, a LimSee3 document describes the logical, spatial and temporal relationships that exist among some set of media assets. These assets are referenced by, but not integrated into the document, so that they remain freely reusable. Furthermore, they can be local or distant.

LimSee3 puts a stress on the presentation logics rather than on its technical constraints. In order to be more than a mere collection of media assets, our documents define a hierarchical structure that reflects the meaning of the presentation. Structuring makes the authoring process more intuitive.

LimSee3 relies on a template mechanism which allows users to create and modify complex documents with minimal effort. A template can be seen as a structured "document-to-fill in": some parts are provided and there is no need to worry about them, other parts are waiting for a user-supplied content. During the instantiation, the user is guided by the application.

Finally, LimSee3 offers a graphical user interface which can be customized with user preferences. Moreover, the user interface can adapt to a particular template, making it more natural to use.

#### 4.1.3 Services and tools already used by the community

- To perform the tasks in which they are involved inside the ePrep CoP, CoP's members already use tools like:
  - text editors (Word, OpenOffice, LaTeX...)
  - table editors (Excel, OpenOffice...)
  - presentations (PowerPoint, OpenOffice...)
  - Web editors (DreamWeaver, FrontPage...)
  - other tools (Acrobat to convert content to exchange or to be put online, Breeze to realize a multimedia course...)
- For information, knowledge management and mediation, the CoP uses:
  - a Web site regularly updated by the coordinator
  - a mailing list moderated by the coordinator
  - emailing from 1 to 1
  - emailing from 1 to n
  - audio or video conference calls (free tools)

## 4.2 Description of plausible scenario

### 4.2.1 Subject of the scenario for the ePrep CoP

The subject of the scenario presented below is the following (real situation): the ePrep CoP is preparing the second ePrep thematic workshop to be held in Lyon on November 5 & 6, 2007, on the



theme “the ePrep CoP: which tools for which projects?” (see [www.eprep.org/thematic\\_workshops.htm#second](http://www.eprep.org/thematic_workshops.htm#second)). At this workshop, the coordinator of the ePrep CoP and each “thematic referent” (see section 4.1.1) will present a communication about the use of the PALETTE tools in their activities (activity of developing the ePrep CoP for the coordinator, specific activities for the “thematic referents”).

The roles of the coordinator of the ePrep CoP are:

- to structure e-Logbook for the CoP and to invite CoP’s members to join e-Logbook,
- to follow-up the development of the ePrep CoP through the awareness functionalities of e-Logbook and to take part in the activities,
- to prepare a deliverable for the end of July to present her first conclusions about the development of the ePrep CoP thanks to the PALETTE tools (first input for her communication at the second ePrep thematic workshop - November 5 & 6, 2007).

The roles of ePrep CoP’s members are:

- to join e-Logbook and manage their user profiles and notification preferences,
- to conduct the projects in which they are involved, specific activity per specific activity (“Wikiprepas”, “ePrep francophone platform”, “International cooperation between CPGEs and similar establishments”), using the PALETTE tools dedicated to these activities,
- to prepare deliverables for the end of July (one deliverable per activity) to present the first conclusions about the developments of the projects thanks to the PALETTE tools, specific activity per specific activity,
- for the “thematic referents”: to prepare a communication for the second ePrep thematic workshop (November 5 & 6, 2007) - subject: a concrete example of using the PALETTE tools to conduct the ePrep specific activities.

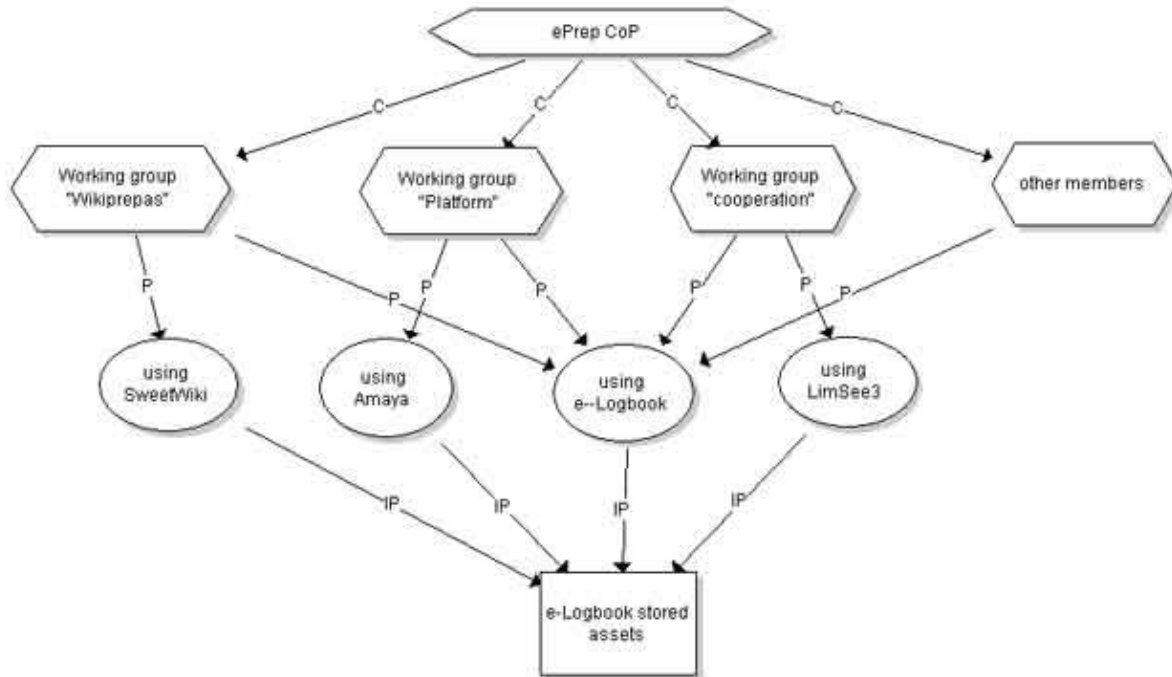
#### 4.2.2 Composition of the scenario for the ePrep CoP

The scenario for the ePrep CoP is composed of one general scenario and three specific scenarios:

- the general scenario describes the use of e-Logbook for the activity of managing ePrep as a CoP, taking into account the links between e-Logbook and the tools used for each specific activity (SweetWiki, Amaya and LimSee3),
- each specific scenario, through the preparation of the presentations to be made at the second ePrep thematic workshop (November 5 & 6, 2007), describes, step by step, the use of a PALETTE tool for a specific activity of the ePrep CoP:
  - the use of SweetWiki for the specific activity “Wikiprepas”,
  - the use of Amaya for the specific activity “ePrep francophone platform”,
  - the use of LimSee3 for the specific activity “International cooperation between CPGEs and similar establishments”.

The following diagram (Diagram 2) shows the links between the PALETTE tools in the general scenario for the ePrep CoP using a Mot representation:

Diagram 2: the PALETTE tools in the general scenario for the ePrep CoP



#### 4.2.3 General scenario: the use of e-Logbook for the activity of developing ePrep as a CoP, linked to the use of SweetWiki, Amaya and LimSee3 for each specific activity

First, the coordinator of the ePrep CoP structures e-Logbook for the CoP and dynamically invites CoP's members to join it; the members join e-Logbook and manage their user profiles and notification preferences. Then, while the members are working on their specific projects, uploading and downloading assets on e-Logbook, the coordinator follows-up the development of the CoP through the awareness functionalities of e-Logbook, taking herself part in these projects.

1. The coordinator of the ePrep CoP creates and organizes new workspaces within e-Logbook for the CoP.
  - She creates the main workspace "ePrep CoP" for the main activity "developing ePrep as a CoP" (this workspace is marked P1 - P like project - in the scenario).
  - The coordinator has the role "administrator" with full administrative rights by default, since she created the activity.
  - The coordinator defines the role "member" for this activity and defines a set of rights associated with this role. In particular, the coordinator will not allow the other ePrep CoP's members to create workspaces of their own and to dynamically link the workspace "ePrep CoP" she has created to other workspaces. All other rights such tagging and rating activities, and uploading, downloading, reading, tagging, rating, evaluating, editing, linking assets will be allowed.
  - The coordinator creates three sub-workspaces, one per each specific activity of the ePrep CoP, and links semantically these sub-workspaces to the main workspace by the link "is a project of":
    - she creates the sub-workspace "Wikiprepas" for the specific activity "Wikiprepas" (this activity is marked P2 in the scenario) - P2 is linked to P1 by "is a project of",
    - she creates the sub-workspace "Platform" for the specific activity "ePrep francophone platform" (this activity is marked P3 in the scenario) - P3 is linked to P1 by "is a project of",
    - she creates the sub-workspace "Cooperation" for the specific activity "International cooperation between CPGEs and similar establishments" (this activity is marked P4 in the scenario) - P4 is linked to P1 by "is a project of".
  - The coordinator defines two different roles for each sub-activity:

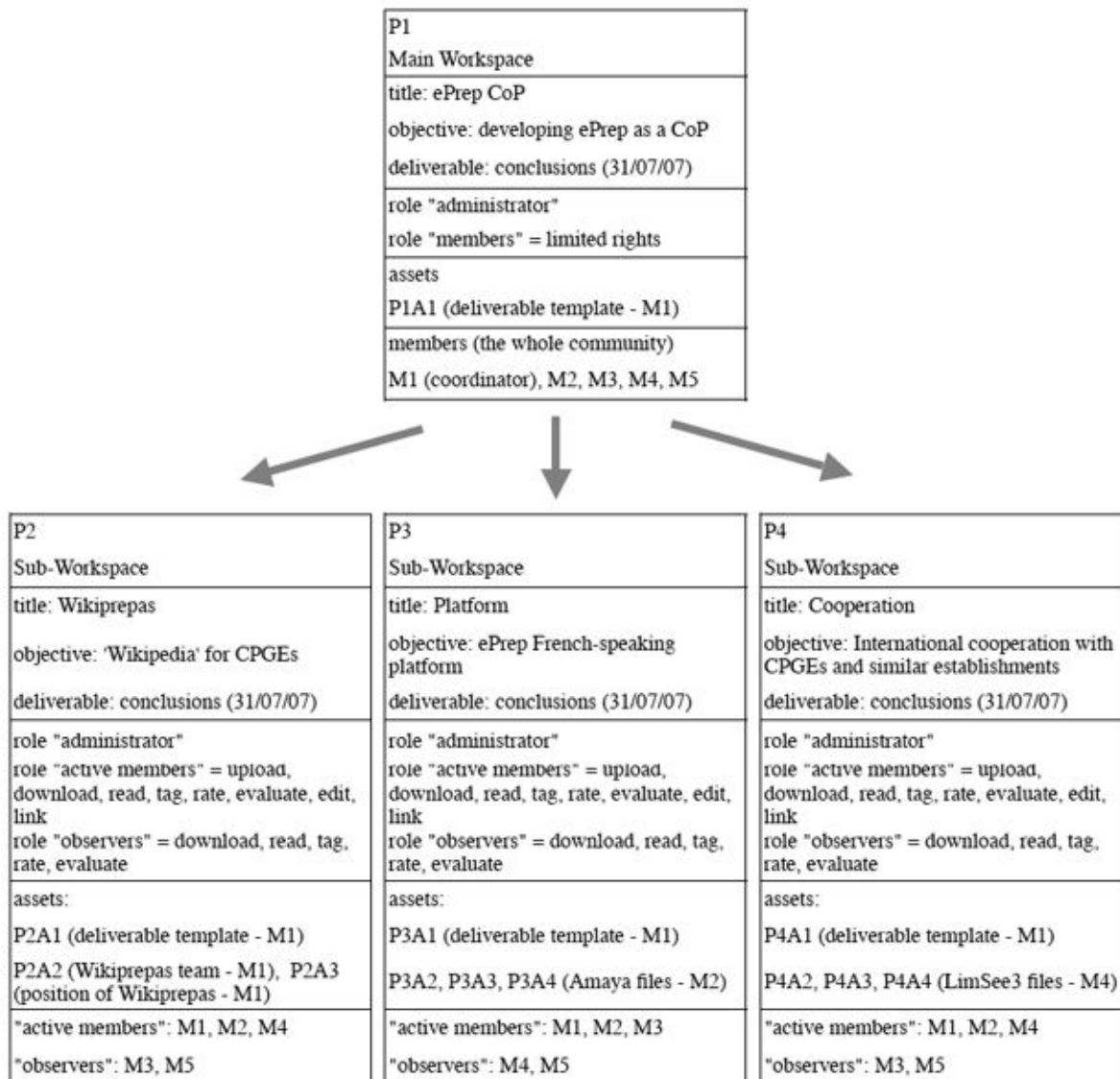
- she creates the role “active member” for the members involved in the sub-activity, with the rights to upload, download, read, tag, rate, evaluate, edit, link the assets owned by the sub-activity,
    - she creates the role “observer” for the members not involved in the sub-activity who will only have the rights to download, read, tag, rate and evaluate the assets related to the sub-activity,
    - she will now create a dynamic link between the main workspace and these sub-workspaces by a dynamic invitation to the members of the main workspace to join each sub-workspace with the role “active member” or “observer”; ePrep members will choose to accept or rejecting the invitation.
  - The coordinator uploads assets in each workspace or sub-workspace (assets will be marked A - A like asset).
    - She first uploads a template for the deliverables due on July 31, 2007 (Word document for instance) in each workspace or sub-workspace (title: “deliverable”; subject: “first conclusions about the developments of the project thanks to the PALETTE tools - concrete examples”):
      - The deliverable for the activity “developing ePrep as a CoP” is uploaded in the main workspace and is naturally marked P1A1 (asset 1 in the activity 1).
      - The deliverable for the specific activity “Wikiprepas” is uploaded in the sub-workspace “Wikiprepas” and is naturally marked P2A1 (asset 1 in the sub-activity 2).
      - The deliverable for the activity “ePrep francophone platform” is uploaded in the sub-workspace “Platform” and is naturally marked P3A1 (asset 1 in the sub-activity 3).
      - The deliverable for the activity “International cooperation between CPGEs and similar establishments” is uploaded in the sub-workspace “Cooperation” and is naturally marked P4A1 (asset 1 in the activity 4).
    - Then, the coordinator uploads:
      - two assets (Word documents) concerning the specific activity “Wikiprepas”, in the sub-workspace “Wikiprepas”: a document about the choice of the Wikiprepas team (including the choice of an editorial committee) marked P2A2 (asset 2 in the sub-activity 2) and a document concerning the choice of the positioning of Wikiprepas (a dictionary? an encyclopaedia? for which disciplines?) marked P2A3 (asset 3 in the sub-activity 2).
- 2. The coordinator of the ePrep CoP dynamically invites ePrep CoP’s members to join e-Logbook.
  - The members who want to join e-Logbook may accept to join per default the main activity “developing ePrep as a CoP” and may accept to join zero, or one, or two, or three specific activities (according to the two different roles defined for each sub-workspace).
  - The members who have joined e-Logbook (with the role “active member” or “observer” for each specific activity) manage their user profiles and notification preferences.
    - For this scenario, we will suppose that 4 members join e-Logbook (members will be marked M - M like member - M1 is the coordinator of the ePrep CoP): in the main activity (marked P1) we have 5 members (M1, M2, M3, M4 and M5) and, according to the decision of the members themselves, in the sub-activity “Wikiprepas” (marked P2) we have 3 “active members” (M1, M2 and M4), in the sub-activity “Platform” (marked P3) we have 3 “active members” (M1, M2 and M3), in the sub-activity “Cooperation” (marked P4) we have 3 “active members” (M1, M2 and M4) (the list of the members with email addresses is available in e-Logbook sub-activity per sub-activity).

- For this scenario, we will suppose that the 4 members want to be informed of each e-Logbook event.
  - Thus, the tasks of the members are the following: all the members are participating in the activity of “developing ePrep as a CoP”, M1 - the coordinator of the ePrep CoP - is involved in each specific activity, M2 is involved - by choice - in each specific activity, M3 is involved - by choice - in the specific activity “Platform” (he/she is an “observer” of the specific activities “Wikiprepas” and “Cooperation”) , M4 is involved - by choice - in the specific activities “Wikiprepas” and “Cooperation” (he/she is an “observer” of the specific activity “Platform”), M5 is not involved in any specific activity, he/she is an “observer” of all specific activities.
- 3. The “active members” upload a lot of assets in their specific sub-workspaces:
  - sub-workspace “Platform”: M2, very active in testing Amaya to build pedagogical content, uploads 3 courses (Amaya files) in the sub-workspace “Platform”, these assets are naturally marked P3A2, P3A3 and P3A4,
  - sub-workspace “Cooperation”: M4, who has already tested a first version of LimSee3 for 3 courses he used to teach in CPGE, uploads the 3 corresponding assets (LimSee files), naturally marked P4A2, P4A3 and P4A4,
  - thus, the repartition of the assets are the following (at this stage, see Diagram 3 for a static view of the ePrep activity in e-Logbook):
    - main workspace “CoP ePrep”: 1 asset: P1A1 (uploaded by the coordinator M1)
    - sub-workspace “Wikiprepas”: 3 assets: P2A1, P2A2 and P2A3 (uploaded by the coordinator M1),
    - sub-workspace “Platform”: 4 assets: P3A1 (uploaded by the coordinator M1) and P3A2, P3A3, P3A4 (uploaded by M2),
    - sub-workspace “Cooperation”: 4 assets: P4A1 (uploaded by the coordinator M1), P4A2, P4A3 and P4A4 (uploaded by M4).
- 4. Tagging assets.
  - The coordinator puts a private tag on one of the Amaya assets, the one that she especially appreciates (M1 puts a private tag on the asset P3A2).
  - M2 puts public tags on the 3 assets he/she has uploaded on the sub-workspace “Platform” to inform all the members about the specific functionalities of Amaya tested in each document (M2 puts public tags on the assets P3A2, P3A3, P3A4).
- 5. Linking assets and activities.
  - A member using LimSee3 for the specific activity “International cooperation...” (M4 for instance) wants to know if the courses he/she is developing with LimSee may be an input for the specific activity “ePrep francophone platform”: he/she uploads a new asset (a Word document where he/she explains the situation) in the sub-workspace “Platform” (asset naturally marked P3A5) and he/she links this asset to his/her courses developed with LimSee3 (P4A2, P4A3, P4A4 are linked to P3A5 by “see examples”).
  - One month after the opening of e-Logbook, the coordinator consults the document about the choice of the positioning of Wikiprepas (P2A3) and concludes on the interest of linking this project with the project of the ePrep francophone platform: she creates the semantic link “is useful for” between these two sub-activities (“Wikiprepas” is useful to “Platform”).
- 6. Artefact-based awareness.
  - Two months after the opening of e-Logbook for the ePrep CoP, the coordinator consults the statistics about the Amaya assets P3A2, P3A3, P3A4 to know how many members have read them, have tagged them and have evaluated them,
  - since the feedback is still too limited, she uploads a new asset in the main workspace to ask all members to complete their observations about these Amaya assets - all members of the community will be made aware when this last asset is uploaded (this asset is naturally marked P1A2 and linked by the coordinator to assets P3A2, P3A3, P3A4 by link “P3A2 is an asset to evaluate following the P1A2 request”, “P3A3 is an

asset to evaluate following the P1A2 request”, “P3A4 is an asset to evaluate following the P1A2 request”), so they will be able to respond to the demand of the coordinator.

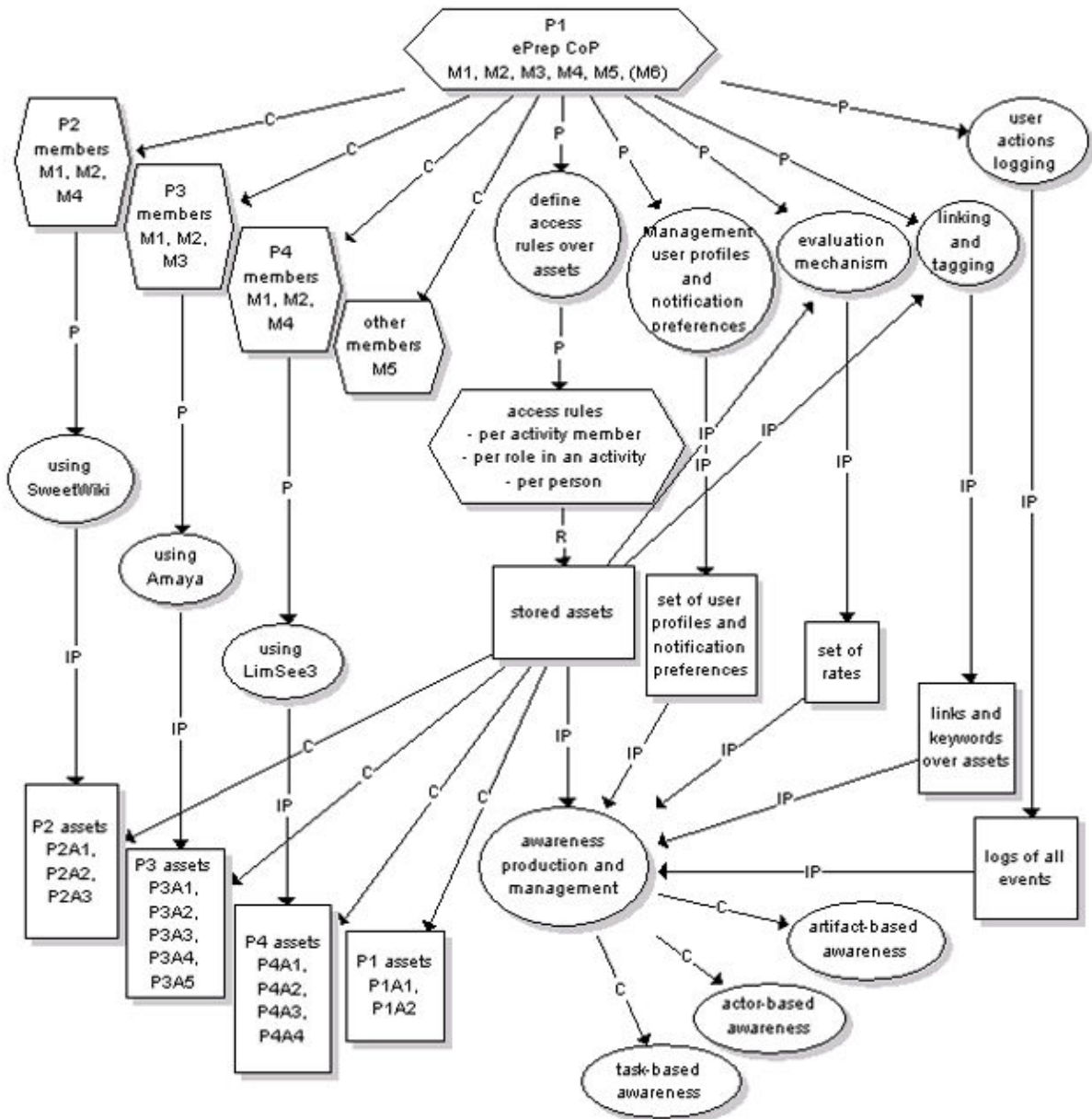
7. Actor-based awareness.
  - A new member of the ePrep CoP, M6, joins e-Logbook: the other members are made aware of this arrival.
  - A new sub-workspace is created by the coordinator, in response to a new project proposed by the ePrep Orientation Committee: all the members are made aware of this creation and can modify their user profile and notification preferences to take part in the new project.
8. Activity or task-based awareness.
  - The coordinator reminds the members of the deadline for the deliverables due for each specific activity.
  - M3, a member of the sub-activity “Platform”, informs all the members that, in response to this request, he has uploaded the first draft of the deliverable concerning this specific activity (P3A1).

Diagram 3: static view of the workspace for the ePrep CoP in e-Logbook (status after steps 1 to 3 in the scenario)



The following diagram (Diagram 4) describes the general scenario for the ePrep CoP using a MOT representation.

Diagram 4: general scenario for the ePrep CoP



4.2.4 Specific scenario: the use of SweetWiki for the activity “Wikiprepas”

*Nathalie, coordinator of the ePrep CoP, was a Physics teacher in CPGE until 2001. Within the CoP, Nathalie is the “thematic referent” of the “Wikiprepas” project. She will present the first results of this project at the second ePrep thematic workshop (November 5 & 6, 2007). Nathalie decides to focus her presentation on two aspects: the edition of an article on Wikiprepas, the consultation of an article on Wikiprepas. The scenario below describes the two situations: Nathalie edits an article on Wikiprepas, and a student in CPGE searches a definition on Wikiprepas.*

*Please note that the contribution to Wikiprepas is reserved to ePrep CoP’s members. These members are registered by the administrator of Wikiprepas and below to the “editors group”, while the students in CPGE below to the “readers group”. In a short term, awareness functionalities will be implemented in SweetWiki for the two groups, the editors and the readers (to take benefit of these awareness functionalities, the readers will have to register on the Wiki).*

**Nathalie edits an article on Wikiprepas**

Nathalie decides to write an article on Wikiprepas about Isaac Newton. She logs in the Wiki, navigates to the “Famous Scientists” subspace and creates a page directly from her Web browser. Just after she

pressed the Create “New Page” button, she starts editing it in a WYSIWYG editor integrated in the Wiki. This WYSIWYG editor is very similar to a small Word processor with all the common formatting features, spell checking and some wizards for helping creating multimedia content (pictures, audio, streaming videos) or hyperlinked content (linking pages together directly from the editor).

Nathalie types an introduction and includes some appealing pictures at the beginning of the document. Then, she decides to reuse some pedagogical content she already wrote using a Word processor, she copies and pastes this content into the WYSIWYG editor. The formatting of the new text is globally preserved (italics, bold, titles, tables, lists, etc.) but is also “aligned” to the look’n’feel of the rest of the documents on the Wiki (polices, colours, etc.). Before saving the page, she adds some tags using an “intelligent text field” on the right of the page that proposes auto-completions on already existing tags as she types the first letters of the tag she is going to use. For example, if she types “Is”, the name “Isaac Newton” will be proposed, indicating how many users have used it so far. Nathalie chooses to “join” the others and clicks on “Isaac Newton”. She also adds a tag “work in progress” to specify that the document is a work in progress. She may remove this tag later...

During the save process a “version” of the page is created. Every time a modification occurs on a page, a new version is added: the whole history of every page is always kept on the system. This is very securing for the authors as they can never loose or “break” anything even if they remove whole parts of the content by mistake. A few hours later Nathalie decides to continue editing the document... She finds the document easily by typing “Is” and validating “Isaac Newton” on the list proposed by auto-completion. The list of documents tagged with “Isaac Newton” is displayed, sorted from the most recent to the oldest one. Documents by Nathalie are proposed first if she logs in the Wiki. She clicks on the page she created earlier and edits it. She makes some small corrections and decides to add further information about Isaac Newton, but on another page of Wikiprepas, as this one is becoming too long. She quits, creates a new page, and decides to add some multimedia content: one video found in an external Web site and one video she has got on her hard drive. She creates the new page, and starts inserting the multimedia content directly from the editor using the “Insert video” wizard: she indicates the URL of the external video, the local video is uploaded on the server and automatically converted on the fly into a streaming format. She may resize the videos directly from the editor and add tags on these videos to make them searchable.

She chooses the tags “Isaac Newton” and “multimedia”. Again, these tags already exist and she only has to type 2 or 3 characters before the auto-completion mechanism proposes the right tags. She saves the page and decides to link it from the first page. She edits the first page, and uses the “Internal link” wizard to link the second page. Without quitting the WYSIWYG editor, a wizard helps her finding the page she wants to link in (this wizard uses the AJAX technology and sends query to the server). She may sear the pages by typing the beginning of the name of the page, choosing to see the pages she created or contributed to. Once she finds the page, a hyperlink is created.

Then she wants to ask Jacques, a colleague of her, to help improving the content of the first page. She sends an email to Jacques, indicating the URL of the page. Jacques logs in Wikiprepas and looks at the page that Nathalie created. He sees some typos and decides to add one paragraph. He edits the page directly from the editor and starts modifying the page content. Just before saving, he adds a new tag: “theory of gravitation”.

Jacques is an expert user of the Wiki; he goes to the “folksonomy editor” embedded in the Wiki and looks at all the tags used by the ePrep CoP. He creates a new “tag/category” named “theories” and drags and drops “theory of gravitation” under the “theory” tag just created, in a very similar way he uses the Windows explorer to move or copy files. He also copies the “theory of gravitation” tag under “Isaac Newton” and moves “Isaac Newton” under “Famous scientists”. By “organising” the new tag, he knows he will improve the search and navigation features of the Wiki.

By default, creators or contributors to the Wiki pages are automatically registered to get emails when page content is modified. Nathalie soon gets an email indicating that Jacques made some modifications to the Isaac Newton page she created. In the email she sees a summary of the modifications, the date of modifications, etc. She may click directly on the link in order to open the page in a Web browser. A “see history” and “see diffs” link is provided so that she may track precisely the updates made by Jacques.

Complex awareness features are provided by the Wiki: RSS streams are proposed for tracking changes on the whole Wiki or on subspaces of the Wiki; in addition, users may register to get emails every day or at every change of pages or subspaces of their choice. A more original mechanism is proposed: it is possible to be alerted when a new page is created on a given topic or if an existing page related to a given topic is updated.

Finally, Nathalie decides to create a new category in Wikiprepas, a new subspace (or “Web”) to publish a new page. She uses the “Create Web” features that is proposed to the ePrep administrators and creates a subspace named “Engineering sciences”. She decides to publish a first document in this subspace but, this time, she has a very complete Word document. She uses the “Import from Office” feature of SweetWiki. She browses her hard disk in order to find the .doc file, and then chooses a name for the Wiki page she is going to create. She is already looking at the home page of the “Engineering sciences” subspace so the page will be by default created in that subspace. Automatically the document is uploaded and converted into an editable HTML page, including the pictures. Nathalie makes some small modifications, tags the page and saves it.

Jacques, who subscribed to the RSS feed of the Wiki, can see in his RSS browser that a new page has been created in the Wiki. He clicks on the link and looks at the page. He sees that Nathalie created it, and he registers to be notified in case this page is updated again.

Nathalie asks other colleagues to look at the pages she created, and suggests to them to improve the content. Finally, after a few days, the content reaches a quality that satisfies all ePrep CoP’s members involved and the tag “work in progress” is removed.

### ***A student in CPGE searches a definition on Wikiprepas***

A student is looking for information on the “theory of universal gravitation”. He types in the “Tag search” text field “gra”. As soon as he types, the auto-completion mechanism proposes “theory of gravitation”. He validates this choice by clicking on it. A page displays links, pictures and videos that have been tagged by this keyword.

At the very top is the page dedicated to the theory of gravitation, but other links propose the page “Isaac Newton”, even if this one has not been tagged with such a tag. This link has been inferred because Isaac Newton is related to the theory of gravitation, thanks to Jacques who put “Theory of gravitation” under “Isaac Newton”.

The student clicks on the first choice and looks at the page about the theory of gravitation. Using the folksonomy, SweetWiki proposes faceted navigation links on the right side and bottom of the page:

- on the right, the tags used on that page are displayed, with their respective number of documents sharing that tag; by clicking on the tags, the student may explore these documents,
- in the page footer, links display “Category: theories” and “Related tags: Isaac Newton”; by clicking on these navigation tags, the student may visit neighbour pages, talking about the same topic or about related topics.

Finally, the student comes to the Isaac Newton page, and finds very interesting the biography of this famous scientist, he then click on the “Famous Scientists” category tag and spends some time looking at other scientist’s biographies. He decide to register to this category so that he will be notified when a page “talking about” famous scientists is created or updated. One remarkable point is that if the page



“theory of gravitation” is updated, he will be notified as well, indeed this page is related to Isaac Newton in the sense its classification has “Isaac Newton” as one of the super category.

#### 4.2.5 Specific scenario: the use of Amaya for the activity “ePrep francophone platform”

*Damien, member of the ePrep CoP, is a Physics teacher in CPGE in Libreville, Gabon. Involved in the “ePrep francophone platform” project (he is the “thematic referent” for this project), he decides to use Amaya to develop pedagogical content to put on this platform. He will present this online content at the second ePrep thematic workshop (November 5 & 6, 2007) as a concrete example of using Amaya for the “ePrep francophone platform” project. The scenario below describes how Damien edits his pedagogical content with Amaya.*

This content includes:

- a physics tutorial divided into chapters which gives the complete text of his lectures,
- an exercise book that provides exercises for each chapter,
- several slide shows, one for each lesson, which summarizes the most important notions introduced during the lesson.

Damien decides to use Amaya, as he discovered that the tool provides all the support he needs to create this complete pedagogical content: Amaya provides the usual features of a Word processor, but it also supports all the features needed to publish, share and link documents on the Web. In addition, it handles efficiently document structures such as divisions, headings, lists, tables, mathematical expressions based on MathML (a XML language to represent maths), and scalable, animated graphics coded in SVG (a XML language to represent vector graphics).

Damien has to learn about this new kind of tool, but he quickly discovers the benefits he can draw from using it. He works in a single consistent environment for producing all types of documents. He does not have to use a collection of closed tools, a text editor for the text of the tutorial, a math editor for formulas, a table editor, a slide show editor, and finally a Web tool to publish the material on the Web.

Damien starts to work on the tutorial. In Amaya he uses a template that defines the exact components he needs: titles, chapters, sections, sub-sections, figures, references, etc. With this template, the creation of the tutorial is very easy. The initial structure is automatically generated. He just has to provide the content of the components. Creating new sections, sub-sections, figures, etc. with all their structure is done by a single click. He only needs to know a few XHTML elements to be inserted in components such as sections and sub-sections. These XHTML elements can be easily created through the buttons provided by Amaya. When needed, he enters mathematical formulas and symbols with the help of dedicated tools. He can insert images or drawings that illustrate the content. He adds links to Web resources that give complementary information about the current content.

Once a chapter is written, Damien decides to write the corresponding exercises in the exercise books. He uses the same tool, with a different template, and he can copy/paste any piece of the tutorial here.

Then, Damien generates a slide show for each lesson. He uses Amaya again, with a specific template that defines such components as slides, incrementally displayed lists, etc. The slide shows are very easy to build starting from the material already available in the tutorial. He gets copies of important definitions, mathematical formulas and illustrations from the tutorial, and he pastes them in the appropriate slides. He does not have to worry about such details as character size or fonts, which are very different in a textbook and in slides. The tool automatically applies the right style and enlarges the drawings. The slide show is uploaded on the Web server in a single click. Like him, his colleagues can now use their favourite Web browser to present the slides to their students. The most advanced browsers, such as Firefox, will allow them to display the content slide by slide during the lesson, showing complex content, including MathML equations and SVG graphics.

When the first version of the tutorial is complete, Damien decides to publish it on his private Web site to get feedback from some colleagues. Before saving the document, he gives Amaya the email addresses of these colleagues. This list is stored in the document itself, so that every time the document is updated, all these people will receive a message informing them that a new version is available for review. His colleague Katia has a look at the tutorial. She suggests extending a chapter of the tutorial and Damien agrees. She makes the changes directly on the Web with Amaya; their colleagues receive a notification message and are then free to read the latest version.

Ali was also using Amaya to write a set of exercises for his students. He uses the “Send by email” command from Amaya to send this document to Damien. Damien is very happy to receive this contribution and it includes it his exercises book, before making a few changes to adapt it for his class.

#### 4.2.6 Specific scenario: the use of LimSee3 for the activity “International cooperation between CPGEs and similar establishments”

*Olivier, member of the ePrep CoP, is a Physics teacher in CPGE who performs his physics courses using a PowerPoint slide show including equations, animated schemas, and hypertext links. Involved, within the ePrep CoP, in the “International cooperation between CPGEs and similar establishments” project (he is the “thematic referent” for this project), he decides to build a multimedia course to be exchanged in the framework of distance training with the Polytechnic National Institute F. Houphouët Boigny in Côte d’Ivoire on the theme “Oscillateurs, portraits de phase”. For that, he plans to film his own course with a digital camera and then to use LimSee3. He will present this multimedia course at the second ePrep thematic workshop (November 5 & 6, 2007) as a concrete example of using LimSee3 for the “International cooperation” project. The scenario below describes how Olivier builds his multimedia course with LimSee3.*

Olivier opens LimSee3 and loads the Conference presentation template. This template already proposes a spatial layout suitable for his purpose: a main window to present the slides, a smaller window to show the video sequence and a box where the table of contents would appear. Some pre-defined interactive widgets (as stop, play, and rewind buttons) are provided too.

The application prompts Olivier to import the video sequence, which he does by selecting the corresponding file on the disc. Then, he imports his slide show in the same manner.

The application automatically extracts the title of each slide and proposes an initial table of contents. The list of titles is already made interactive in the sense that clicking on a title brings up the corresponding slide. However, the slide show is not yet synchronized with the video sequence.

To achieve the synchronization, Olivier has an easy option. He starts playing his video-recorded presentation in LimSee3 and every time he wants the next slide to appear, he hits a special “synchronizing” button in the application. The application associates slides and time-stamps in the video sequence on the fly, so that when Olivier finishes playing the video, all table-of-content entries are synchronized with a slide and with a portion of the video sequence. Of course, if Olivier wishes to go faster, he can take a more manual option: using LimSee3 in the manner of a media player, he can fast-forward, pause, rewind etc. through the video sequence, so to find the synchronization points in less time.

The presentation is now ready to be published. To make it even more user-friendly, Olivier decides to perform some improvements. He wants to provide a better structure to the table of contents: in fact he wishes to split the currently plain list of slide titles into several chapters. To this end, Olivier groups table entries into larger sets and provides a title for every set (such as “Introduction”, “A first example”, “Theoretical results” etc.). Now, the table of contents is organised in a hierarchical way, since it contains several chapters that contain the basic entries. If necessary, Olivier can keep going by splitting large chapters into several sections and so on. The immediate consequence of structuring the table of contents is an easier-to-read and easier-to-navigate presentation of its contents. Moreover,

since all medias are synchronized, Olivier has also implicitly provided a chapter/section structure for the slides and for the video sequence.

Finally, Olivier saves the document on his computer for future reuse. Directly from LimSee3, he also publishes it on his Web site, making it immediately visible.

### *Possible further developments*

Since Olivier has provided a title for every slide, he has implicitly given a description to the embedded equations or schemas. Furthermore, the text of his slides gives a sort of annotation to the equations and to the schemas. Such implicit information could be used by knowledge-management tools to better index the equations and schemas which would be reused by other colleagues to build their own courses (see section 7).

## **4.3 Schematic representation of the scenario**

### 4.3.1 Sequence of events for the use of e-Logbook in the activity of developing ePrep as a CoP

<b>Step</b>	<b>Sequence of events</b>	<b>Expected Results and Evaluation Criteria</b>	<b>e-Logbook requirement</b>	<b>Notes</b>
1	The coordinator of the ePrep CoP creates and organizes new workspaces within e-Logbook for the CoP	-	-	-
1.1	the coordinator creates the main workspace "ePrep CoP"	to provide the CoP with a virtual environment to assure its development	to create a main activity	-
1.2	the coordinator defines the role "member" for this activity and defines a set of rights associated with this role	to allow the members to take part in the development of the CoP	to define a role and its associated rights for a main activity	-
1.3	the coordinator creates three sub-workspaces	to create project teams inside the CoP	to create sub-activities	-
1.4	the coordinator links semantically these three sub-workspaces to the main-workspace by the link "is a project of"	to show the significance of each CoP project regarding the whole CoP	to link semantically a sub-activity to a main activity	-
1.5	the coordinator defines two different roles with the sets of associated rights for each sub-workspace (the role "active member" and the role "observer")	to allow members to join a project team (and other members to be informed of the work in progress, even if they are not team members)	to define roles and associated rights for a sub-activity	-

<b>Step</b>	<b>Sequence of events</b>	<b>Expected Results and Evaluation Criteria</b>	<b>e-Logbook requirement</b>	<b>Notes</b>
1.6	the coordinator creates a dynamic link between the main workspace and each sub-workspace by a dynamic invitation to the members of the main workspace to join each sub-workspace with the role “active member” or “observer”	to allow members to join a project team (and other members to be informed of the work in progress, even if they are not team members)	to link dynamically a sub-activity to a main activity	-
1.7	the coordinator uploads assets in the main workspace and in some sub-workspaces	to set up the work to be done in each team	to upload assets	-
2	ePrep CoP’s members join e-Logbook	-	-	-
2.1	the coordinator dynamically invites ePrep members to join e-Logbook	to form the project teams	to invite dynamically members to join e-Logbook	-
2.2	the members join the main activity “ePrep CoP” and choose or to be “active member” or “observer” in each sub-activities	to form the project teams	to accept a dynamic invitation	-
2.3	the members manage their user profiles and notification preferences	to let the members choose the degree of their involvement in the whole CoP or in the project teams (the only way for a CoP that members are joining on a voluntary basis)	to manage the user profiles and notification preferences	-
3	Members upload assets in the sub-workspaces for which they are active members	to begin the work inside the project teams	to upload assets	-
4	Tagging assets	-	-	-
4.1	the coordinator puts a private tag on an asset	to allow each member to mark off the assets which have a specific interest for him/her	to put a private tag	-
4.2	a member puts public tags on assets	to allow each member to share information upon assets with other members	to put public tags	-
5	Linking assets and activities	-	-	-

<b>Step</b>	<b>Sequence of events</b>	<b>Expected Results and Evaluation Criteria</b>	<b>e-Logbook requirement</b>	<b>Notes</b>
5.1	a member links two assets uploaded in different workspaces	to allow the members to build themselves interconnections between their projects	to link two assets	when a link is created between two assets uploaded in two different sub-workspaces, it would be interesting that, automatically, these sub-workspaces were linked together (semantically)
5.2	the coordinator links semantically two sub-activities	to allow the coordinator to decide of collaborations between two projects	to link semantically two sub-activities	-
6	Artefact-based awareness	-	-	-
6.1	the coordinator consults the statistics upon three assets downloaded in one sub-workspace	to provide the coordinator with an indicator of the CoP activity	artefact-based awareness	-
6.2	the members are informed that the coordinator has uploaded a new asset concerning a demand about these three assets	to assure the coordination of the team work	artefact-based awareness	-
7	Actor-based awareness	-	-	-
7.1	the members are informed of the arrival of a new member	to develop a friendly "team-spirit"	actor-based awareness	-
7.2	members are informed of the creation of a new sub-activity	to develop the opening of the CoP towards new activities	actor-based awareness	-
8	Activity or task-based awareness	-	-	-
8.1	The coordinator reminds the members of the deliverable deadlines	to assure the coordination of the team work	activity or task-based awareness	-
8.2	A member responds to this request uploading the first draft of a deliverable	to respond to a request	activity or task-based awareness	-

## 4.3.2 Sequence of events for the use of SweetWiki in the activity “Wikiprepas”

*Nathalie edits an article on Wikiprepas*

Step	Sequence of events	Expected Results and Evaluation Criteria	SweetWiki requirement	Notes
1	Nathalie creates a new page about Isaac Newton	to easily edit a page (in the adapted subspace) with text and pictures, to tag the elements, and to save the page in a very secure way	-	-
1.1	She logs in Wikiprepas and navigates to the “Famous Scientists” subspace	-	can be structured in subspaces (or “Webs”)	-
1.2	She creates a new page using the Create “New Page” button	-	to offer several possibilities for creating new pages (using the Create “New Page” button is one of them)	-
1.3	She edits the new page: she types the introduction, includes some pictures, copies and pastes pedagogical content she already wrote using his Word processor	-	to have an integrated WYSIWYG editor, similar to a small Word processor	some ePrep CoP’s members regret that, at the moment, they cannot copy/paste content wrote using an OpenOffice editor or a LaTeX editor
1.4	She tags the elements of the page	-	to have an “intelligent text field” offering auto-completions on already existing tags	the tag “work in progress” may be used too
1.5	Nathalie saves the page	-	to save a “version” of the page kept by the system	during the “save” process a “version” is created, and every time a modification occurs on a page, a new version is added (the whole history of every page is always kept on the system)
2	Later, Nathalie improves the document	to easily refine a document to be improved	-	-

Step	Sequence of events	Expected Results and Evaluation Criteria	SweetWiki requirement	Notes
2.1	She finds easily the document by typing “Is” and she improves it	-	to use a list proposed by auto-completion for finding easily any document	the list of documents tagged with “Isaac Newton” is displayed from the most recent to the oldest one
2.2	She saves the updated page	-	-	-
3	Nathalie creates a second page to be linked to the first one she has created	to easily edit a page including videos and to easily link this page from another	-	-
3.1	She creates a new page, edits it (including an external video and a local one, resizing the videos from the editor and tagging them) and saves it	-	to propose an “Insert video” wizard, to offer the possibility to resize the videos and to tag them	-
3.2	She links the second page from the first one		to propose an “Internal link” wizard and a wizard for finding the page to be linked	the wizard for finding the page to be linked uses the AJAX technology
4	Nathalie asks to her colleague Jacques, expert user of the Wiki, to improve the content of the first page	to work collaboratively on the Wiki thanks to its complex awareness functionalities, and, for an expert user, to improve the search and navigation features of the Wiki thanks to its “folksonomy editor”	-	-
4.1	Jacques logs in, adds one paragraph and a new tag, using the “folksonomy editor”	-	to have a “folksonomy editor” embedded, offering the possibility to create categories and subcategories for organising tags	-
4.2	Nathalie is automatically informed of the modifications made by Jacques	-	to automatically inform the contributors to the Wiki when a page is modified, giving them a summary of the modifications, the date of modifications, etc. thanks to a “see history” or “see diffs” link	RSS streams are proposed to be informed, every day or at every change on the Wiki, when a page is created or updated

Step	Sequence of events	Expected Results and Evaluation Criteria	SweetWiki requirement	Notes
5	Nathalie, as an administrator of Wikiprepas, creates a new subspace, then she edits a new page in this new subspace, using a Word document	to structure the Wiki in subspaces (for the administrator), and to edit a page from a Word document (the Wiki converting automatically this document into an HTML page)	-	-
5.1	She creates a new subspace	-	can be structured in subspaces (or “Webs”) thanks to the “Create Web” features	-
5.2	She edits a new page in this new subspace from a complete Word document (with text and pictures), she tags the page and saves it	-	to offer an “Import from Office” feature for converting automatically a Word document into an editable HTML page, including pictures	some ePrep CoP’s members regret that, at the moment, SweetWiki cannot convert an Open office document or a LaTeX document into an editable HTML page
6	Jacques is informed that a new page is created and he registers to be notified when the page is updated	to be informed when a page is created or updated thanks to the RSS streams of the Wiki	-	-
7	Nathalie asks other colleagues to improve the content of her pages	to work collaboratively on the Wiki thanks to its complex awareness functionalities	-	-

*A student in CPGE searches a definition on Wikiprepas*

Step	Sequence of events	Expected Results and Evaluation Criteria	SweetWiki requirement	Notes
1	The student is looking for information on the “theory of universal gravitation” using the “Tag search” functionality	to easily find an information on the Wiki	to propose a “Tag search” text field with an auto-completion mechanism	the Wiki also proposes a “Keyword search” text field with an auto-completion mechanism
2	SweetWiki provides the student with the list of the documents tagged by the keyword “theory of gravitation”	the page dedicated to the theory of gravitation is the first of the list, but even the documents not directly tagged by the keyword “theory of gravitation” are listed	to infer links thanks to the “folksonomy editor”	-



Step	Sequence of events	Expected Results and Evaluation Criteria	SweetWiki requirement	Notes
3	The students consults the page dedicated to the theory of gravitation	for each page, using the folksonomy, SweetWiki proposes faceted navigation links	to propose navigation links by tag, by "Category", or by "Related tags"	-
3.1	He explores the documents linked to the tags used on the page	-	to display the tags used on each page, with their respective number of documents sharing that tag and links to explore these documents	-
3.2	He explores the documents linked to the "Category: theories" and the "Related tags: Isaac Newton"	-	to propose a navigation by "Category" or by "Related tags"	-
4	The students consults the "Isaac Newton" page and the pages concerning other "Famous Scientists"; he registers to be informed when a page is created or updated in this category	to propose awareness functionalities to everyone interested in the Wiki (not only to the contributors)	to inform the registered users of the pages created or updated in the category (or linked to the category) they have registered	-

#### 4.3.3 Sequence of events for the use of Amaya in the activity "ePrep francophone platform"

Step	Sequence of events	Expected Results and Evaluation Criteria	Amaya requirement	Notes
1	Damien writes the chapters of the tutorial	-	-	-
1.1	He opens Amaya and loads the tutorial adapted template	-	to propose well adapted templates	-
1.2	To write a chapter, he provides the content of the components, entering mathematical formulas and symbols when needed, inserting images or drawings that illustrate the content, adding links to Web resources for complementary information	to work in a single consistent environment for producing all types of documents (text editor, math editor for formulas, table editor...)	to edit text based on HTML, mathematical expressions based on MathML, animated graphics coded in SVG (all XML languages) to add links to Web resources	-
2	Damien writes the corresponding exercises in the exercise book	to work in a single consistent environment for producing all types of documents	-	-
2.1	He loads the exercises adapted template	-	to propose well adapted templates	-
2.2	He copies and pastes any piece of the tutorial	-	to easy copy/paste from one template to another	-

Step	Sequence of events	Expected Results and Evaluation Criteria	Amaya requirement	Notes
3	Damien generates a slide show for each lesson	to work in a single consistent environment for producing all types of documents (slide show editor)	-	-
3.1	He loads the slide show adapted template	-	to propose well adapted templates	-
3.2	He copies and pastes any piece of the tutorial	-	to easy copy/paste from one template to another, automatically applying the right style and enlarging the drawings	-
4	Damien asks his colleagues a feedback on the first version of his pedagogical content	-	-	-
4.1	Before saving the content, Damien gives Amaya the mail addresses of his colleagues	-	to automatically inform the listed colleagues when an updated version of the document is available for review	-
4.2	Damien publishes the content on his personal Web site	to work in a single consistent environment for producing all types of documents (Web tool to publish the material on the Web)	-	-
4.3	Katia suggests to extend a chapter	-	-	-
4.4	Damien agrees, so, Katia makes the changes directly on the Web with Amaya	-	for each colleague, to update the content directly with Amaya	-
4.5	Their colleagues receive a notification message when the latest version is edited by Katia	-	to automatically inform the listed colleagues when an updated version of the document is available for review	-
5	Damien includes in his content a contribution from Ali	-	-	-
5.1	Ali sends from Amaya a document to Damien	-	to use the “send by mail” Amaya command	-
5.2	Damien includes this contribution in his exercise book	-	-	-

#### 4.3.4 Sequence of events for the use of LimSee3 in the activity “International cooperation between CPGEs and similar establishments”

Step	Sequence of events	Expected Results and Evaluation Criteria	LimSee3 requirement	Notes
1	Olivier opens LimSee3 and loads the Conference presentation template	to provide the teacher with a suitable environment to perform his multimedia course	to propose specific templates	-
2	Olivier imports in LimSee3 the video sequence and the slide-show	to gather the slide-show and the video sequence on the same support	to load various types of media objects and to propose a main window to present the slides and a smaller window to show the video sequence	-
3	LimSee3 proposes automatically an initial interactive table of contents, extracting the title of each slide	to provide the teacher with a first structured multimedia course	1-to propose a box where the table of contents would appear 2-to create automatically an interactive table of contents extracting the title of each slide	-
4	Olivier achieves the synchronisation using the special “synchronisation” button in the application	to provide the teacher with an initial synchronized multimedia course	to associate slides and time-stamps in the video sequence on the fly	-
5	Olivier splits the current plain list of slides titles into several chapters	to dispose of a table of contents organized in a hierarchical way, easier-to-read and easier-to-navigate	to structure the initial table of contents	-
6	Olivier saves the document and publishes it on his Web site	to have a multimedia course ready for future use by students and for collaboration with colleagues	to publish a document on a Web site, directly from LimSee3	-

#### 4.4 Comments on the use of PALETTE tools invoked in the scenario

##### 4.4.1. Implementation of the PALETTE tools for the ePrep CoP

The ePrep CoP, which is developing itself on a voluntary basis, does not have any infrastructure to install and operate new tools. Therefore, the tools invoked in this scenario have to be implemented, at least during the experimentation period (i.e. for the duration of the PALETTE project), with the help of the PALETTE partners:

- on the EPFL servers for e-Logbook,
- on the INRIA servers for SweetWiki (already done at the time when this scenario is written).

Amaya and LimSee3 will be downloaded by each member, on their own computer. The documents produced with these tools will be stored in e-Logbook (or uploaded on the ePrep francophone platform for the Amaya documents).

##### 4.4.2. Relation between the PALETTE tools and the ePrep CoP existing tools

There are no specific interconnections to build between the PALETTE tools and the ePrep CoP existing tools described in section 4.1.3, except for the emailing services, if the future developments of e-Logbook include these types of services (see section 4.4.3 below).

#### 4.4.3 Remaining CoP needs not covered in the scenario

Among the group of needs of the ePrep CoP (see section 2.1), two needs are not covered in this scenario. They could be covered by future developments of e-Logbook:

- the need of non-moderated specific mailing-lists, with structured email archives, specific activity per specific activity (with an automatic generation of these lists from the lists of the “active members” involved in each specific activity),
- the need of agendas, specific activity per specific activity, to plan the face-to-face meetings for instance.

### 5. Conditions of participation

The ePrep CoP’s members are all volunteers to use the PALETTE services (they have integrated the ePrep CoP on this basis: see the ePrep Web site - French version - [www.eprep.org/Communaute/Membres.htm](http://www.eprep.org/Communaute/Membres.htm)).

Concerning competences, the more often, the ePrep CoP’s members have the specific skills required to learn the use of the PALETTE tools invoked in the scenario, but it remains a difficulty in using SweetWiki for the “Wikiprepas” project. This difficulty concerns the use of the folksonomy/ontology editor offered by SweetWiki.

A solution would be to adopt the “social tagging” way to allow CoP’s members to build cooperatively their own folksonomy. This solution will be facilitated by the further developments planned for SweetWiki to make the folksonomy/ontology editor more user-friendly.

### 6. Validation procedures

The scenario described in this document is evaluated, in a participatory design approach, by the members of the ePrep CoP and the PALETTE researchers as and when the activities described above are performed (see the “life-cycle” of the scenario, section 3), and especially on the occasion of the “ePrep CoP day” (see the account in French: [www.eprep.org/Communaute/CoP1.htm](http://www.eprep.org/Communaute/CoP1.htm)), then, more formally, by the validator of the scenario in his “Validator’s account”.

Next validation steps will take place with the evolution of the scenario (according to the evolution of PALETTE services, taking into account the interoperability of tools, see section 7). The second ePrep thematic workshop to be held in Lyon on November 5 & 6, 2007, on the theme “the ePrep CoP: which tools for which projects?” (see [www.eprep.org/thematic\\_workshops.htm#second](http://www.eprep.org/thematic_workshops.htm#second)), will be the occasion to validate these further developments.

### 7. Further development

A need that the ePrep CoP’s members will have in a soon future, to help them in the production of new pedagogical content in the framework of their projects (the “Wikiprepas” project, the “ePrep francophone platform” project, or the “International cooperation” project), is to retrieve easily the contents already produced for these projects.

The tools used to produce these contents are:

- SweetWiki for the “Wikiprepas” project (content stored on the Wikiprepas Web site),
- Amaya for the “ePrep francophone platform” project (content put online on the platform and/or stored in e-Logbook),
- LimSee3 for the “International cooperation” project (content stored in e-Logbook).

The idea is to provide the CoP’s members with one tool able to retrieve these three types of pedagogical contents.

This development is linked to the tagging functionalities or annotation mechanism of the tools invoked in the scenario (e-Logbook, SweetWiki, Amaya, LimSee3) and induces a reflection about the interoperability of these tools (reflection already opened on the PALETTE forum dedicated to the ePrep CoP).

## APPENDIX 5 – Scenario for Did@cTIC

**Document version:** Version 3.0

**Date:** 19.04.2007 + 24.04.2007 + 25.04.2007 + 11-15.06.2007

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### 1. Document contents and target audience

#### 1.1 Contents

This document describes the activities of the CoP Did@cTIC and the software tools and services, developed by the PALETTE project partners that could help and support the development of these activities. In particular, this document will focus on specific activities that are performed during the Did@cTIC training which aims at developing the competencies of university teachers. During the training, discussion groups, called CoPs, are formed in order to create moments of exchanges about teaching practices. The **capitalisation of teaching practices** could be improved with semantic softwares. Also the **reuse of the discussion results, and of other documents and resources** used during the Did@cTIC training, could be supported by such software with the global aim of better diffusing and understanding about teaching practices.

The document then describes a scenario that is based on two main processes and one optional:

- Process 1: capitalisation process of discussions in order to produce more easily a collection of teaching practices anecdotes and examples;
- Process 2: reuse process to search for information disseminated in various existing documents, produced during the discussion groups and saved in a repository, to produce lists of examples (extracts and citations) concerning a predefined thematic about teaching practices;
- Process 3: (**optional and then not described further here**) would be an extension of process 2 by reusing all the resources of the different modules of the Did@cTIC training

#### 1.2 Audience

- Members of the Did@cTIC team who are involved in the Did@cTIC training and who should help the development of the software services in the CoP
- PALETTE developers who are involved in the development of the software tools and services that are used in the scenarios described in the present document

### 2. Community's needs and scenario purposes

#### 2.1 Group of needs

The Did@cTIC community expressed two main needs that are linked to resources about teaching practices and to the face-to-face meetings of the discussion groups (particular activity of the Did@cTIC training):

- it is not easy to manage such resources, in particular anecdotes that are expressed by teachers participating in the discussion groups
  - only a few person of the Did@cTIC team members know exactly where the anecdotes are
  - the anecdotes are disseminated in various documents
- it is not easy to gather and reuse these anecdotes for the Did@cTIC team members.
  - they are emerging during face-to-face meetings that the same team members are animating
  - they are concerning a very wide series of thematic
  - they are very different also in the ways they can be expressed: descriptions of lived teaching situations, of moments, questions and training needs linked.

**Teaching practices anecdotes**, that means anecdotes and life experiences involving teachers and students, are difficult to assemble because they belong to the individuals who lived them. Their richness and particularities are thus not written, black on white, in the university pedagogy books. A process, the discussion groups, is part of the Did@cTIC training in particular to let them be expressed and collected. Otherwise **they disappear when the participants are finished with the training**. They are especially important because they contain real life and give a contextual meaning to pedagogical models of teaching and learning processes. Also they reflect a part of the representations-conceptions about learning and teaching from the participants of the Did@cTIC training. They are thus needed by Did@cTIC trainers:

- to exemplify, during various courses, real life aspects of the teaching activity;
- and to get a better understanding of what and how participants think about teaching and learning.

## 2.2 Purposes of the scenario

This document presents then two processes having two main purposes:

- to capitalize on anecdotes of the teaching practices that are expressed during the face-to-face meetings of the discussion groups.
- to reuse, during various courses' sessions, the anecdotes of the teaching practices.

The Did@cTIC training aims at developing the competencies of university teachers. The **capitalisation of teaching resources about teaching** is therefore crucial. Some are already well assembled, **classical teaching documents** such as the following: trainers' presentations given during lectures (ppt format), scientific publications given as further readings (doc or pdf formats), etc. Other ones are more difficult to gather despite being as important as the ones listed before: **real life teaching anecdotes**. Indeed they can be used efficiently to increase the understanding about teaching by the participants of the Did@cTIC training. A solution would be the automatic audio recording of the face-to-face discussions happening in the groups and the automatic tagging, with posterior human review, of their thematic contents. Even if not based on audio automatic recording and recognition, for us, softwares based on semantic Web ideas could help to capitalize better these discussions. By being tagged, the capitalisation of these representations could be improved, in particular when trying to make explicit some implicit aspects of them.

A second aim of the scenario is the **reuse of teaching resources** by the Did@cTIC team members who organise and animate training sessions and discussion groups. A very complete set of documents and of anecdotes can be capitalised before a particular discussion. But it is possible that a part of it remains tacit information until there is a particular question arising during the discussion. Searching for its answer will reveal a list of resources' extracts corresponding to the thematic of the question. It makes something more explicit in the capitalised documents. Here the purpose is to find out information, about a thematic, that is disseminated in a series of documents. By a request based on some predefined keywords or tags, semantic software could make easier and more efficient the reuse of pre-existing resources: scientific articles or teaching anecdotes.

What we see this way is that the two purposes are deeply linked. The capitalisation process is viewed to favour the posterior reuse. The reuse process justifies and enriches the capitalisation.

## 3. Methodology

- Interview of the Did@cTIC facilitator: end of June 2006; gave answers to all the questionnaire
- Production of minutes and synthesis of the interview: September 2006
- Feedback of Did@cTIC leader: September 2006; gave validation of the description of the Did@cTIC activities and actors
- Writing of the Did@cTIC use-cases: end of October 2006; gave the basic ideas of the scenario
- Validation of the Did@cTIC use-cases: November 2006
- Discussion with the Did@cTIC facilitator: January 2007; new interview of the basis for the scenario and first ideas for the process of its validation

- Discussion with SweetWiki developers: February-March 2007; validated a global understanding of the functions of the software tools and services and adequacy with the very first draft of the scenario
- Writing of the scenario: 12-13 March 2007, Scenario V1: a starting point for developing a participatory design approach
- Participatory design approach :
  - series of discussions with some of the Did@cTIC team members and software developers ;
  - to build collaboratively a boundary object, that is the different versions of the scenario (V1.0, V2.0, V3.0, etc.) that more and more includes the organisation of the collective work to develop the scenario;
  - 28 of March 2007, 25 of April, other meeting dates to be defined
- Validation of the scenario:
  - through the same series of discussions
  - + formal validation (during the month of June 2007) consisting in
    - a questionnaire on the scenario V3.0 distributed to all the persons that were involved in the development of the scenario
    - an analysis of their answers
    - a report of this analysis
    - comments from participants about the report

#### 4. Scenarios design and description

##### 4.1 Actors and services

As far as the software functions are well defined and understood yet, the following table describes the involvement of the different PALETTE services in the activities of the CoP Did@cTIC.

Among the different possible actors of the CoP Did@cTIC (“participants”, “team members” and “trainers”), the people from the category “Team members” are the ones who will do the work explained in the scenarios. In order to clarify the scenarios, “team members” are thus presented here below as the only actors involved.

Scenario processes	PALETTE services and tools	Specific functions of the services	Actors
Process 1 Capitalisation, Groups of Discussion	- Amaya - KM - Moodle and repository	- to edit a text (discussion outcomes) - to tag the document - to save in repository	- team members
Process 2 Reuse, Collection of anecdotes about a thematic	- KM - DocReuse + KM? - KM - Moodle and repository	- to enter a request - to assemble extracts as a doc. - to tag - to save in repository - to use it in a course session	- team members

Additional information about services and actors involved:

- In addition to the PALETTE services, the CoP Did@cTIC uses the following tools (software and main others):
  - Moodle (Learning Management Environment)
  - Google calendar
  - F2F meetings-lectures-activities
- For Process 1 globally, capitalisation means : to tag a document + to save in repository



- For the Process 2, KM offers a visualisation service to present the results of a request in the form of a table, a list, a graphic (depending on the adequacy with the information resulting from the request)
- For the Process 2, there is a possible articulation between DocReuse and KM: if the annotation is well done AND if the result of a request is not too complex, the “affichage” template of the result could turn into a new document consisting of the extracts’ collection, in adequacy with the request
- For the Processes 2, Doc Reuse could turn an explicit annotation into a structure of a template document. That means that the keywords used for a request (and the tags in the documents) could become the basic structure of the resulting document.

## 4.2 Description of plausible scenarios

### 4.2.1 Narrative of Process 1, Capitalisation

The members of a discussion group have a face-to-face meeting that will last about 2 to 3 hours. The members are 5 to 6 participants of the Did@cTIC training and 1 or 2 trainers. During this session, they will exchange about a topic in relation with their practices as university teachers. And the choice is made as follows. One person says: “I would be very interested in discussing and knowing more about this... because the students told me ... and then I saw that something wrong is happening during the lectures but I do not find how to do it differently for improving the situation.” Then another participant proposes another thematic, based on his experience. And so on. The group then decides of a series of topics that will be discussed.

Let’s say, for this narrative example, they will speak, during a particular face-to-face session, about learning evaluation; what should be the feedback to give to a written work given by a student? As participants of the Did@cTIC training, the members of the group are teachers, having their own courses or implied, with a professor, in a specific activity of a course.

The session begins with the reading of a document that was previously found by the trainer (but it could be also found “live” after a request in the teaching resources’ repository) and it is proposed to read it before to enter the discussion process. The text explains about different ways to make feedback. After about 10 minutes, a round table discussion begins and the participants must say what way they prefer and how it refers to their own teaching practice and experience. Some of them explain about little stories that happened during their courses. An anecdote seems to be of great interest for two or three participants who take notes about it, saying they could adapt this solution to their own teaching context. Other ones comment on the text and the choice they made. During the discussion, a member of the Did@cTIC team takes notes of the debate. The discussion comes to its end and the session ends after the decision is made for the topic of the next face-to-face session.

After a couple of such meetings, it is asked to every participant to make a reflexive exercise that consists in writing down what she learns, from the discussion, about their teaching practice and possible evolution, in order to improve for sure. This document they download, with a “public” tag, into the Moodle space of the discussion group. But one or two participants think that its content is of high privacy level and thus download it with a “private” tag. When this is done, the trainer, with the help of the member of the Did@cTIC team, makes a synthesis of these learning outcomes from the first discussion sessions. It also contains references or narration to some of the lived stories that were expressed face-to-face. The choice is made depending on their exemplarity and future usability. They add tags to the resulting document. First, they indicate the topic of the discussion “learning evaluation” and “feedback” and all the extracted stories are tagged with an “anecdote of teaching practice”. Second they also tag the type of anecdotes of teaching practice that the stories contained. Two or three of them were a “habitus” type and 6 referred to a “scientific theory (of education)”. The result is downloaded also in the Moodle space.

The same work is done in parallel, in the other discussion groups. There are 4 to 5 of them every year. And the collection of tagged teaching stories then is enriched more and more.

List of documents produced-used by discussion groups:

- used: scientific papers and other analogous documents
- produced for the activity: activity description “card”, activity notes’ support (grids, check-list, to-do list)
- produced by the activity: logbooks, reading “cards”, discussion transcriptions (synthesis)
  - written by a member of the Did@cTIC team
  - on the basis of the individual reflexive exercise made by the participants

List of tags and keywords of the resources used for the face-to-face discussion (List 1/2) (they are coded with “...” in the above text):

- public: the document can be diffused outside the discussion group
- private: the document, or a part of it, should not be diffused outside the group because of confidential reasons
- anecdote of teaching practice: indicate the type of document (other types: scientific papers, etc.)
- other types of documents-extracts : competences, resources, activity
- thematic of anecdote: learning evaluation, feedback, teachers’ roles
- type of argument used in the anecdote: personal theory, habitus or routines (action schemes used for teaching), scientific theory (of education), conceptions about the learning process

#### 4.2.2 Narrative of Process 2, Reuse Collection

During the module “Teaching and Learning” of the Did@cTIC training, a question is asked to the trainer by the participants concerning what the teachers do usually know about the scientific theories (about education) and how they apply them during their teaching. The trainer interrogates the repository of teaching resources by formulating a request with keywords such as “scientific theory (of education)” and “anecdote of teaching practice”. A list of documents appears to the group through the beamer projection on the wall screen. There are two scientific publications, a presentation given the year before by another trainer and a document produced by a discussion group which worked, a couple of months before, on the ways evaluation feedbacks can be given to a student’s work.

The group explores together the documents to see what can be answered to the question. The group also decides to collect all the disseminated answer elements they can find and to save them in a new document. One of the scientific publications applies to a very specific aspect and is rejected. In the other publication, in the results section, there is a summary of answers from university teachers to a survey about the scientific theories they know. This summary is tagged and copied in the new document. They extract also the same way an example given in the presentation from the year before. Then they begin to explore the document from the discussion group.

But the time of the course session is over. They then decide to save the new document in order to continue their work during the next session of their module. They tag it with the “name of the course” and the “year”. They also decide to add a tag “private” because they estimate that this version is not diffusible.

At the beginning of the next session, they find their document from the repository and continue their work. They also come back to the document from the discussion group and copy there most of the little stories to paste them in their own document. Having done this collection, they begin to discuss and structure the document in two main parts: theory and applications that they organize in correspondence. They then add comments about their own knowledge about scientific theories (about education) and they explain about the ways they apply them in their own course. They tag these last points as “examples”. They save this result and make it “public” this time. With the help of the collection document, the group sees that there are at least two or three main theoretical points they do not know at all. And the trainer is asked to make them a presentation about them for the next course session.

The day after, the tagging redactor of the Did@cTIC team opens this new document of the teaching resources' repository. He sees that some of the given examples refer to the way students develop competencies and he tags them "learning process". He also declares "example" and "anecdote of teaching practice" as synonyms in the ontology editing tool. He saves the document in the repository.

NB: During the preparation of the next session, the animator can also find out a table describing a previous pedagogical activities of the discussion group and reuse its structure (as a template) to prepare another activity.

List of tags and keywords of the resources used for the face-to-face discussion (List 2/2) (they are coded with "..." in the above text):

- information about course: name of the course, year

### 4.3 Scenarios schematic representation

Process 1 time line

	<b>Face-to-face</b>	<b>At a distance</b>
Event 1 F2F meeting (central in scenario)	- to generate anecdotes about teaching practices about a chosen thematic - oral discussion, audio recording (?), manuscript notes, documents of CoP repository - 1-2 trainers + group of 5-6 participants	
Event 2 Individual reflective exercise (not central in scenario)		- to produce a document that makes a personal synthesis about "what did I learn during the F2F session?" - text processor or Amaya - individuals from 5-6 participants
Event 3 Global learning outcomes synthesis (central in scenario)		- to produce a synthetic document about "what did they learn during the F2F session?" & collecting anecdotes of the teaching practices - text processor or Amaya - 1 member-trainer of the Did@cTIC team
Event 4 Capitalise results (central in scenario)		- to tag the documents and to save them in the repository - KM + repository - 1 member-trainer of the Did@cTIC team
Event 5 REUSE process (Process 2)	to reuse the capitalized synthesis and anecdotes during a next course	to reuse the capitalized synthesis and anecdotes during the preparation of a next course

## Process 2 time line

	<b>Face-to-face</b> (during a discussion session)	<b>At a distance</b> (during the preparation of a discussion session)
<b>Event 1</b> Research of a document	- to find extracts from various documents about a predefined thematic by entering a request - Repository + KM - Team member (as Trainer) + participants	- to find extracts from various documents about a predefined thematic by entering a request - Repository + KM - Team member (as Trainer)
<b>Event 2</b> Analysis of the resulting documents	- to select extracts from proposed list - KM OR Human brains - Team member (as Trainer) + participants	- to select extracts from proposed list - KM OR Human brains - Team member (as Trainer)
<b>Event 3</b> Edition of a new document	- to assemble extracts as a document - text treatment OR Amaya - Team member (as Trainer)	- to assemble extracts as a document - text treatment OR Amaya - Team member (as Trainer)
<b>Event 4</b> Capitalise results	- to tag & to save in repository - KM - 1 member-trainer of the Did@cTIC team	- to tag & to save in repository - KM - 1 member-trainer of the Did@cTIC team
<b>Event 5</b> REUSE process	- to use it in a course session OR activity - Repository - Team member (as Trainer)	- to use it during the preparation of a course session OR activity - Repository - Team member (as Trainer)

NB: Another type of document that could be reused is a document that is often used by the CoP, such as evaluation grids, table describing pedagogical activities of the discussion groups, etc. Their content can be reused. Their structure can also be very useful and re-used as templates.

#### 4.4 Comments on the use of services in the scenario

Here follows a list of questions or remarks, coming from the Did@cTIC team members and also from the software developers. Answers about them should help the development of the scenario but also of the PALETTE services.

##### Repository questions:

- What type of repository would be the best solution with the Moodle Learning Management Environment and a modular course structure? (repository out of Moodle or inside? what about security management? etc.)
- (from SweetWiki developers) What is the number of documents in the repository of the CoP Did@cTIC?

##### Transformations of Work habits and tools questions:

- Documents already exist in various formats (ppt, pdf, and doc). But nobody writes html documents in the CoP Did@cTIC! What about the future of these documents in the PALETTE services? Will they need to be transformed in order to be tagged? Are there easy ways to make such a conversion? Can we continue to produce and use our usual documents formats?
- Is the tagging process compatible with the way Moodle is used for the Did@cTIC discussion groups?

##### Tagging process questions:

- Tagging training (at least for the “tagging coordinator”): when? by whom? etc.
- Does the tagging software service allow the team members of the CoP to tag both the entire documents and parts of them?

- What are the criteria for a good annotation and tagging processes? (in a document)
- How much time is needed to tag properly and to keep coherence if different people tag documents (follow up of synonyms and hierarchy in the annotations and Tags)?
- What is the complete list of tags to be taken into account in order to answer the needs of discussion groups?
  - different main topics to distinguish in teaching practices
  - private / public resources
  - etc.

#### General questions

- The team members ask about the efficiency of tagging and of semantic Web tools for their every day tasks

### 5. Conditions of participation

The team members will have to develop skills about:

- text editing (with Amaya)
- tagging of documents
- formulating a good request based on existing tags
- finding and using template based documents
- structuring documents with tags

To improve efficiency and permanence of the PALETTE services in the CoP Did@cTIC, a key person, member of the Did@cTIC Centre, will have to be specially trained on the skills listed just above and also on other specific skills corresponding to a “tagging coordinator” profile:

- create and manage coherence of tags in the CoP (synonyms and hierarchy)
- help members of the CoP to develop the skills listed above (resource person + trainer for an introductory training session included into the Did@cTIC training)

### 6. Validation procedures

On the basis of the scenario Version 1, a series of face-to-face meetings (28 of March, 25 of April, etc.) is organised to deconstruct-reconstruct each part of the version 1 and evolve toward a version that is pertinent from the following points of view:

- the descriptions of the CoP’s needs & of the Software services
- the correspondence between the needs and the services

More and more the scenario also describes and helps the organisation of the collaborative work that has to be developed for implementing the scenario.

By applying this participatory design methodology for producing the scenario, the validation of its different parts and elements is obtained as a result of the scenario construction process.

A formal validation is also organised (during the month of June 2007), consisting in:

- a questionnaire on the scenario V3.0 distributed to all the persons that were involved in the development of the scenario
- an analysis of theirs answers
- a report of this analysis
- comments of the participants about the report

## APPENDIX 6 – Scenario for LEARN-NETT

**Version:** 4.0

**Date:** 3rd of July 2007

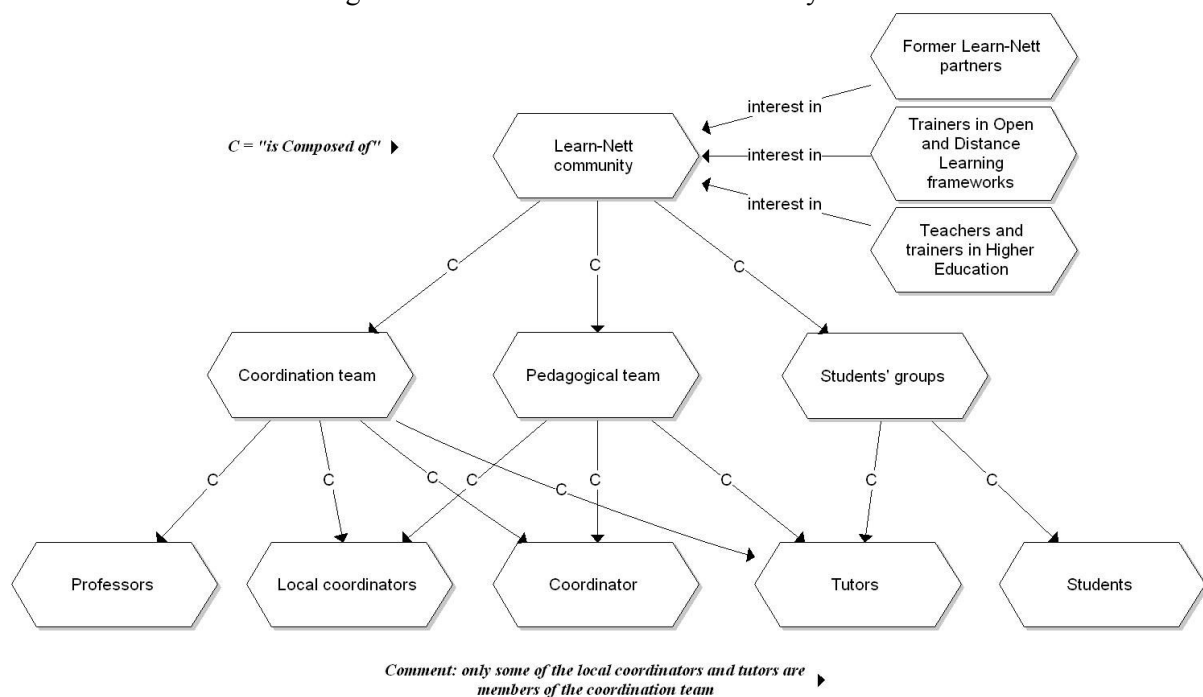
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### 1. Contents and target audience

#### 1.1 Contents

The scenario described here proposes activities and uses of tools for the LEARN-NETT community. This community is made up of three groups of actors: a coordination team, a pedagogical team and students working groups. In this document, when speaking about the “LEARN-NETT community”, we mean all the LEARN-NETT three groups of actors. If needed, we specify which group we talk about. There are also “external” actors to LEARN-NETT who are interested in the project and its pedagogical activities. The figure 1 below depicts the different actors and teams within LEARN-NETT:

Figure 1 - The LEARN-NETT community actors



This document is structured as follow:

- the section “Methodology” presents the different steps of elaboration of the scenario;
- the specific needs of the LEARN-NETT community are described as well as the objectives of the scenario in response to these needs;
- the scenario itself is described with a time line;
- the conditions of implementation of the scenario for the LEARN-NETT community;
- the scenario validation steps.

At the end of the document, a glossary defines some technical terms used in the text.

For a quick overview of the scenario, one can firstly read the abstract at section 4.3.

## 1.2 Target audience

This scenario proposes activities and uses of PALETTE scenarios for the LEARN-NETT whole community. It is addressed to a “focus group” for reading. This focus group is composed of volunteers representing the LEARN-NETT coordination and pedagogical teams as well as the different university partners. The focus group participates in the scenario validation in June 2007 before test beds to be implemented with more LEARN-NETT members.

## 2. Methodology

The elaboration of the present scenario has involved different actors:

Table 1 - Steps for the elaboration of the scenario

Time	Steps
May 2006	Three LEARN-NETT members participate in individual interviews: a tutor/local coordinator who is not involved in 2006/2007, the actual coordinator (who is also professor in LEARN-NETT and has been tutor and local coordinator previously), and a former tutor/local coordinator/coordinator. Minutes and synthesis of the interviews are produced.
September 2006	The synthesis is presented to the LEARN-NETT coordination team at a meeting in Mons (Belgium). Some comments and modifications are proposed and a list of wishes completes the first list of needs.
October-November 2006	Use cases are produced by the PALETTE developers and mediators for three PALETTE services: DocReuse, CoPe_it! and e-Logbook.
end of November 2006	The LEARN-NETT delegate (first interviewee and representative of LEARN-NETT in PALETTE) reads the produced use cases. A discussion with the developers is organised in December.
end of November 2006	The three interviewees read the analysis of needs produced by the researchers. The needs are discussed, validated and organised in rank order.
December 2006	The tutors' training is organised at a distance. The PALETTE project is presented by the mediator to all the tutors as well as a demo of the CoPe_it! service. A few tutors participate in a trial of CoPe_it! at the end of December and answer some evaluation questions. The answers are passed on to the developers of CoPe_it!
January 2007	The developers and mediator complete the use cases and begin to consider the present scenario. The use cases then inform the development of the PALETTE services.
April 2007	The LEARN-NETT delegate reads the first version of the scenario and comments on it. In addition, discussions are organised between the mediator (main author of the scenario) and the PALETTE developers.
mid-May 2007	The version 2.0 of the scenario is presented to the developers. They comment on it.
May 2007	The scenario is presented to a LEARN-NETT focus group created in April 2007 for the validation process.

The next steps (validation of the scenario) are described in section 6.

## 3. Needs of the community and objectives of the scenario

### 3.1 Needs of the community

Three specific needs have been identified and chosen in collaboration with the interviewees, members of the LEARN-NETT coordination team.

### 3.1.1 A new platform

The first need concerns a new virtual platform used for supporting the organisation of the LEARN-NETT training with the students. Two kinds of actors are concerned:

- on the one hand, the whole LEARN-NETT community in order to coordinate and manage the LEARN-NETT activities (the students' training, the tutors' training, research, communication between the partners, etc.);
- on the other hand, the external actors and the whole LEARN-NETT community in order to have a permanent Web site that both brings the partner together, and is a window of the project.

Since 1997-1998, different platforms have been used: a dedicated virtual campus hosted at TECFA-UNIGE (Geneva), Claroline hosted at UCL (Louvain-la-Neuve), GALANET hosted at UMH (Mons) with a Moodle platform at TECFA-UNIGE. As often as not, the change of the platform corresponds with the change of the coordinator. After 10 years functioning, the coordination team would like to stabilize the choice of the platform, make it permanent whoever is the coordinator (changes every two years), and creates a window of LEARN-NETT for external interested users.

This platform should:

- be hosted permanently by a LEARN-NETT partner taking into account that few resources are available for the maintenance. This is to be negotiated between the LEARN-NETT partners by particularly thinking about the possible connections with the PALETTE services.
- be administrated at a distance;
- allow public access to parts of the platform, with possibly guest accounts for observing the training with the students;
- allow access to more than 100 people with different access rights (for example coordinator, tutor, local coordinator, student);
- gather communication, collaboration, and files exchange tools.

No PALETTE service corresponds to this description so far although e-Logbook is able to support groups' activities at a distance and CoPe\_it! supports collective brainstorming, argued discussions and groups' decision making.

Concerning this need, at the end of June 2007, the LEARN-NETT coordination team has evaluated the use of the two platforms GALANET for the students and Moodle for the internal coordination of tutors. To the team, and considering that no resource is available for developing or implementing a new platform, the use of the two platforms in the same time is satisfactory. So a decision has been made to continue to possibly use them in interaction with PALETTE services.

### 3.1.2 Memory of the LEARN-NETT project

The second need concerns the memory of LEARN-NETT. Since 10 years, many documents have been produced, many virtual discussions took place, meeting reports have been written about the tutors' roles, their actions, etc., research documents (articles, reports, students' dissertations) have been produced, as well as the students' groups reports that gather an important documentation about pedagogical uses of Information and Communication Technologies. There is a need for capitalizing these documents in order to search for information by different kinds of actors:

- the tutors (pedagogical team) need to describe their practices and organise them in order to make them available for consultation and therefore useful for other tutors.

In order to support the tutors' job, especially for the new tutors, LEARN-NETT organises each year the same activities: a one-day training, monthly telephone meetings, written reports of the tutors during and at the end of the project, a discussion forum for the tutors, virtual or face-to-face evaluation meeting at the end of the year. All these activities produce different kinds of outcomes: discussions about pedagogical problems encountered by the tutors, case studies discussed during the tutors' training, LEARN-NETT tutors' profiles developed and discussed during the tutors' trainings, tutors' accounts about their students' groups during or at the end



of the project, etc. All these outcomes are not capitalized, i.e. not archived in one documents repository and not easily available for consultation, for example by a new tutor who looks for answers to specific pedagogical questions or by a tutor who would need advice for solving a problem with his/her group.

- the coordination team needs to search for information into many documents created by tutors or students (papers, dissertations, logbooks, etc.) for research purpose.
- the students need each year to search for documentation related to their topic and could search into documentations already gathered by the former students.

An external public may also be interested in documents produced in the LEARN-NETT framework (research papers for example) or in descriptions of tutors' actions (if these descriptions are anonymous).

### 3.1.3 Management of argued discussions

The third need is related to the previous one. It is about the management of argumentation in discussions at a distance. On the one hand, during the tutors training, case studies are presented and discussed in person between the tutors: what to do when a problem occurs with a students group, how to help a student, how to answer some specific questions of one's students group, etc. Debates take place sometimes with different points of view and arguments. On the other hand, during the 4 months of the work of the students groups, exchanges and discussions take place in the Moodle forum. Some tutors ask questions about how to support their group or the organisation of the project. Discussions are held in order to find collective answers.

In addition, during the 4 months of the work of the students' groups, the pedagogical team meets monthly on the telephone. The purposes of these meetings are to discuss in person the possible problems and to quickly find answers. They are prepared by the tutors who send to the coordinator an assessment about the work of their group (EXCEL file posted in the Moodle forum).

The discussions that are held about the tutors practice often spark debates off and decisions regarding debated problems are made by the tutor who asked the question at the beginning. This final decision is accepted in spite of other solutions have been proposed and could be applied in other groups or other contexts. To remember the arguments of all the participants expressed in such discussions could be useful when similar problems occur in other students' groups but should be taken on in another way by the tutor.

### 3.1.4 Synthesis of needs

Table 2 - Synthesis of needs and target groups

	<b>Need</b>	<b>Target group</b>
1.	A single learning and training platform for: <ul style="list-style-type: none"> <li>• supporting the activities and functioning of LEARN-NETT</li> <li>• sharing information about the project (description, history, partners, documents, etc.)</li> </ul>	The whole LEARN-NETT community External public interested in LEARN-NETT
2.	To capitalize the LEARN-NETT resources produced during 10 years for: <ul style="list-style-type: none"> <li>• archiving tutors' practical common knowledge</li> <li>• archiving pedagogical and research documents of the project as well as the reports and documentations of the students</li> <li>• making these archives available for consultation</li> </ul>	Main target public: <ul style="list-style-type: none"> <li>• tutors (pedagogical team)</li> <li>• coordination team</li> <li>• students' groups</li> </ul> External public interested in LEARN-NETT

	<b>Need</b>	<b>Target group</b>
3.	To support argumentation in discussions in order to: <ul style="list-style-type: none"> <li>• share experiences of practice</li> <li>• debate, confront opinions</li> <li>• help tutors to make decisions regarding the tutoring of their group</li> <li>• archive discussion and arguments as well as documents enclosed in the messages</li> <li>• make the archives available for consultation and possibly reusable</li> </ul>	The tutors (pedagogical team)

### 3.2 Objectives of the scenario

The objectives of the scenario, taking into account the above needs, are to propose:

- procedures and uses of tools for capitalizing and classifying resources produced by the LEARN-NETT community since 10 years: tutors' practice experiences that appear in different forms (documents, asynchronous conversations, reports, etc.) and in different locations (platforms), research papers and students reports; to also propose activities for searching for specific information in this documents base;
- uses of a tool supporting argued discussions at a distance about tutors' practice, before the session with the students (i.e. at the tutors' training) and during it (at monthly meetings and in asynchronous discussions).

## 4. Description of the scenario

### 4.1 Actors and PALETTE services involved

The scenario described below concerns different types of actors in LEARN-NETT:

- the LEARN-NETT pedagogical team and especially the group of tutors;
- the coordination team;
- the students' working groups.

The PALETTE services evoked in this scenario are CoPe\_it! (in interaction with e-Logbook), LinkWidget, ECCO and SweetWiki.

#### 4.1.1 Synthesis

The table below synthesizes the needs, the actors and the services involved in the scenario. It specifies the table 2 above by matching specific needs of actors with PALETTE services.

Table 3 - Synthesis of the use of the PALETTE services in the scenario regarding the needs

	<b>Need</b>	<b>PALETTE services and specific functions</b>	<b>Target group</b>
1.	A single learning and training platform for: <ul style="list-style-type: none"> <li>• supporting the activities and functioning of LEARN-NETT</li> <li>• sharing information about the project (description, history, partners, documents, etc.)</li> </ul>	-	The whole LEARN-NETT community External public interested in LEARN-NETT

	<b>Need</b>	<b>PALETTE services and specific functions</b>	<b>Target group</b>
2.	<p>To capitalize the LEARN-NETT resources produced during 10 years for:</p> <ul style="list-style-type: none"> <li>• archiving tutors' practical common knowledge</li> <li>• archiving pedagogical and research documents of the project as well as the reports and documentations of the students</li> <li>• making these archives available for consultation</li> </ul>	<ul style="list-style-type: none"> <li>• SweetWiki (restructuring of documents, tagging, folksonomy, queries and search)</li> <li>• LinkWidget (simple annotation of static resources and online conversations)</li> <li>• ECCO (creation, development and management of ontologies)</li> </ul>	<p>Main target public:</p> <ul style="list-style-type: none"> <li>• tutors (pedagogical team)</li> <li>• coordination team</li> <li>• students' groups</li> </ul> <p>External public interested in LEARN-NETT</p>
3.	<p>To support argumentation in discussions in order to:</p> <ul style="list-style-type: none"> <li>• share experiences of practice</li> <li>• debate, confront opinions</li> <li>• help tutors to make decisions regarding the tutoring of their group</li> <li>• archive discussion and arguments as well as documents enclosed in the messages</li> <li>• make the archives available for consultation and possibly reusable</li> </ul>	<ul style="list-style-type: none"> <li>• CoPe_it! (creation of discussions, support to the observation of the collaboration - awareness -, sharing of documents, research)</li> <li>• e-Logbook as a specific function of CoPe_it! (awareness)</li> </ul>	<p>The tutors (pedagogical team)</p>

#### 4.1.2 CoPe\_it!

<http://copeit.cti.gr/> (main site)

<http://copeit.cti.gr/site/quickguide.html> (quick guide)

CoPe\_it! is a Web service that supports argued discussions and decision making for online communities. Different views of same discussion are available:

- “desktop” view or “white table” view where the participants can add, comment or group together their ideas and comments. This allows collective brainstorming about a discussion topic.
- “forum” view that allows a textual view of the discussions and ideas without any graphics.
- “formal” view that organises into a hierarchy the positions expressed by the participants regarding a discussion and allows considering the whole discussion with the positions “against” or “in favour of” of each participant.

In CoPe\_it! each community may open workspaces or discussions. Into a workplace, ideas, comments, notes, files or URL can be shared. These objects can be graphically linked together by arrows or coloured background rectangles.

Figure 2 - CoPe\_it! desktop view

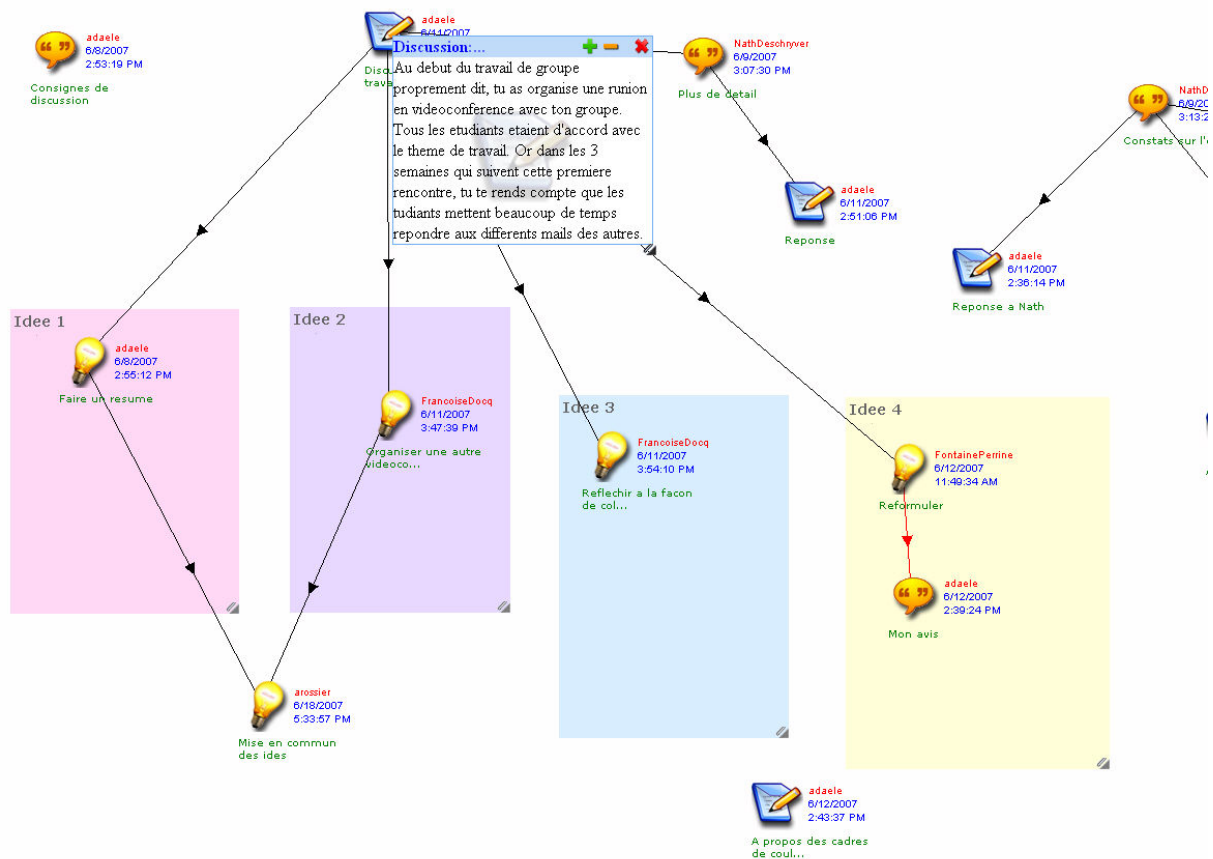


Figure 3 - CoPe\_it! formal view



The functions offered by CoPe\_it! that are invoked in the scenario are:

- Opening a discussion (with a closing date - the closing date constraint will be activated at a next release of CoPe\_it!)
- Closing a discussion
- Inviting community members to join a discussion or to contribute to a certain topic
- Proposing alternative solutions
- Arguing about the pros and cons of the proposed alternative solutions
- Opening private and shared workspaces
- Sharing documents and other resources related to the issue under consideration
- Finding related resources on the Web through integrated services
- Organization of documents and other resources related to the issue under consideration

- Retrieving information from past discussions for writing of discussion reports - past discussions can be accessed
- Profiling of the community members
- Decision making support
- Creation of community memories - each community may have its own workspaces-discussions
- Awareness reporting on the discussions taking place: participation of the members, people connected in the same time, etc.
- A special awareness function called “Context Aware View” is also invoked from e-Logbook: awareness about the actors and their positions in the discussion, the shared files and the possible reports to deliver at the end of the discussion (function in progress, not yet fully available).

#### 4.1.3 LinkWidget

LinkWidget is used as an additional toolbar in the browser FireFox (FireFox extension). Its purpose is to link discussions that took place in a distance learning platform such as Moodle with static resources (documents) using their semantic annotations described in an ontology. In other words, while working in a training framework with a platform such as Moodle, the resources are relatively scattered. The static documents are in a location while the discussion forums are in another place. LinkWidget allows annotating static or dynamic resources (files or online discussions) with concepts organised in an ontology hierarchy. It then allows to link different resources together thanks to their annotation, and eventually to search into the whole resources.

In an existing community, the members will firstly be asked to annotate their existing documents and online conversations. Secondly, they will annotate their resources as they are produced.

Although LinkWidget allows to annotate and search for resources (documents), its goal is not to manage complex annotation processes (annotation of the content or pieces of content of documents), nor to generate or manage ontologies used for the annotation. It thus allows annotating resources only in an external way. For example, one can annotate a PowerPoint presentation file with concepts used in the slides (external annotation); however the widget does not allow annotating each slide within the presentation (internal and complex annotation).

Functionalities:

1. to find resources or conversations that are linked together
2. simple annotation of virtual conversations or other resources:
  - to associate the annotation task with an activity of the community
    - a discussion in a forum
    - documents upload on a platform
    - automatic upload of files attached to forum messages into the documents repository of the platform
  - to annotate whole conversations or messages in a forum
3. to automatically associate resources with a conversation and view them by using a set of queries based on questions of participants (this set of “preferred” queries is progressively built, for example by the coordinator of the community).

KM services or resources associated with LinkWidget:

1. ontologies creation and management service (for example ECCO)
2. complex annotation service (in order to annotate emails archives or recorded face-to-face meetings)
3. search tool (CORESE system used by LinkWidget)
4. an ontology created and managed with another tool can be used by LinkWidget
5. a base of annotations created and managed by another tool can be used by LinkWidget

The services 1 and 2 are associated with LinkWidget but there is no dependence. However, the search tool (3) and the ontology (4) are necessary for its functioning. The base of annotations (5) is the outcome of its functioning.

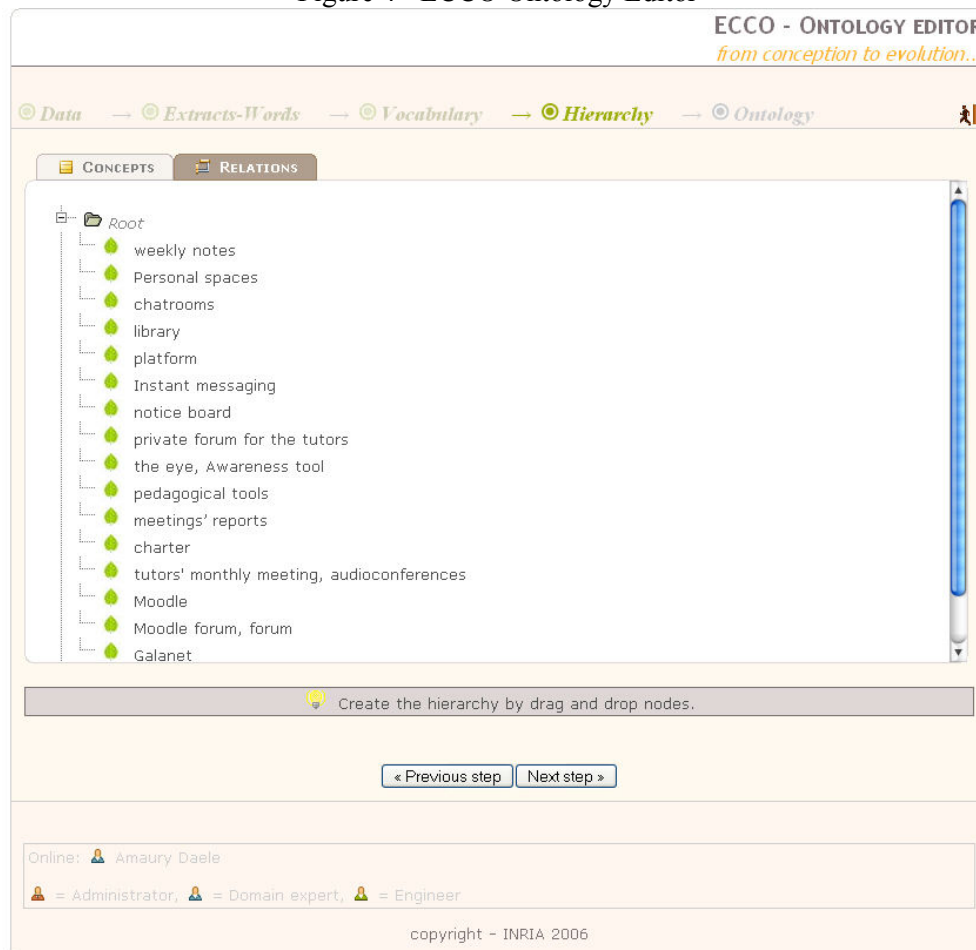
#### 4.1.4 ECCO

<http://argentera.inria.fr/ecco/index.jsp>

ECCO is a Web service that allows creating ontologies on the basis of existing documents (text format) and managing them by defining the concepts, organising them into a hierarchy, and creating relations between them. The ontologies generation happens in several stages:

1. creation of a base of textual documents that describe a domain or a particular context (interviews or conversations with experts for example);
2. in these documents, choose of relevant terms or expressions related to the studied domain or context that will constitute the contextualised lexicon of the domain or context;
3. definition of the relevant terms or expressions, by either searching for definitions into the documents, or directly writing them; the choose of the terms or of the definitions may be changed at any time;
4. organisation of the terms and their relations into a hierarchy.

Figure 4 - ECCO Ontology Editor



The generated ontologies may then be used by users involved in the concerned domain in order to annotate or search for information into resources bases (documents of all kinds, textual conversations, etc.). Actually, in a virtual community, only specific members will really manage the ontology, by for example adding concepts or precisig definitions. However, the chose and the definition of the concepts must be based on a wide consensus.

#### 4.1.5 SweetWiki

<http://argentera.inria.fr:8080/wiki/> (for testing)

<http://argentera.inria.fr/swikipalette> (SweetWiki for PALETTE)

<http://argentera.inria.fr/swikiln> (SweetWiki for LEARN-NETT)

SweetWiki is a semantic Wiki, developed with semantic Web technologies, that is based on the concept of “social tagging” (or social annotation): by using a WYSIWYG editor, the user of the Wiki can tag (allocate keywords to) pages or images. The semantic research module CORESE is then automatically and transparently used on these tags. If a user types a tag in the research form, s/he will receive all the objects tagged with this tag or its sub-tags. The user will then receive all the related tags that are linked with relevant documents.

SweetWiki also offers an editor of “folksonomy” (a set of interrelated tags is a folksonomy). Each user can organise the tags.

Figure 5 - SweetWiki for LEARN-NETT

The screenshot shows the SweetWiki interface for LEARN-NETT. At the top, there is a navigation bar with the SweetWiki logo, a search bar, and user information: "Edit this page | Logged as AmauryDaele - Disconnect | Print view | Semantic WEB Enabled Technology Wiki".

The main content area is titled "Welcome to the Learn-Nett SweetWiki" and contains the following text:

Bienvenue dans le swiki Learn-Nett.

1) Tout d'abord, pour vous familiariser avec [SweetWiki](#), vous pouvez aller consulter le document [PremiersPas](#). Il vous aidera à créer un compte et à comprendre les principes de base de [SweetWiki](#).

2) La mini-activité proposée est de travailler sur la Charte Learn-Nett ([CharteLn](#)). Sur cette page, je vous suggère d'apporter vos idées et vos commentaires, en mentionnant clairement que vous en êtes l'auteur (écrire votre nom devant ce que vous écrivez ou utiliser les couleurs). Pour éditer la page, cliquez sur "Edit this page" en haut de la fenêtre. Vous pouvez aussi insérer des liens vers des sites externes ou ajouter des tags que vous jugez pertinents (sur la droite de la page). Le but est de vous familiariser avec l'éditeur de pages. N'oubliez pas d'enregistrer la page en cliquant sur la petite disquette.

3) Une fois familiarisé avec l'édition de page, essayez de créer une page qui décrit votre université dans Learn-Nett: qui est impliqué, depuis quand, comment vous vous organisez en interne pour participer à Learn-Nett, à quel cours Learn-Nett est-il lié dans votre université, etc. Pour créer une page, le plus simple est (lorsque vous n'êtes pas en mode "édition"):

- d'écrire le nom de votre nouvelle page sur la gauche de la fenêtre dans la ligne "New Page:". Le nom de votre page doit avoir un nom du style "[UniFribourg](#)".
- une fois la page créée, de l'éditer et de lui ajouter du contenu. Ajoutez-lui aussi quelques tags. N'oubliez pas d'enregistrer la page en cliquant sur la petite disquette.
- de retourner à la page de la charte ([CharteLn](#)), de l'éditer, et d'ajouter simplement le nom de votre page ("[UniFribourg](#)") à côté du nom de votre université, tout en bas de la page.

Essayez ensuite d'effectuer une recherche par tag dans le swiki (en cliquant simplement sur les noms des tags dans la colonne de droite).

Pour revenir à cette page-ci, cliquez sur "Main" dans le menu de gauche.

The left sidebar contains the following sections:

- Search**
  - Keyword search
  - Tag search
  - Recent changes
  - Advanced search
  - All users
  - My Home Page
- Webs**
  - Main
  - Sand Box
- Administration**
  - Manage Ontologies
  - Reload Corese
  - New Page:
  - Create page from Office document
  - Page versions

The right sidebar contains the following sections:

- Tags**
  - sweetwiki(3)
  - learn-nett(4)
  - mini-activite(1)
  - charte(2)
  - partenaires(4)
  - PALETTE(2)
- Page contents**

SPARQL queries can then be integrated in any page in order to provide dynamic contents, for example all the pages about a specific topic. The same process is used for providing awareness information: at the bottom of each page, the user can find pages linked to the tags that s/he is interested in.

The SweetWiki ontology defines the principal concepts used in the Wiki and can be browsed at any time by SPARQL queries. The users can even integrate SPARQL queries into documents and present the results in a table or other format. The users receive a library of queries that they can use in order to add dynamic content to their pages.

SweetWiki uses two research engines: Lucene (Google-like) and the semantic research engine CORESE.

Within the PALETTE framework, some developments are carried out in order to meet Communities of Practice's needs. These future functionalities can be classified in three categories:

1. to improve the user interface (look&feel, international features...);
2. to facilitate the tags and folksonomies management;
3. inscription of the users to semantic queries.

See details here: <http://argentera.inria.fr/swikipalette/data/WorkPackage3/SweetWiki.jsp>

#### 4.1.6 Interactions between LinkWidget, ECCO and SweetWiki

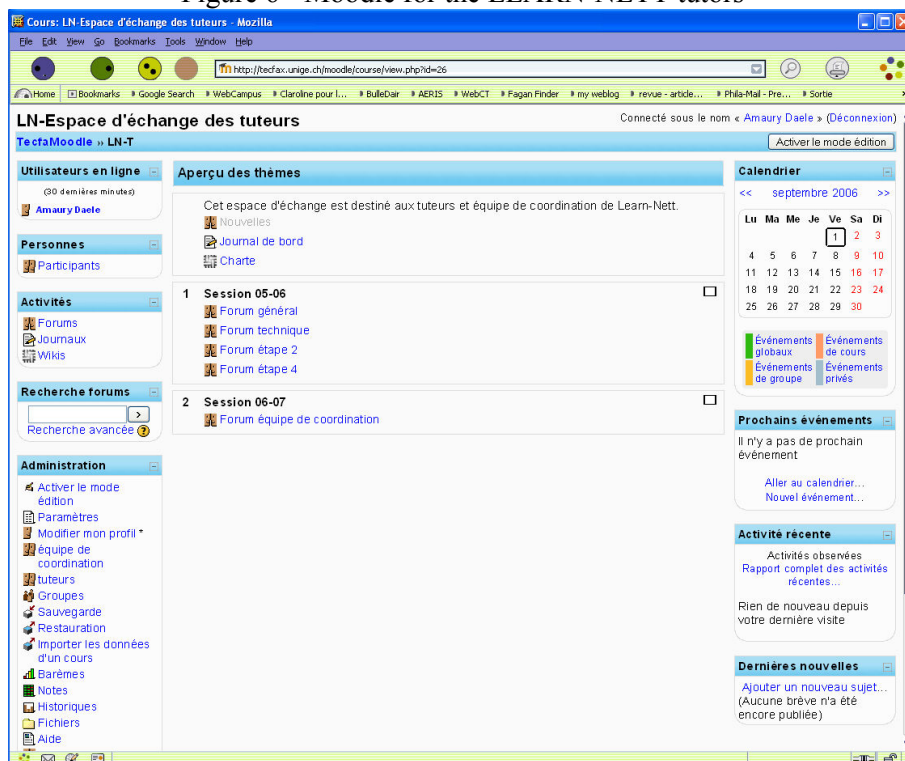
- ECCO allows creating and managing ontologies that will be used by LinkWidget and SweetWiki. In practical terms, ECCO produces a RDFS file that is then hosted on a Web server. The file thus has a permanent URL that can be used by LinkWidget and SweetWiki.
- A same ontology can be used by LinkWidget and SweetWiki by a community.
- LinkWidget can be used as only search interface for making queries in SweetWiki and the distance learning platform used by the community.
- LinkWidget is to be installed by each user on his/her computer as a FireFox extension. SweetWiki is to be installed on a Tomcat server, for example the same computer that hosts the community's platform. The ontology used by LinkWidget and SweetWiki can be installed on the same server as a RDFS file, and it can be updated by ECCO. The public annotations bases can be stored on the same server. Personal annotations (created and owned by each user) can also be created but they are stored on each user's computer.

#### 4.1.7 Tools currently used by the LEARN-NETT community

The services and tools currently used by the LEARN-NETT community:

- A teaching and learning platform: Moodle (<http://tecfax.unige.ch/moodle/>)
  - forums
  - Wiki
  - documents repository in addition of files enclosed in messages in forums

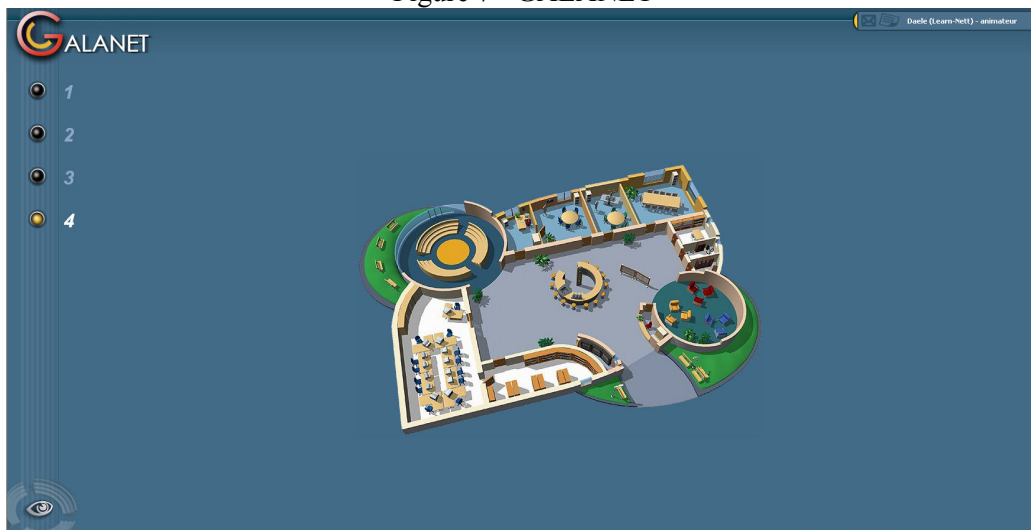
Figure 6 - Moodle for the LEARN-NETT tutors



- A teaching and learning platform supporting the collaborative work of the students groups: Galanet (<http://ute2.umh.ac.be/learn-nett/>)
  - documents repository
  - forums
  - text-based synchronous discussions
  - awareness tools (presence of the other users and logs of activities of the users)

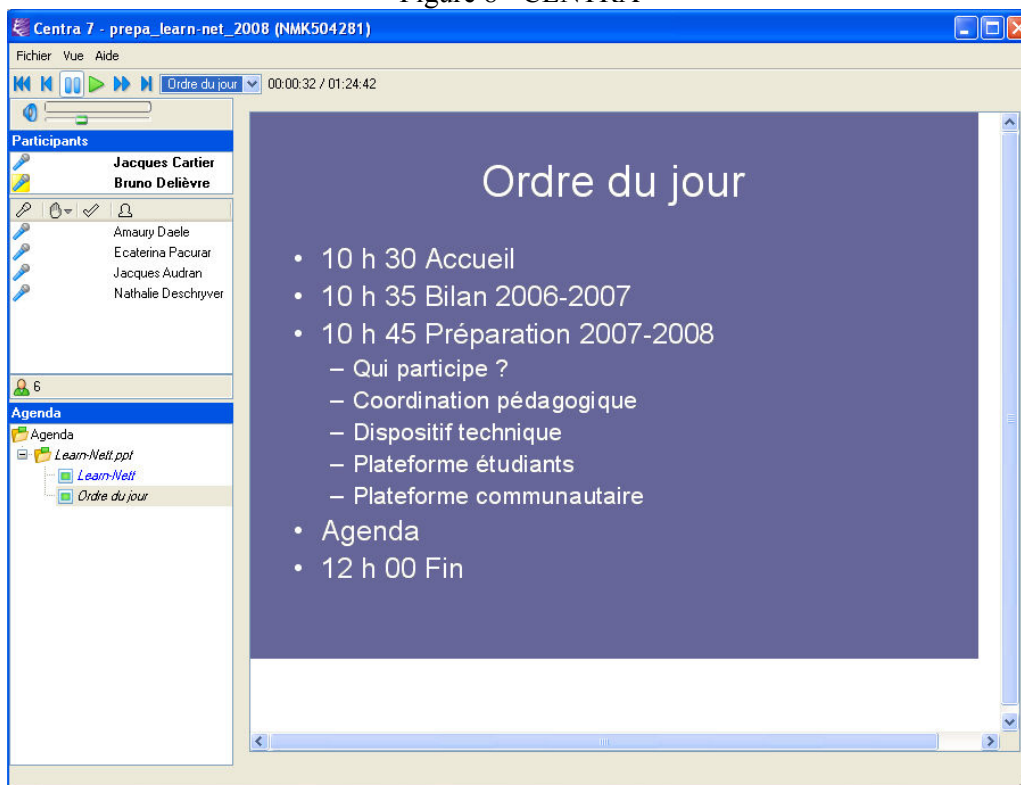


Figure 7 - GALANET



- A multi-user videoconference system: CENTRA (<http://central.ac-toulouse.fr>)

Figure 8 - CENTRA



A new platform in the future: this platform should correspond to the specifications described at point 3.1.1:

- to be hosted on the servers of a LEARN-NETT partner perennially, taking into account that there are few resources for the maintenance. This is to be negotiated between the LEARN-NETT partners, by thinking in particular about the interactions between the new platform and the PALETTE tools;
- to allow administration at a distance (by a partner not member of the university that hosts the platform);

- to allow public access to a few resources as the LEARN-NETT window, or possibly a guest access in order to observe the pedagogical activities in progress;
- to allow access to a hundred people with different access rights (coordinator, tutor, student);
- to propose communication, collaboration and documents sharing tools.

The point regarding the interaction between this platform and the PALETTE tools is that only one access point is needed, i.e. only one login/password for the users in order to access the different services: the platform and the PALETTE tools.

At the LEARN-NETT coordination meeting held on 21 June 2007, a provisional decision has been made about the use of a new platform. Actually, the LEARN-NETT partners feel comfortable with the three actual tools. In addition, it seems that no platform yet exists with all the required tools (videoconference among others). The evaluation of the last edition of LEARN-NETT has also shown that the students feel comfortable with two different environments (GALANET and CENTRA). Finally, LEARN-NETT has no sufficient resources for setting up a new platform now. So the decision is that LEARN-NETT will continue with the three environments. The PALETTE services will be connected as better as possible with GALANET or Moodle. The servers used could be the ones of the University of Fribourg (for example for hosting RDFS files or annotations bases).

## 4.2 Description of the scenario

### 4.2.1 Capitalizing resources and written discussions

**0** - A “focus group” is formed in order to carry out the following steps. The members of this group represent the LEARN-NETT actors (coordination and pedagogical teams) as well as the institutional partners. For this, the LEARN-NETT coordinator in collaboration with the PALETTE / LEARN-NETT mediator informs the members of the two teams about the roles and tasks of the focus group. A group of 7 or 8 persons is formed. Ideally, other persons could participate in limited actions, for example new tutors or students writing their dissertation in the LEARN-NETT framework.

A discussion prior to the implementation of the scenario is held in order to choose the distance learning platform that will be used by LEARN-NETT in the future and which partner will host it. This is important because several PALETTE services could be installed in the future on these servers (for example the ontology or SweetWiki). This step is now clear after the decisions made on 21 June 2007 (see above section 4.1.7).

**1.1** - The first job of the focus group’s members is to identify the resources and the discussions to be capitalized. They do the stocktaking of:

- the different types of documents (PDF, DOC, HTML for most of them) or written conversations about experiences of tutors’ practices as well as the location of these documents and conversations.
- the scientific papers about LEARN-NETT organised in different topics: tutoring groups at a distance, students’ learning, innovation in Higher Education, appropriation of tools, learning communities and communities of practice.
- former students’ works with pedagogical documentation gathered about each work topic.

The group also identifies general categories in order to classify these documents. For example, documents and conversations about tutors’ practices could be classified according to the work steps of the students’ groups (forming the group, negotiation and organisation of the work, group’s work, evaluation, etc.). The students’ works (pedagogical scenarios) can also be classified according to their target audiences: Primary school, Secondary school, adults, University, etc.

The documents are gathered and stored by one or two focus group’s members in an only base located on Moodle. The conversations about tutors’ practices are first listed with a mention about their location (Moodle, GALANET, Claroline, TECFA virtual campus).

The group agrees on the categories. It also agrees on the LEARN-NETT tutor's profile that describes the roles and actions carried out by the tutors throughout the LEARN-NETT training with the students.

**1.2** - Two members of the focus group formalise the categories in ontology with ECCO. In practical terms, they:

- add key words into the ECCO base;
- define and possibly translate them;
- organise them into a hierarchy;
- create a RDFS file.

In collaboration with the PALETTE developers, the compatibility of the created ontology with the generic PALETTE Communities of Practice ontology is checked.

The RDFS file is then stored on a Web server with a permanent URL. The services LinkWidget and SweetWiki will access it in order to allow the LEARN-NETT members to annotate documents or written conversations.

Subsequently, the RDFS file can be updated at any time by a focus group's member through ECCO, and then replaced on the Web server at the same URL.

**1.3** - Concerning the "LEARN-NETT tutor's profile" (roles and actions), the focus group thinks to a hierarchical description of the different types of practices of the LEARN-NETT tutors according to the work steps, the roles, the types of encountered questions/answers, the actions carried out by the tutors, etc. This description will complete the ontology created at step 1.2. Two or three members of the focus group make this job and circulate to the other members for validation. The outcome is a common document listing the typical roles and actions of the LEARN-NETT tutors on which the focus group's members agree.

The two members in charge of the creation of the ontology add the tutor's profile to the ontology with ECCO. In the same way than previously, this ontology could be updated at any time.

In collaboration with the PALETTE developers, the compatibility of the ontology with the generic PALETTE Communities of Practice ontology is checked.

**1.4** - Two focus group's members think to the table of contents of the SweetWiki pages (or Wiki "portal"). In practical terms, these pages will have to be organised according to several topics such as:

- the pages dedicated to the tutors taking up for example former asynchronous conversations, or monthly or annual reports written by the tutors;
- the pages dedicated to researchers (for example coordination team members or students writing their dissertation) taking up researches carried out about the LEARN-NETT pedagogical framework;
- the pages dedicated to the LEARN-NETT students (reports, documentations, etc.);
- possibly the public pages dedicated to external public (teachers' trainers, trainers in Open and Distance Learning frameworks, researchers, students, etc.).

The table of contents is circulated to the other focus group's members for validation. Once validated, the two members create the SweetWiki portal of LEARN-NETT, i.e. the first page and the table of contents.

**2.1** - From this step, two types of distinct actions must be considered:

- the actions that will contribute to the capitalization of existing documents and conversations (points 2.1, 2.2 and 3.1);
- the new actions that the LEARN-NETT actors will have to adopt in order to continue the capitalization of future documents and conversations (points 2.3, 2.4 and 3.2).

First, the focus group's members annotate documents and conversations stored on the Moodle platform and possibly associate conversations with stored documents. For this, they use the LinkWidget tool bar they have installed as FireFox extension. In practical terms:

- the documents gathered at the step 1.1 are annotated by referring to the ontology created at steps 1.2 and 1.3. LinkWidget allows to semi-automatically annotating the documents by proposing the list of the ontology's concepts that the user just has to choose in.
- the files attached to the old forum messages are manually replaced in the "documents store" section of the platform and are annotated in the same way.
- the conversations and their messages are also annotated. The links between the messages and their possible attached files are created with the files replaced in the "documents store" section. New links can also be created for example between a conversation message and files stored in the documents repository.

**2.2** - More specifically, concerning the written conversations about the tutors' practices (scattered in the different LEARN-NETT platforms and identified at the step 1.1), two members of the focus group collect them and add them in the SweetWiki in new pages. In practical terms:

- the two members propose a page template in order to present the collected conversations in a readable form. This template is validated by the other focus group's members.
- the pages are generated in SweetWiki in the specific pages of the portal and they are annotated by the two members.

The outcome of this step is a directory of written conversations about the tutors' practices in the form of annotated Wiki pages.

**2.3** - Subsequently, new procedures are implemented by the tutors when they have discussions about their practices. In practical terms:

- the tutors systematically annotate with LinkWidget the conversations they participate in and the documents they exchange about their practices.
- with LinkWidget, they possibly link conversations or messages with documents (old or new) stored in the documents repository of the used platform.

**2.4** - In the same way, new documents (research papers for instance) and new student's reports are stored in the documents repository of the platform (Moodle or GALANET) and are annotated with LinkWidget. Here all the LEARN-NETT actors are concerned.

**3.1** - The steps 3.1 and 3.2 more specifically concern the tutors' monthly and annual reports about the functioning and progress of their students' groups.

Two focus group's members gather old tutors' evaluation reports and create SweetWiki pages that they annotate. In practical terms:

- the two members propose a page template in order to present the tutors' report in a readable form. This template is validated by the other focus group's members.
- the pages are generated in SweetWiki in the specific pages of the portal and they are annotated by the two members.

The outcome of this step is a directory of tutors' reports in the form of annotated Wiki pages.

**3.2** - In the same way, the new monthly and annual tutors' reports are directly written and annotated in SweetWiki by the LEARN-NETT tutors, possibly with a template. In practical terms:

- every month, the LEARN-NETT coordinator creates a new SweetWiki page and gives each tutor a section with evaluation questions the tutor answers about the functioning and progress of his/her students' group. The coordinator informs the tutors that a page has been created and sets a time limit for them to fill their section before the monthly synchronous meeting.
- the tutors fill their page section and annotate it by mentioning the tutors' practices they describe in their text.

**4.1** - The steps 4.1, 4.2 and 4.3 more specifically concern information research in the knowledge base created throughout the previous steps. The research interface is LinkWidget that will allow searching for information both in the LEARN-NETT platforms and in SweetWiki. Two focus group's members can:

- collect queries done by the LEARN-NETT actors in LinkWidget;
- list the “favourite” queries that could be implemented in LinkWidget in order to facilitate subsequent search.

The tutors who ask questions about the support to their group or encounter problems with their group can search for information in the LEARN-NETT platforms with LinkWidget. In practical terms, they type their query in the LinkWidget window or chose a query into the list of favourite queries. The results are displayed and the tutors can consult the actions carried out by other tutors confronted with the same questions or problems with their students' group.

**4.2** - The LEARN-NETT actors (coordination and pedagogical teams, students writing a dissertation, etc.) who want to search for documents or information about a research topic can proceed in the same way, either by typing a query in LinkWidget, or by choosing a query from the favourite queries list.

**4.3** - In the same way, the students who get in LEARN-NETT and are registered into a working group supported by a tutor can search for documentation about their work topic in the students' reports base, either by typing a query in LinkWidget, or by choosing a query from the favourite queries list.

**5** - Subsequently, the focus group's members write synthesis about recurrent problems encountered by the tutors by describing specific cases and different actions and solutions implemented by other tutors. The new documents are written and annotated as new SweetWiki pages. In the same way, Frequently Asked Questions (FAQ) lists can also be written for the new tutors. These FAQ can concern for example the different steps of the work of the students' groups: to make contact, to form the groups, to work collaboratively and to evaluate.

In practical terms:

- when it seems that tutors' questions become recurrent, two focus group's members can propose to write synthesis.
- they collect the documents (tutors' reports for example) or the conversations that tackle specific questions (for example: what can I do if a student does not answer much his/her emails and s/he does not actively participate in the production of the group?) with queries in LinkWidget.
- they synthesise the actions carried out by different tutors who have previously encountered the same question. They possibly add more general advices.
- they create a new SweetWiki page in a dedicated portal section and they annotate it.

#### 4.2.2 Supporting and capitalizing argued discussions

We consider two scenarios:

1. during the tutors' training (before the beginning of the students' working groups), case studies are presented and discussed;
2. during the students' collaborative work, the tutors present their questions or problems and discuss them. The tutor who presents the question makes him/herself the decision of action with the students of his/her group.

##### 4.2.2.1 *The tutors' training case*

**1** - The coordinators of the LEARN-NETT tutors' training propose, just before (in order to prepare the training and collect the first representations of the new tutors) or just after (in order to go into the

training in depth) the training day, to discuss case studies about supporting students' collaborative groups by tutors.

In practical terms, the coordinator of the LEARN-NETT tutors' training, before the training:

- creates an account for the participants in the training on CoPe\_it!
- creates a community "LEARN-NETT tutors' training".
- creates workspaces, one for each case study. The cases typically allow several possible solutions.
- sets up a deadline for closing the discussion (one week before the training).
- CoPe\_it! informs the group by email that a new discussion has been created and a deadline has been set up.

**2** - The participants debate and discuss their different points of view. Documents are possibly enclosed in their messages. In practical terms, they:

- log on to CoPe\_it!
- enter the case studies workspaces.
- read the case.
- write ideas, comments or notes and identify their writings as against, in favour or neutral regarding the ideas of other participants. They can decide together specific codes for the use of the colours or rectangles.
- they can also add documents or URL in the discussion in order to support their arguments.

The discussion can begin in a "white table" view, then continue in a more formal view in order to better identify their different ideas and positions of participants towards each idea.

**3** - When the discussion is closed, the coordinator of the training summarizes the different positions and arguments used. S/he places the summary in a SweetWiki page and tags it.

The information provided by CoPe\_it!/e-Logbook about the participation in the discussion can be added to the summary. If the discussion has been held before the training, this information can be used during the face-to-face tutors' training by the training coordinator in order to ask questions of clarification to the participants or to develop some arguments further.

After the tutors' training, other discussions can be proposed for example in order to go into some tutors' practices in depth or to answer specific questions that arouse during the training.

#### *4.2.2.2 During the students' working groups phase*

**1** - During the 4 months of the LEARN-NETT training with the students' working groups (from January to May), a tutor encounters a problem with his/her group: for example, the passivity of a student that the other students complain about. The coordinator creates a CoPe\_it! community "LEARN-NETT tutors" and opens workspaces for the tutors to tell their problems and get feedback about them from the other tutors. In practical terms:

- the LEARN-NETT coordinator, in January, creates a community "LEARN-NETT tutors" in which s/he registers all the LEARN-NETT tutors and local coordinators. The members of this community are allowed to create workspaces.
- the tutor who encounters a problem with his/her students creates a workspace in CoPe\_it! and tells the situation into a note.
- the tutor sets up a deadline (2 or 3 days since in general the questions require quick answers).
- CoPe\_it! informs the community by email that a new workspace has been created and a deadline has been set up.

**2** - The other tutors and local coordinators as well as the LEARN-NETT coordinator:

- log on to CoPe\_it! and enter the workspace.
- read the problem.

- possibly ask questions of clarification about the specific situation.
- the concerned local coordinators (for example the one who knows the student who caused the problem) possibly give additional information.

**3** - The other tutors and local coordinators as well as the LEARN-NETT coordinator:

- write new ideas or comments against or in favour of the proposed ideas.
- add arguments against or in favour of the previous arguments.
- possibly, they add documents or URL in the discussion in order to support their arguments.

When the discussion is closed, the tutor who set up the discussion makes a decision and applies it with his/her students.

**4** - The tutor who set up the discussion writes a synthesis and describes the decision s/he made and the actions s/he will carry out. S/he adds this synthesis in a SweetWiki page and tags it. The information provided by CoPe\_it!/e-Logbook about the participation in the discussion can be added to the synthesis.

### 4.3 Abstract of the scenario

#### 4.3.1 Capitalizing resources and written discussions

Table 4 - Capitalizing resources and written discussions

Step	Description	Expected outcomes	PALETTE services
0	A focus group is formed in order to carry out the following steps. The members of this group represent the different LEARN-NETT actors as well as the different institutional partners.	-	-
1.1	The focus group's members identify: <ul style="list-style-type: none"> <li>• the different types of documents (PDF, DOC, HTML for most of them) or written conversations about experiences of tutors' practices as well as the location of these documents and conversations.</li> <li>• the scientific papers about LEARN-NETT organised in different topics: tutoring groups at a distance, students' learning, innovation in Higher Education, appropriation of tools, learning communities and communities of practice.</li> <li>• former students' works with pedagogical documentation gathered about each work topic.</li> </ul>	List of documents and conversations to process (with specific formats of the documents)  Identification of the categories in order to classify them	-
1.2	The classification of the documents per topic is formalised into ontology. This ontology will then be used in order to annotate stored or created documents, and to allow queries into the documents base. Other topics than the ones proposed at point 1.1 can be subsequently added at the time of updating.	Ontology of topics tackled in the LEARN-NETT documents	ECCO

Step	Description	Expected outcomes	PALETTE services
1.3	<p>A generic profile of the LEARN-NETT tutors' practices (roles and actions) is created. The focus group thinks to a hierarchical description of the different types tutors' practices according to the work steps, the roles carried out, the types of questions/problems encountered and the actions carried out by the tutors. This hierarchical description completes the ontology initiated at point 1.2.</p> <p>Before using the LEARN-NETT ontology, its compatibility is checked with the generic Communities of Practice ontology created in the PALETTE framework (the Knowledge Management tools developers make this check).</p>	<p>A common list of typical LEARN-NETT tutors' roles and actions on which all the focus group's members agree</p> <p>Development of the LEARN-NETT ontology with the tutors' practices</p>	ECCO
1.4	A structure of the SweetWiki pages is elaborated by the focus group, for example: pages with old asynchronous conversations, tutors' monthly and annual reports, synthesis about specific problems encountered by tutors, etc. This structure constitutes a Wiki portal, such as a Wikipedia topic welcome page.	SweetWiki portal with a table of contents	SweetWiki
2.1	The focus group's members annotate documents and conversations stored in the platform used by LEARN-NETT (Moodle) and possibly link conversations with stored documents. The files attached to forums messages are replaced in the documents repository of the platform. The used annotations refer to the ontology generated beforehand.	-	LinkWidget
2.2	<p>The old conversations about tutors' practices, scattered in different actual and old LEARN-NETT platforms, are collected, copied as SweetWiki pages and annotated.</p> <p>The pages structure can be defined beforehand with a template.</p>	Directory of written conversations about tutors' practices in the form of annotated SweetWiki pages	SweetWiki
2.3	The new conversations and documents are annotated in the same time manually or semi-automatically by the other members of the LEARN-NETT coordination and pedagogical teams.	-	LinkWidget
2.4	The new research papers and students' reports are stored in the LEARN-NETT platform documents repository and annotated.	-	LinkWidget
3.1	The old tutors' monthly and annual reports are copied and stored in SweetWiki pages and annotated by the focus group by describing among others the work steps, the types of questions and problems encountered within the students' groups, the types of actions carried out by the tutors, etc. These reports can be structured according to a template.	Directory of tutors' reports in the form of annotated Wiki pages	SweetWiki
3.2	The new tutors' monthly and annual reports are directly written and annotated in SweetWiki by the tutors, according to a possible template.	Annotated Wiki pages	SweetWiki



Step	Description	Expected outcomes	PALETTE services
4.1	The tutors who wonder about the support to provide to their group or who encounter problems with their group search for information in the LEARN-NETT platforms and SweetWiki with LinkWidget.	-	LinkWidget
4.2	The coordination team's members who carry out researches about LEARN-NETT and wish to find old documents about their research topic search into the documents base.	-	LinkWidget
4.3	The students who get involved in LEARN-NETT and join a working group supported by a tutor can search for information about their work topic in the students' old reports base.	-	LinkWidget
5	The focus group writes synthesis about recurrent problems encountered by the tutors by describing specific cases and listing different actions and solutions found by other tutors. New documents are added and annotated in SweetWiki pages.  In the same way, Frequently Asked Questions lists can be elaborated for the new tutors. These FAQ can concern for example the different work steps of the students' groups: to make contact, to form the groups, to work collaboratively and to evaluate.	Production and publication of synthesis	SweetWiki LinkWidget

#### 4.3.2 Supporting and capitalizing argued discussions

Table 7 - Supporting and capitalizing argued discussions: the case of the tutors' training

Step	Description	Expected outcomes	PALETTE services
1	The coordinators of the LEARN-NETT tutors' training propose, before or after the training day (in order to prepare the training and collect first representations of the new tutors or in order to go into the training in greater depth), to discuss cases of students groups supported by tutors.  A workspace is open in CoPe_it! and the tutors are invited.	A few workspaces are open in CoPe_it!	CoPe_it!
2	The tutors debate and confront their opinions. Documents are possibly attached to exchanged messages.	-	CoPe_it!
3	At the end of the discussion, a tutor writes a synthesis specifying the different options and arguments proposed in the discussion as well as the chosen solution. The synthesis is manually uploaded in SweetWiki and annotated.  Awareness information is provided by e-Logbook in CoPe_it! and allows depicting a global view of the participants' actions and the documents exchanged during the discussion.	Production and publication of discussions synthesis	CoPe_it!/e-Logbook SweetWiki

Table 8 - Supporting and capitalizing argued discussions: during the LEARN-NETT training with the students groups

Step	Description	Expected outcomes	PALETTE services
1	During the 4 months of the LEARN-NETT training with the students groups, a tutor meets a problem with her group: for example, the passivity of one student about which the other students of the group complain. The tutor opens a workspace, describes the situation and invites the other tutors to participate in the discussion.	A few discussions are open in CoPe_it!	CoPe_it!
2	The participants possibly ask more information about the group's situation and concerned student. The concerned local coordinator could also provide additional information.	-	CoPe_it!
3	The opinions of the other tutors are written and discussed.	-	CoPe_it!
4	At the end of the discussion, the tutor who opened the discussion writes a synthesis specifying the different options and arguments proposed in the discussion as well as the solution that s/he has chosen. The synthesis is manually uploaded in SweetWiki and annotated.  Awareness information is provided by e-Logbook in CoPe_it! and allows depicting a global view of the participants' actions and the documents exchanged during the discussion.	Production and publication of discussions synthesis	CoPe_it!/e-Logbook  SweetWiki

#### 4.4 Comments or details about the services used in the scenario

##### 4.4.1 CoPe\_it!

CoPe\_it! can provide the LEARN-NETT community with a set of integrated PALETTE and external to PALETTE services. At the time being, the developers have integrated the external services Google search, Google Docs & Spreadsheets, Wiki. Others can be included (please specify if any particular preferences). As regards internal PALETTE services, integration of the e-Logbook, Amaya and KM services are under implementation. For the existing tools already used by LEARN-NETT please specify needs and preferences of the community (please note that besides technological aspects of integration, also copyright policies and constraints must be investigated).

For the scenario of CoPe\_it! to be used by the group of tutors during the students' groups period (see 4.2.2.2), a group of users will be created. All the users of this group should have the access rights to create discussions themselves.

From a user point of view, after a first activity of the LEARN-NETT focus group, CoPe\_it! seems easy to use but not intuitive: the different functions must be used in a not usual way (double click for creating objects, way to create links or to update descriptions of objects, etc.). This means the quick guide is absolutely essential for the users to enter the tool. Another very blocking problem is the fact that CoPe\_it! does not support the French accents. However, the tool seems to be useful for the LEARN-NETT purposes.

The training for the tutors and students to use CoPe\_it! will have to be very specific and give concrete examples of real uses.

##### 4.4.2 LinkWidget - ECCO - SweetWiki

Among all the LEARN-NETT documents produced each year, some are public such as research reports, research papers, students' reports, etc. However, some other documents very useful for the LEARN-NETT community should not be publicly accessed such as the tutors' evaluation reports, the

students' reflective reports, the internal coordination or pedagogical teams' discussions, etc. If an external or invited person wants to search into the documents base, s/he should have only access to public documents.

All these documents would be tagged according to the same ontology.

From a user point of view, the LEARN-NETT focus group has tested SweetWiki. A first little evaluation highlighted a problem with the management of colours and the creation of Webs. However, the tool seems very useful and usable. Again, the training for the LEARN-NETT tutors and students will have to be very concrete and based on examples of real uses.

#### 4.4.3 Interactions between PALETTE services and LEARN-NETT tools

It is important to note the will of the LEARN-NETT members to use only one access point to the different services and tools (only one login/password).

In addition, the training of the LEARN-NETT actors to use the PALETTE tools and possibly the proposed scenarios will require time and efforts: during the tutors' training and during the students' technical training. The tutors must have the opportunity to use the tools before the students in order to be able to help them if need be.

Concerning the different LEARN-NETT platforms, it will be needed to evaluate the possibilities of interaction between LinkWidget, and Moodle and GALANET.

## 5. Conditions of participation

### 5.1 CoPe\_it!

- Web access
- Registration to CoPe\_it! services
- Definition of a user profile
- Registration in a community, acceptance by the administrator of the community that allows to access the community's workplaces
- Registration also includes the definition of a set of information about the user that is public for the rest of the team members

### 5.2 LinkWidget - ECCO - SweetWiki

In order to efficiently use these services in LEARN-NETT, these following points should be taken into account:

- these services will be used in direct connection with the LEARN-NETT platforms (Moodle and GALANET), thus with the servers that host the platforms and the computer support services in the LEARN-NETT partners universities. Decisions will have to be previously made.
- the use of LinkWidget imposes the use of the browser FireFox (at least at the beginning).
- a training session about basic Knowledge Management concepts would be useful for the coordination and pedagogical teams' members: ontology, semantic annotation, etc.
- the use of SweetWiki should be discussed by the LEARN-NETT coordination and pedagogical teams: what kind of documents to create, by whom, how to use the ontology, how to train tutors and students to use it efficiently, etc.

## 6. Scenario validation process

Five steps:

1. Sending the scenario to the LEARN-NETT focus group and PALETTE developers. A Moodle forum is open where the focus group members can ask their first questions.
2. Synchronous meeting on CENTRA platform on 24 May 2007: description of the scenario, answers to the technical questions, etc.

3. Trials of the services by the focus group members through little activities prepared by the mediator.
4. 19th of June 2007: synchronous meeting in order to answer the formal questions of validation.
5. 21st of June 2007: LEARN-NETT internal meeting for making decision about the possible implementation of a new platform and the follow-on of the work with PALETTE. The mediator participated in this meeting. The decisions made: to continue to use two different platforms (Moodle and GALANET) with the CENTRA videoconference system, change of the coordinator and continuation with PALETTE (with extension of the number of LEARN-NETT participants and trialling of PALETTE services). The next internal meeting will be held in Liege (Belgium) on 3 September.

The next steps are described in the validation account (see page 25).

## 7. Glossary

*Annotation / Tag (To annotate / To tag)*

In the present document, “to annotate” and “to tag” are considered as synonyms (“annotation” and “tag” are thus also synonyms). It is about to describe a document or a part of a document with key words or short expressions organised in an ontology.

*Annotation - Manual vs semiautomatic annotation*

A manual annotation consists in the addition of a key word or a short description to a document or a part of a document by a user. It is done on the keyboard, manually.

A semiautomatic annotation system allows a user to choose annotations within a pre-existing list of annotations when s/he has to annotate a document or a part of a document. This list may be a folksonomy or ontology.

*Annotation - Simple vs complex annotation*

A simple annotation applies to a whole document (text, image, video, audio, etc.). A complex annotation may apply to a whole or only a part of a document (a text, an image, etc.).

*Annotation - Textual vs semantic annotation*

A textual annotation is a free written description (words, sentences, etc.) of a document or part of a document.

A semantic annotation refers to a pre-existing base of key words or expressions organised in ontology. In the present document, when the concept of “annotation” is used, it concerns the semantic annotations. We thus consider “annotation”, “semantic annotation” and “tag” as synonyms (see also “Annotate / Tag”).

*Awareness*

Generally speaking, “awareness” refers to the public knowledge or understanding of a social, scientific or political issue, for example about AIDS or global warming. In a Web-based communication and collaboration environment, “awareness information” allows a user to be “aware” of the presence of other users in the same environment, for example with tools such as a pop-up “Who’s online?” window, statistics about the access or use by the users, personal pages, etc.

*Folksonomy*

(from Wikipedia) A folksonomy is a system of collaborative, decentralized and spontaneous classification. Contrary to hierarchical classification systems (such as ontologies), the contributors to a folksonomy are not forced to use predefined words or expressions. They can adopt their own terms in order to classify their resources. These terms are called “key words” or “tags” or, in French “étiquettes”. The interest in folksonomies comes from online communities: for a given resource, its classification is the union of the different classifications of this resource by the different contributors. So, a user can start from a resource and by following the tags uses by the other contributors, it is possible to find other related resources.

### Ontology

(from Wikipedia) Ontology is a semantic network that groups a set of concepts that exhaustively describe a domain of knowledge. These concepts are organised together with, on the one hand, hierarchical relations (hierarchy of concepts) and, on the other hand, semantic (meaning) relations. The main purpose of ontology is to model a set of knowledge in a specific domain.

The concepts of ontology can then be used in order to annotate shared resources (documents, online discussions, etc.) and search into the resources base.

### RDFS (Resource Description Framework Schema)

(from Wikipedia and W3C) RDF Schema or RDFS is an extensible language to represent knowledge. It belongs to the semantic Web family languages published by the W3C. RDFS provide basic elements for the definition of ontologies or vocabulary for structuring RDF resources.

### Semantic Web (semantic annotation or search)

(from Wikipedia) The semantic Web concerns a set of technologies aiming at making the content of the World Wide Web resources available and usable by programs and software agents, thanks to a formal metadata system.

The semantic Web is based on the Web and does not call it into question. The semantic Web is thus based on the classic function of the Web: a way to publish and consult documents. However, the documents processed by the semantic Web do not contain texts in natural languages but formalised information in order to be automatically processed. These documents are generated, processed, shared by software. This software often allow, without computer science knowledge:

- generating semantic data from information typed by users;
- aggregating semantic data in order to be published or processed;
- publishing semantic data in a personalised or specialised form;
- automatically sharing data according to their semantic relations;
- generating automatic semantic data from inference rules.

### Tag (To tag)

See Annotation / Tag

### Wiki

(from Wikipedia) A Wiki is Web sites content management system that allows all the authorized users to freely and equally modify the pages. Wikis are used in order to facilitate the collaborative writing of documents with a minimum of constraints.

## APPENDIX 7 – Scenario for Form@HETICE

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### 1. Document contents and target audience

#### 1.1 Contents

This scenario describes activities and uses of tools by the Form@HETICE community, a community composed of “resource people in ICTE” (Information and Communication Technologies in Education) and of people teaching in High Schools, mainly members of 23 educational departments (they are trainers of future teachers). The remainder of this document is structured as follows. First of all, the needs of the community are described as well as the objectives of the scenario in response to these needs. Then, the section “methodology” presents the steps of the elaboration of the scenario in a participatory design perspective. In this, information regarding the involved parties from the community and from PALETTE in the elaboration of the present scenario as well as the time sequence of actions is provided. The section “Scenario design” describes the scenario itself and its different possible options. It also presents in summary the time line of the sequence of events of the scenario (in tables) as well as the integrated use cases gathering the proposed services to be used during the scenario (schemes). Finally, the conditions of participation (i.e. the conditions required for implementing the scenario by the community) are presented as well as the scenario validation procedures that will be planned with the community afterwards.

#### 1.2 Audience

Every member of the CoP may play a role in the following scenario: a member searching for a particular document created by members of the CoP, the three members who have accepted to make durable the network (i.e. core members of that network) when they organize a meeting or when they manage the Web site.

### 2. Community’s needs and scenario purposes

#### 2.1 Group of needs

The fundamental goal of Form@HETICE is to promote a critical use of ICT in the educational practice of High School teachers. Five axes are used to reach this objective:

1. elaboration and organization of training sessions for teachers and students (about tools and technological support, pedagogical scenarios using ICTE, etc.);
2. production and updating of training and self-learning resources;
3. capitalization of existing ICTE practice and their dissemination inside the Form@HETICE network;
4. monitoring of teacher’s innovative projects about ICTE;
5. stimulation, enlargement and durability sustaining of exchanges inside the network.

Since 2000, the project has been coordinated by an external team which organized the life of the CoP mainly through face-to-face meetings. But from now, most of the actions in this network will be self-powered thanks to a three people team of “*Pérenisateurs*” (people making the network durable) who will take their coordination in charge.

Monthly face-to-face meetings are the cornerstone of the network. They are much appreciated, since participants can share ideas about practical activities. It also gives them the opportunity to introduce new members. A mailing-list helps disseminating new information. So, its main topic is the

organization of these meetings. Other topics, such as productions or external events are rarely addressed.

A major issue is that the Web site is growing anarchically for months, and information is more and more difficult to retrieve. There is an urgent need of some kind of sorting.

## 2.2 Purposes of the scenario

The aims of the present scenario addressing the needs of the Form@HETICE community are:

- suggest CoP's members a tool that supports the preparation and the follow-up of the meetings.
- make categorization of the plentiful documents available on the Web site aiming at making document more easily retrievable.

## 3. Methodology

- In January 2007, four members took over the organization of the network. Today, they are at the core of the CoP. They have to work together and they cooperate in the organisation of the CoP meetings. These gatherings in 'real life' are hard because of scheduling problems and geographical scattering. They use classic tools (word processors and e-mails) in order to write invitations, agendas and meeting reports. Using a tool such as Amaya would allow easier exchanges and would spare lots of time and energy.
- On February 7th, 2007, a meeting between the mediator and PALETTE technological developers was held, where a tool of facet classification using Bayesian techniques was discussed. We agreed on a schedule for the next steps, in order to produce a service that would make the CoP's life easier.
  - **09/02/2007 – services developers:** Dispatching of a working plan on the categorization service (Bayesian classification);
  - **09/02/2007 – services developers:** Dispatching of white papers;
  - **15/04/2007 – mediator and services developers:** 'Facetization' for Form@HETICE;
  - **06/21/2007:** Meeting between mediator, services developers, and core members of Form@HETICE. Demonstration of BayFac and validation of the scenario;
  - **31/07/2007 – services developers:** BayFac is online and the core members can use this tool;
  - **15/09/2007 – mediator and core members:** Ergonomic analysis and feedback on the interface and the portal.

## 4. Scenarios design and description

### 4.1 Actors and services

#### 4.1.1 Actors

Actors may use PALETTE tools in various ways.

A "regular" member can have a need to search a document on the Web site of the CoP, knowing for instance that this document is a form and that it concerns overheads declaration or something like that. He may also decide to upload an interesting document about ICTE uses on the Web site. If he is warned of how the Web service can work, he may participate in the categorization of those kinds of documents using the service to define their "facets" (kind of document, concern...).

A more motivated one may decide to categorize old documents in the same way. Members of the core team may decide to organize a CoP meeting and to schedule it cooperatively.

#### 4.1.2 Services

##### 4.1.2.1 Amaya

Amaya is a Web editor, i.e. a tool used to create and update documents directly on the Web. Browsing features are seamlessly integrated with the editing and remote access features in a uniform

environment. This follows the original vision of the Web as a space for collaboration and not just a one-way publishing medium.

Work on Amaya started at W3C in 1996 to showcase Web technologies in a fully-featured Web client. The main motivation for developing Amaya was to provide a framework that can integrate as many W3C technologies as possible. It is used to demonstrate these technologies in action while taking advantage of their combination in a single, consistent environment.

Amaya started as an HTML + CSS style sheets editor. Since that time it was extended to support XML and an increasing number of XML applications such as the XHTML family, MathML, and SVG. It allows all those vocabularies to be edited simultaneously in compound documents. Amaya includes a collaborative annotation application based on Resource Description Framework (RDF), XLink, and XPointer. Visit the Annotea project home page.

(source: <http://www.w3.org/Amaya/>)

#### 4.1.2.2 BayFac

This service, that will be developed above the Generis tool, aims at providing a mean to index textual documents (documents, emails, forum posts, Wiki, blogs, etc), automatically, regarding a vector of concepts relevant to a CoP and coming from a relevant ontology, hence allowing classification according to multiple dimensions. A user interface using this indexation will offer ways to navigate in the documents base to search and classify new documents in an intuitive way.

Automatic classification will be based on Bayesian techniques that will learn first from manual classification made by users and then propose automatic categorizations once enough documents have been processed in a supervised manner to enable correct predictions. A Bayesian classifier is able to provide a classification into one single category. The technique of faceted classification will also be used. It allows to cluster the categorization space (fed by ontologies) into different subspaces of linked concepts, and then using one classifier per subspace (facet) to provide a more suitable categorization linking a document to a set of concepts, belonging to known facets, instead of a single one.

This service will be deployed on a Generis platform and made available to the external world through a Web service allowing direct use by software applications, or through a new portal dedicated to end-users.

## 4.2 Description of plausible scenarios

4.2.1 The core members are organizing a face-to-face meeting and try to be as efficient as possible in preparing the schedule and keeping a log of what happened during the event.

### 4.2.1.1 Preparing the meeting

A few people are involved in the preparation of the meeting. Sally is the coordinator. Bob, Ann and Jack help her in organizing the meeting. Sally opens her Web editor (Amaya) and chooses the agenda template to create the initial version of the schedule. She provides the content of a few fields according to the decisions that have already been made within the organizing committee. In the appropriate fields, she enters the title of the meeting, the dates, and the location. She creates a dozen time slots in a few keystrokes and she enters the provisional title and the speaker's name for some of them, leaving a few empty slots and question marks in the schedule.

When this initial draft is ready to be dispatched within the organizing committee for comments and contributions, she clicks the "Publish" button. She is then presented with a form asking for the email addresses of the people who are supposed to work further on the agenda. She provides the addresses of Bob, Ann and Jack that she copies from her address book (she may have a distribution list for the organizing committee that makes this task still easier). The tool saves the document on the Web server of the CoP and sends an email to each of these people, telling them that the document is available for review and contribution. The document itself is not in (or attached to) the message. Only its URI is provided. Bob, Ann, and Jack receive this message in their mailbox.



Ann takes action immediately. She just clicks on the document URI displayed in the message. This opens the draft agenda in her editor (Amaya). She provides some more information, fixes a few typos, and makes some comments in the document itself. She may highlight a few parts in the document on which she wants to draw attention from other contributors. In a single click, she finally saves the updated document back onto the server and an email is sent to Sally, Bob and Jack. Ann has the opportunity to provide some more information in this email if she wants to associate some comments to the document without overloading the document itself.

Bob sees that message in his mailbox and, like Ann previously, he adds some more information, which is soon made available on the server, with email notification to his colleagues.

When he has read the emails from Sally, Ann and Bob, Jack opens the draft document with his usual Web browser. Whatever message he starts from, he sees the latest version, which includes the updates from Ann and Bob. He checks the current status of the agenda and prefers to just send his comments by email to the other organizers. When receiving this email Sally opens the document in Amaya and makes a few changes, as proposed by Jack.

After a few such iterations, Sally decides that the document is fine and she sends a message to the whole CoP, with the URL of the document. Each CoP's member can now see the agenda in his/her favourite Web browser. If Sally or the other organizers have a few changes to make after the announcement, they can easily update the document on the server. Most participants check the latest status of the agenda before leaving for the meeting and are thus aware of any last minute change.

#### 4.2.1.2 During the meeting

Just before the meeting starts, Sally nominates a few people for scribing. Each scribe is in charge of taking notes during a given part of the meeting. They just type plain text on the fly, and at the end of their session, they send this to Sally by email.

Sally also asks all speakers who use slides for their talk to give her a copy of the file they have used for their presentation. Some of them have actually already uploaded the file on the Web server; they just send Sally a short email with the URI of their presentation.

#### 4.2.1.3 After the meeting

When she gets back to her office after the meeting, Sally finds in her mailbox all the notes taken by the scribes. With her editor she creates a new document with the specific template for minutes. She provides the content of a few fields, just by typing, but most of the content is taken from the messages sent by the scribes. When all pieces have been integrated in this document, she edits it a bit to make it consistent, she runs the spell checker, and she asks the editor to number sections and to build the table of contents. The document is now finished. She publishes it on the Web server (a single click) and sends a message to all CoP's members, announcing the availability of the minutes. Everybody can now read the minutes of the meeting.

To help people browse through the minutes she has just published, Sally decides to update the agenda, by adding for each talk announced in the agenda a link to the corresponding part of the minutes. This is done in a few keystrokes and mouse clicks, as the template for minutes has already generated the required anchors in the document. She also uploads the files provided by the speakers, and creates links to these files from the agenda.

Tom could not attend the meeting. He is curious about what happened in his absence. When he receives the message from Sally, he opens the agenda in his browser. He remembers that, when reading the agenda a couple of weeks ago, he noticed a few talks that he was really sorry to miss. He now clicks on the links that Sally has just added and he can read the relevant minutes immediately, as well as the slides the speaker used during his presentation. Tom is happy to be able to reconstruct most of what happened during the meeting.

#### 4.2.2 BayFac

The “Pérénisateurs” of the CoP decide to identify a few appropriate facets by examining the already existing documents on the Web site. They can base on the validated ontology, too. They are chosen thinking about what kind of search could be led in the future. Once this work is done, BayFac allows any member of the CoP to categorize old or new documents and to retrieve them easily.

Jack, a CoP’s member, gives training where he uses a slideshow as a support. After the meeting, he uploads the document on the Web site. The engine behind the site enables him to manually categorize his document according to the various facets which were defined. At the same time, the Bayesian classifier records this action.

In the same period of time, Peter, Andrew and Steve, other members of the CoP, upload their own documents, exactly as Jack did. And so on and so forth, for months.

Mary is very motivated by a possible documents categorization. Being informed of the identified facets, she decides to categorize some old documents on the Web site when she has time to spare. To achieve her goal, she uses the interface of the service. Having a conversation by email with her friend Janet, this one decides to help Mary in her task. One month later, most of the old documents of the site are faceted.

The Bayesian classifier will work step by step: at first, it will need to be manually ‘fed’. Then, it will begin to develop a certain ability to guess how documents should be categorized, cautiously asking the user to confirm the validity of his guess. As time goes on, it will make less and less errors. After a certain period, it will acquire enough ‘self-confidence’ so he will be able to categorize files with no need for human interaction.

From this time on, Jack won’t ever need to define facets manually again when he uploads his documents. And if Andrew wants to find a document produced a long time ago by Jack, say an article about free software, he won’t have to dig in a vast amount of directories: thanks to the Web interface, he will just have to enter a few facets related to the documents he searches, and the engine will localize it for him.

#### 4.3 Scenarios schematic representation

Step	Sequence of events	Expected Results and Evaluation Criteria	Tool Requirements	Notes
1.0	Presentation of PALETTE and PALETTE tool and service, especially Amaya and LimSee.	Presentation of the different services/tools during plenary meeting: <ul style="list-style-type: none"> <li>• Workshop on Amaya with experimented “resource people” during the Form@HETICE summer school (August 2006).</li> <li>• Plenary Meetings in October and November</li> <li>• Workshop on Amaya and LimSee at the Form@HETICE conference (December 2006).</li> </ul>	Amaya and LimSee	Nobody tries to pretend the tools are perfect. We mention participatory design and what it is about. CoP’s members have a hard time imagining the usefulness the proposed tools and services can have for the network and for themselves.

Step	Sequence of events	Expected Results and Evaluation Criteria	Tool Requirements	Notes
2.0	Meeting mediator-developers	A meeting was hold in February in Luxemburg: <ul style="list-style-type: none"> <li>• Presentation of the BayFac tool principles</li> <li>• Deadlines and next steps</li> </ul>		
3.0	First meeting mediator - developers - Core members	A meeting has been held on the 21st of June in Liège, in order to present the service BayFac to some members of Form@HETICE (the “pérénisateurs”). During this meeting, some validation questions were posed to the members by the validator, in order to validate initially the version of the scenario. This meeting resulted in a first step of validation. According to the fact that members of Form@HETICE are not available during summer, and that the service BayFac will be developed during this period, a second meeting will be held in September to present the evolution of BayFac and to validate in a final way the scenario.	BayFac	Developers and the “pérénisateurs” were able to meet, discuss and even exchanged their names and addresses, in order to stay in touch. Everyone who attended the meeting returned at home with objectives and involvement.
4.0	Second meeting mediator - developers - Core members	A meeting will be held in September.	BayFac	The main difficulty will be to change the habits of the CoP’s members and to motivate them by showing them what the tool or service can bring to their community.
5.0	Training days	In a near future, trainings (plenary or individual) will be organized so that our CoP’s members are able to use the tools in a quick and efficient way.	BayFac Amaya	

#### 4.4 Comments on the use of services in the scenario

- The most important point that we had to explain to our CoP’s members was the concept of participatory design. We chose to let them know that they are part of a process, that their feedback is one of our most important source of ideas for creating better tools.
- As an aftermath, they know that they will have to work with a tool that is not finished, since they are themselves (in a certain way) the writers of the tool they use. This aftermath will be easily forgiven when they realize that doing so allows them to literally tailor the tool to their own everyday needs.
- Nowadays, core CoP’s members are using proprietary software. We will have to convince and to motivate them in changing their habits.

- The Amaya tool stays in the scenario but is not yet used by CoP's members as described now. It has been presented several times, but does not fill a present need for them. Form@HETICE's "pérénisateurs" have to work some organization and investment issue out before they are able to bring energy for using the tool.

## **5. Conditions of participation**

- Any Form@HETICE member can participate.
- Every Form@HETICE member, being interested by the ICT, has the needed technical skills.
- Technical skills is one thing, motivation is another one: smooth tools and services are needed.
- This scenario was written after having had discussions and exchanges with various representative Form@HETICE members.

## **6. Validation procedures**

Please refer to the validation documents produced by the Form@HETICE's validator (see page 28).

## APPENDIX 8 – Scenario for @PRETIC

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### 1. Document contents and target audience

#### 1.1. Contents

The scenario described in this document proposes activities and uses of a service for the @PRETIC community that is composed of Belgian French-speaking teachers who are in charge of “*Centres CyberMédia*” (computer labs) in the school where they teach. The remainder of this document is structured as follows. First of all, the needs of the community are described as well as the objectives of the scenario in response to these needs. Then, the section “methodology” presents the steps of the elaboration of the scenario in a participatory design perspective. In this, information regarding the involved parties from the community and from PALETTE in the elaboration of the present scenario as well as the time sequence of actions is provided. The section “Scenario design” describes the scenario itself and its different possible options. It also presents in summary the time line of the sequence of events of the scenario (in tables) as well as the integrated use cases gathering the proposed services to be used during the scenario (schemes). Finally, the conditions of participation (i.e. the conditions required for implementing the scenario by the community) are presented as well as the scenario’s validation procedures that will be planned with the community afterwards.

#### 1.2. Audience

Within the @PRETIC community, the target audience is virtually every member of the CoP, i.e. any secondary school teacher who is in charge of a ‘*Centre CyberMédia*’ and has subscribed to one or more @PRETIC mailing-lists (for historical reasons there are two of them, plus one recent CoP-oriented mailing-list that was created especially for PALETTE needs) or just uses its tools (Wiki, forums, etc.), actively (writer) or passively (‘lurker’).

### 2. Community’s needs and scenario purposes

#### 2.1. Group of needs

What we know today as the @PRETIC community was born as a mailing-list circa ten years ago and grew as technology grew. @PRETIC, the official organization, is more or less the same as @PRETIC, the CoP, with the difference that joining and quitting the CoP is done in the CoP way, i.e. less formally and with less constraints. It’s easy to say how many members @PRETIC as an organization has, but it’s hardly possible for the CoP, due to its very nature.

Needless to say, we will focus in this document on @PRETIC as a CoP (that we will refer simply as “@PRETIC” “the CoP” from now on).

PALETTE wants to help @PRETIC to achieve a vast group of needs:

- A need for its members to **be acknowledged in their roles** as “*Personnes Ressources*” (PR), by their management and by the government: when the PR role was first defined at the end of the nineties, operating budgets were given to them. Over time, these budgets mainly vanished and a lot of CCM’s are today still running thanks to voluntary work;
- **The knowledge its members created for years is very hard to retrieve.** They only have access to a non-flexible mailing-list archive system, which does not allow any kind of searching. As a result, the same problems are cyclic and highly recurrent, because searching the archives would be far more of a burden than asking it once again – even unknowingly. One of the main challenges in @PRETIC is to give CoPs member the means to break this

never-ending circle by giving them a knowledge management service tailored especially to their needs;

- As within any CoP, **people come and people go**. Someone may have been an expert in a topic in 1999, and then left the community in the meantime, and newcomers don't even know one has existed. They "reinvented the wheel", unknowingly again;
- Due to time limitations, @PRETIC members have to **do maintenance work** most of their 'PR time'. They work on fixing hardware and software problems, but their **first goals were to help their fellow teachers and their students to use IT as a new way of working, in a more collaborative way and publish their courses online**;
- Members of the @PRETIC community, being in charge of computer labs, have often to work on content, be it online or offline. One of their tasks is to help students in their first approach of IT. Giving them **good advice so they develop good computing practice is an essential role of their task**. As it is almost always the case in teaching, and this phenomenon is heavily sharpened in CS teaching, the knowledge to be transmitted is a flexible knowledge, i.e. learning for the long term. The challenge in this teaching is to **identify invariants concepts and principles and isolate competencies**. In other words, **abstract the used computer program from the taught knowledge**: mastering 2007 tools won't mean anything for them or their employers in 2012. **Learning a competency is the goal, not learning a tool**.
- Some feel that @PRETIC is dying, because of the lack of recognition of their PR roles and lack of operating budget. Even if it is unsure, it is believed by some CoP's members that working effectively as a CoP will **increase their visibility and help their management and the government to recognize the amount of work they do**.

## 2.2. Purposes of the scenario

The aims of the present scenario towards addressing the needs of @PRETIC are:

- to make their members aware that they could greatly benefit from having their ten-years-spanning knowledge easily accessible and retrievable;
- to give them tools and services that allow them to organize their information (i.e. a mailing-list, a forum, a Wiki service (SweetWiki) and a document editor (Amaya));
- to motivate as much members as possible to write articles based on what they feel they have a certain level of expertise in;
- to motivate a core team to maintain SweetWiki (proofreading, tagging, organizing those tags – i.e. *create their ontology*, in SweetWiki wording);
- to give their fellow teachers and their students the means to produce and publish Web and text documents and presentations in an easily and possibly collaborative way;
- to give their fellow teachers and their students the means to teach and learn 'a-temporal' good CS practice, i.e. teach them the fundamentals, not reading them user manuals. They will be grateful their teachers did that in a few years;
- to make their fellow teachers and their students aware of the significance of standards;
- to supervise @PRETIC members in attaining these goals so they gain more visibility and the recognition they have been struggling to get for years.

## 3. Methodology

- From 1997 to the fourth quarter of 2006, there were two mailing-lists, one for Walloon schools and another one, with exactly the same topic, for Brussels (French-speaking) schools. There was no formal communication between the two lists.
- In the fourth quarter of 2006, a 'meta-list' was created, which reunites the members of both lists. The explicit goal of this mailing-list was not to replace the existing lists, but to become @PRETIC-as-a-CoP list, where events related to the CoP life are discussed, unlike both the original lists that aim to discuss punctual issues in their everyday life as 'PR's'. At the time of writing this document, there are more or less 100 members in this CoP list.
- @PRETIC members use a mix of proprietary and open source tools in order to produce their documents (Microsoft Word, Microsoft Excel, and Microsoft PowerPoint for some of them, DreamWeaver or NVu for others of them).

- In the month of February 2007, a meeting with a dozen of members of the CoP was organized, where some PALETTE tools and services were shown. Amongst those tools and services, SweetWiki and Amaya were pre-eminently discussed and we organized a ‘kick-start’ workshop at the end of the meeting. Every attending CoP’s member was asked to begin to fill and tag one or two pages.
- March and April didn’t see much involvement of the CoP’s members with the tools and services we gave them.
- In May, the mediator of the CoP made ten face-to-face meetings with @PRETIC members in the schools they work, in order to better understand this inertia. Some answers were found, and we can cite a few of them:
  - a certain fear of their peers’ look at what they perceive as their own ignorance;
  - the very nature of the teacher, not usually willing to share; it must be said here that it seems a bit exaggerated, even caricatural, but nonetheless the topic came in almost all interviews;
  - there’s no feeling of a social network between CoP’s members, which can help the two previous points to be reinforced;
  - a lot of PR’s have very little time to give to their PR role and perceive more ‘immediate’ problems as more important than using CoP’s tools and services, which is not always true as a good involvement in the CoP life would give them easier answers to their day-to-day issues.
  - both SweetWiki and Amaya have usability issues which prevented even the most motivated PR’s to use them more than one or two days ;
  - some tools were lacking: for instance, PALETTE doesn’t offer a simple forum system (*à la* phpBB or SMF); proposed tools that could have been used instead of a forum were either too complicated compared to existing forums or not ready yet (e-Logbook, CoPe\_it!);
- In June, two in-depth ergonomic analyses were produced by the developers in charge of the usability analysis of the PALETTE tools.
- July and August will be two months of holidays for our CoP. We don’t expect much work from them during these two months.
- In September, we should have new versions of Amaya and SweetWiki, improved from our usability analysis, itself dictated by our proximity work with CoP’s members. A CoP-oriented version of Amaya will be purged from its interface aimed at experts, while SweetWiki will get rid of some irritating bugs in its editor.

## 4. Scenarios design and description

### 4.1. Actors and services

#### 4.1.1. Actors

In this scenario, all actors are members of the @PRETIC CoP. They are given one tool, Amaya, and a service, SweetWiki.

Every member of @PRETIC can register to be a fully-powered SweetWiki editor, by simply clicking on the ‘Register’ button and entering their vitals. Amaya is free software, which is fairly light to install, doesn’t require a powerful computer and works on Mac OS X, Linux and various Windows versions.

#### 4.1.2. Tools and Services

##### 4.1.2.1. SweetWiki

A Wiki is a ‘Web 2.0’ tool that allows a community to publish ‘articles’ on the Web in a collaborative way with minimal hassle. Anybody can improve, modify and fix other people articles. The system has been proved vastly successful on sites as Wikipedia.

*SweetWiki is a new Wiki engine. It has been developed around the semantic Web technologies. It can be used [as a test] at <http://argentera.inria.fr:8080/wiki>. SweetWiki implements the concept of “social tagging”: you can tag pages, pictures, add new tags (just type them), directly from the WYSIWYG editor, etc. You can use the semantic search engine (Corese) transparently on these tags. If you type “Wiki” in the tag search form, you’ll get all objects tagged with “Wiki” and also all the objects tagged by tags that are belonging to the category “Wiki” (subclasses of “Wiki”). You will be proposed as well all the related tags that, in turn, link to other relevant documents.*

(Source of the emphasized text: <https://bscw.ercim.org/bscw/bscw.cgi/d182884/SweetWiki,%20semantic%20Wiki.pdf>, restricted access for project members – some changes have been made by us for clarity, marked by brackets.)

SweetWiki weakness, as of today is its relative youth and its ‘Kupu’ editor which has issues producing valid mark-up, especially from copy/pasted sources. The developers are currently addressing these issues, with the help of the ergonomic review.

#### 4.1.2.2. Amaya

*Amaya is a Web editor, i.e. a tool used to create and update documents directly on the Web. Browsing features are seamlessly integrated with the editing and remote access features in a uniform environment. This follows the original vision of the Web as a space for collaboration and not just a one-way publishing medium.* (Source of the emphasized text: <http://www.w3.org/Amaya/>)

Being a mature, albeit non-bloated tool, Amaya does more than Web documents, even if it is its first point. It’s also a Web browser (but in its current state it’s rarely utilized as such, due to CSS2 rendering issues). Most interestingly, it can be used as a word processing application, a slideshow editor and its template engine allows it to create syntactically-correct forms that you just have to fill. With no knowledge of XHTML at all, one can produce his CV, reports, or virtually anything that can exist in the form of a classic paper form.

But the greatest strength of Amaya lies in its ability to write documents that **conforms to The World Wide Web Consortium (W3C) standards**. The W3C is the international standards organization for the World Wide Web (i.e. anything one can see in a Web browser). Or, seen from another point of view, Amaya strength lies its **inability** to produce non-valid code, which is what almost its entire competitor does.

Amaya’s greatest weakness as of today is that its interface focuses on expert users, and is very user-unfriendly for CoP’s members, whose technical experience is mainly made of commercial, end-user-oriented tools. There is a work in progress in order to produce an ‘Amaya Editor Lite’, focused on end-users.

## 4.2. Description of plausible scenarios

### 4.2.1. Working with SweetWiki

#### 4.2.1.1. Shutting down the interferences

*John, a member of the @PRETIC CoP, is well aware that his @PRETIC, a project he has very close to his heart, is slowly dying. He wants to do something to resurrect it. After questioning a few of his peers, he finds a few issues that he knows have to be resolved in order to revive the CoP. The first of them all is that they all feel they have been tricked by various schools’ management and by politicians. Their roles as PR’s are misrecognized and diminished. Most of the operating budgets in school have been cut down, and PR’s are getting more and more tired of acting on a pure voluntary work basis.*

*Moreover, when the computer labs were first introduced ten years ago, they had high hopes about what their work would be about : help their fellow teachers to publish their courses online, and help students working online, while giving them a good grasp of computers’ internals, so they could develop good, reusable practice.*



*Today though, John and his fellow PR's feel they are nothing more than they labs' janitors. They maintain aging computers, and their task is mostly to prevent them from falling apart. At the beginning of the project, they had a quite competent help desk to help PR's in their maintenance tasks. Today's help desk is the shadow of what it used to be. They have become useless 'reboot your machine and try again, thank you and goodbye' types.*

*John won't let things deteriorate any more. He has a plan. He will reorganize knowledge. If the official help desk can't help him, he will organize a parallel one. He will create a real community, made of persons who know themselves well and have a strong will to work together and share their knowledge. In other words, he will do what is needed to let @PRETIC become what it was in the beginning again. And he hopes that the government's focus on his CoP will increase by increasing his CoP's visibility. John knows it's quite a challenge, but he has a strong faith in his beliefs.*

PR's unanimously seek acknowledgement of their status by both their management and by the government: when the PR role was first defined at the end of the nineties, operating budgets and help desks were given to them. Over time, these budgets and help desks mainly vanished and a lot of CCM's are today still running thanks to voluntary work. Some feel that @PRETIC is dying, because of the lack of recognition of their PR roles and lack of operating budget. Even if it is unsure, it is believed by some CoP's members that working effectively as a CoP will increase their visibility and help their management and the government to recognize the amount of work they do.

#### 4.2.1.2. Too much documents kills the documents

*John is a "born archivist". Being a long-time member of the community (he was there from day one), he knows that a large amount of knowledge was exchanged through the mailing-lists over the years, but feels helpless in front of a monolithic archive system. Granted, he has access to all the documents, but for this access is quite rough: John has to use an archaic method for retrieving them, one by one, with the e-mail date stamp as the only search criteria. He even doesn't have a simple search engine.*

*He's well aware that these messages are not organized at all and, being an archivist, would like to do something against that sad state of things. He knows that some of these messages are useless now because of their obsolescence. He knows that he has to make a first selection between what is still useful ('a-temporal' message or 'topical messages') and what is just outdated discussions that nobody will ever need.*

The @PRETIC CoP's members have access to a large archive of e-mails (it holds thousands of them). The topics are as various as one can imagine in such an 'ecosystem'. Some of them are obsolete (for instance, 'How do you install a networking stack in Windows 3.1'), some of them are punctual (for instance, 'How do we organize the meeting on September 22nd, 2004'). They are not pertinent anymore for our CoP.

*One day, as John was doing repetitive tasks on his computer, he decides that his time is worth more than doing repetitive tasks and phones Marvin, a cognitive sciences researcher of his friends, who agrees to take its archive as it is and to use his team's state-of-the-art Artificial Intelligence system to proceed to an automatic categorization of the 4,815 documents contained in the archive.*

*A few days later, thanks to Marvin's team of researcher and their powerful tools, the documents have been purged from unwanted content (spam and binary attachments, for the most part of them) and the strange characters that some messages contained were fixed.*

*It was first hoped that the Artificial Intelligence system would be able to proceed to a first classification of the messages, but as their analysis went on, it appeared evident that the less-than-formal style of their contents would make this task impossible. So, John had first to ask his faithful friends Desmond and Hugo to help him develop what Marvin called an 'ontology', a very savant name for a list of keywords sorted in a hierarchic system.*

*After a few days of hard work, with a mixture of Artificial and human Intelligence, all messages are now 'tagged' with keywords they relate to. These keywords are even classified according to a complex yet extremely easy to use relation system, which helps him to retrieve messages with a 'neighbour' topic. John now has a powerful 'starting point'. He and his 'team of three' add some 'Human Intelligence' insights to the categorization, based on his own analysis and his own experience.*

After some basic processing of the messages ('un-spamming' them, removing unwanted attachments, fixing character encoding inconsistencies), a semiautomatic 'ontology maker' (or annotation service) is first ran on the raw archive. It didn't work too well with @PRETIC's mailing list due to its contents, written in a very informal way. A meeting between the mediator and @PRETIC members was needed to design a 'jump-off' ontology. Mixed with bleeding-edge AI and computer-assisted linguistic techniques, this first ontology was born. One can see it as a series of tags (or keywords) that are linked together according to hierarchic and relation rules.

It allows for a powerful pre-treatment of the data, that human intelligence can use and enhance easily. In @PRETIC's case, pertinent e-mails are either cyclic (for instance, concerns about the labs management during the exams), either never expire (for instance, concerns about what to let do and what not let do to students), either are topical ('How to do X in Windows Vista'). These e-mails are relevant for our CoP.

*John asks the 108 members of his community to help him in his task through their mailing-list. Not being easily fooled, even by himself, he knows that his project is ambitious and can fail. So, the first thing he asks to the members of the community is to give his project a bit of faith. Desmond and Hugo are already 'believers' in John's work. They both have a bit of free time, a bit of faith in John's project and a desire to do something useful for their community. John then enrolls Jack, a science teacher, who has no interest in data-mining the archives, but suggests he can contribute to the knowledge base by writing new articles on how to fix recurrent computing problems in their community, a matter he knows well. James, who has a good knowledge of accounting, suggests that he can write articles on budget management in their labs from scratch, too.*

SweetWiki allows two categories of information to be organized, that we name 'recycled information' (John, Desmond and Hugo) and 'tacit knowledge' (Jack, James). CoP's members use the WYSIWYG 'Kupu' editor to create new pages (articles) on a vast variety of topics, and the 'Corese' tags/folksonomies/ontologies manager to tag the pages and establish relations between them.

#### 4.2.1.3. 'Recycled information'

*Charlie, Claire and Michael don't have any speciality. They volunteer, but they are no experts in any of the fields of their community. John tells them that it doesn't matter. All they have to do is to arbitrarily choose a few subjects that were handled in the mailing-list before and digest them in synthesis pages.*

Recycled information is the information that volunteer CoP's members enter in SweetWiki, which are 'digests' of previous mailing-list discussions (the ones that we referred before as being 'cyclic', 'non-expirable' or 'topical'). The level of expertise in the processed subject, while not entirely irrelevant, is almost never a concern, since no new information is produced. Information is only sorted and organized in a digest form.

The work of organizing 'recycled information' is a work in progress that will probably never end. Exhaustiveness is not a goal, albeit a wish.

#### 4.2.1.4. 'Tacit knowledge'

*Jack and James, soon joined by Kate, Benjamin and Ethan and later by 15 or 16 more specialists in their own domains, write articles on their area of expertise, at their own pace. Some of them are very prolific, some are not. In fact, it doesn't really matter. New pages are written or modified almost daily and that's all that matters.*

Some CoP's members are experts in certain fields. Some of them, for instance, are experts in mathematical notation language and programs. Assuming that these topics were never discussed on the lists, those members will enter new information in the Wiki.

It has to be noted that neither Amaya nor SweetWiki were perfect tools for making new information emerge: in what we call the 'information gathering chain', it looks like there was a missing link: the mailing-list is too loosely structured and SweetWiki and Amaya are too far in the chain to be seen as where the information springs from. A non-PALETTE service, which was discovered to be lacking from @PRETIC's portfolio has to be added: a 'classic' forum. Basically the 'information gathering chain' looks more like this: a subject is discussed in a forum, then a transversal reading of the thread is done and significant parts are copied and pasted in the Wiki. We hypothesize that a Wiki is not really the place for an initial question and discussion arising. Moreover, at the time of writing this document, SweetWiki still lacks the 'discussion' tab that is usually part of a Wiki engine, which could have been used for discussion, even if, in our opinion, such a module would lack some of the refinements found in 'classic' forum systems.

#### 4.2.1.5. Keeping it accurate and organized

*The community is well aware of the service and of the topics it addresses: they receive an e-mail weekly that tells them what pages were added or changed, who did it, who was active and other statistics. Seeing this activity gives them the desire to contribute too. If there's no activity for two or three days, they can count on John to 'motivate the troops'. But John has rarely to do that, he bets on the ludicity of the system. He finds it entertaining in many ways: some members want to be prolific and like to see their names on the top list of contributors, and he's not the only one to be amazed at how knowledge grows like a snowball.*

*After a year, 38 more contributors have joined the project and have produced articles (that's a sum of 42). 442 articles have been written in various fields of expertise, consisting of both new and recycled material. This knowledge base is now a tool that is used daily and greatly helps the members of the community in their everyday life – even those, amongst the 108 users, that are only 'lurkers': users that do not contribute to the Wiki.*

*John, who has this project very close to his heart, wants to have control over the information. He wants accuracy, he wants easily retrievable information. He doesn't want to stay hours in front of his computer anymore, searching and waiting for his information. Jack likes having control too. That's in all naturalness that both of them decide to manage the accurateness and organization of the information of their ever-growing knowledge base.*

Core members are in charge of keeping the information accurate and well sorted. They:

- do peer review: verify that the information entered by other members is valid;
- organize and fix tags;
- manage tags/folksonomies/ontologies (basically, ontology in SweetWiki context is the set of relationships between the tags).

#### 4.2.1.6. Going further

*Today, in June 2008, John has achieved what he calls the masterpiece of his life. His information is accurate. It's literally living its own life by constantly evolving. And, icing on the cake, it is easily retrievable. And not only by a classic search engine: 'his' system goes further than that. Tags help even more for information retrieval, but the system goes further again. Tags are themselves sorted, through a complex (for the computer, but very easy to use for a human) process that allows searching through relations or through free mind association, thanks to an AI system living underneath the service.*

Classic Wiki systems 'only' offer a keyword-based search. SweetWiki, for its parts, has a folksonomy (tags) manager included. This folksonomy can be turned into ontology in an easy and entertaining

way, thanks to the Cores engine that hides behind SweetWiki. From there on, AI treatments are barely limited... just like human imagination.

#### 4.2.2. Working with Amaya

##### 4.2.2.1. Two approaches of a same problem

*We will focus on two (fictional) characters, Edmund and Eden. Edmund is a @PRETIC member who works in the “École des Marais Boisés”. Eden, another @PRETIC member, who works in an unrelated but similar school, “L’École des Étangs Verdoyants”, faces the same day-to-day problems. We will see that they use a radical approach of problem solving.*

*Edmund sees himself as a pragmatic who just want the work done. He has no interest in learning new software and so uses de facto ‘standard’ tools (a word processing application, a presentation tool, proprietary mathematics notation software and a Web authoring application). He produces a lot of documents, whose contents are quite good. However, we won’t talk of Edmund very much.*

*More interesting to us is the case of Eden, who attended PALETTE meeting in February 2007 and decided to use Amaya for almost everything. It’s free, it’s there. So she gave it a try. At first, she was a bit disappointed to have to work in such a different way, but soon realized that the learning curve is not so bad. Not only was it only one more software to learn – she has used hundreds of different software in her life, so one more is no big deal – but she was happy to see that, using Amaya, there is one and only one common denominator: the XHTML language. So, after writing a first Web page with Amaya, she used the ‘Show source’ view and saw that her text was clearly visible in the document source (something she had hoped to be able since this function vanished in word processors 15 years ago). Granted, here and there, there were some strange letters, enclosed by braces, and sometimes ended by a slash character. It took her a few minutes to understand that, but a <p> followed by a </p> meant that the text between the ‘tags’ was paragraph. Then she learned about the <em> and <strong> tags. They meant emphasis (italics in other words) and bold text.*

A very convenient feature of Amaya is that it uses the same mark-up whatever document you intent to write. XHTML learning curve, with the help of Amaya, is very short:

- XHTML is a very structured, right-to-the-point language – knowing a dozen of tags is enough for day-to-day work;
- One does not even have to know these tags to use Amaya, which is a WYSIWYG tool. But sometimes, it’s just convenient to go directly to the source code and change things by hand. WYSIWYG is incredibly useful, but some WYSIWYG tools can make one become ‘claustrophobic’. Amaya does not: if something doesn’t display as one thinks he should, one just looks what went wrong in the source of the document.
- Whatever document one decides to write, the same set of conventions applies.

*From 2007 to 2009, Eden produces presentations, text documents, Web pages and help students with writing their resume. She produces and helps to produce a lot of template-based documents. ‘Uploading’ her work to the Web server or ‘converting’ a presentation or a word processed document are things of the past: the upload process is now as transparent as saving a file to her own computers. As for conversions, this step simply doesn’t exist anymore: her word processed document is XHTML. Her presentations are XHTML. And so are her resume, those of her students, and the multiple administrative documents they produced. At the same time, Edmund does the same with his tools.*

*It has to be noted that Eden first had a very hard time to convert other CoP’s members to use Amaya. More ‘pragmatic’ members and less computer-literate ones did not want to work with her tools in the first place. She had to ask Amaya’s team to produce a more CoP-oriented tool, less loaded with features, but with a straighter interface, more end-user oriented. Fortunately, Amaya’s team was very responsive to her suggestions, as they already had an end-user oriented ‘Amaya Editor Lite’ in the works. When this new tool was available, Eden did have much less of a hard time to convert her fellow @PRETIC members to this way of working.*

An ergonomic work group was set up among the PALETTE developers, who had a precise notion of what the CoPs needs are. The team is made of researchers with previous experience in ergonomic research, one of them being very close to both the @PRETIC CoP and Amaya development tools. These ergonomic improvements were an important key leading to the acceptance of Amaya by CoP's members.

#### 4.2.2.2. Come together, right now...

*When she was named as a lab manager in her school, Eden became a well-known @PRETIC member: Amaya was developed with collaborative work in mind so that several members can work at the same time on a project. Her students are able to do group work, from Web pages to assignments to resumes. Inside the CoP, they create collaborative presentations with geographically sparse @PRETIC members that are really helpful when 'real-life' meeting occur. A few courses were written collaboratively by professors from different schools, and still are.*

#### 4.2.2.3. The importance of standards

*2010 is a sad year for both the "École des Marais Boisés" and "L'École des Étangs Verdoyants". Edmund dies in January after getting hit by a bus. Eden leaves the school, in a less tragic manner: she leaves as a volunteer for the Red Cross, in an area where she has no Internet access. Both schools lost their computing lab manager. They are replaced by Matt and Claude.*

*Matt has a very hard time in his new attributions. Some of Edmund's files are unreadable, some are of an unknown format, others want license to be paid just to be opened. He has to learn a lot of new software he was not accustomed with. The school director is not pleased the day he has to pay the bills. On the other hand, Claude, who barely knew HTML (his only experience is that he had worked on his daughter's Girl Guide Web site before), quickly adapts and find his way. At first, he didn't even use Amaya, because he was accustomed with a text editor. That was not a problem: Amaya's XHTML is readable by virtually any available text editor. After one month or two, he began to dig deeper and upgraded to the latest version of Amaya. The learning curve was even shorter than Eden's a few years ago. He now able to do everything Eden did, and then some more.*

*Matt, in the meantime, decided not to try to continue working with Edmund's tools. They were too much of a hassle and anyway, the director of his school has no desire to pay the needed tools. Thanks to the CoP, he met Claude, who showed him Amaya. Claude gave him access to the documents Eden and himself had produced, so he was able to recreate most of Edmund's works. He is now known as Eden was known as a very active @PRETIC member and today, Claude and Matt work together with a growing user base of Amaya inside of the CoP.*

### 4.3. Scenarios' schematic representation

Scenario sequence of events

Step	Sequence of events	Expected Results and Evaluation Criteria	Tool Requirements	Notes
1.0	First meeting with the core team.	Gather people from different horizons in order to consolidate them as a CoP. A hundred of subscriptions mean a good evaluation.	Amaya 8.x is used.	We probably did focus too much on Amaya as a tool. We should have talked more about what uses it can have in @PRETIC's day-to-day life.

Step	Sequence of events	Expected Results and Evaluation Criteria	Tool Requirements	Notes
2.0	Opening of a CoP-oriented mailing-list.	Gather people from different horizons in order to consolidate them as a CoP.  A hundred of subscriptions mean a good evaluation.		We ask that only people with a real motivation to do actual work come to the planned meeting.
3.0	Second meeting, with a jazzed-up core team.	Awareness of PALETTE and PALETTE tool and services, especially Amaya and SweetWiki.	Amaya 9.54 and a pre-beta version of SweetWiki are shown.	Nobody tries to pretend the tools are perfect. We mention participatory design and what it is about. We have a better-focused, result oriented discussion.
3.1	First e-mail returns.	The awareness of PALETTE and PALETTE tool and services, especially SweetWiki expands to the non-core members.	Same as above.	Ergonomic feedback is given. We sort it and move the relevant parts upstream.
4.0	Ten face-to-face meetings are organized between the mediator and CoP's members.	The goal of those meetings is to better understand @PRETIC's needs.	N/A	Meetings involving a large number of people have proven to be less effective. People speak more frankly face-to-face. Moreover, it's hard to find a time where dozens of PR's can be held together for a few hours (agenda incompatibilities).
5.0	Ergonomic analysis of tools and service is realized by the developers with a precise notion of what the CoPs needs are.	An ergonomic work group was set up, reuniting researchers with previous experience in ergonomic research (one of them being the mediator himself). The evaluation criteria was done after 'mock-ups' of a new interface and a visual presentation of what those refined tools could do.	Amaya and SweetWiki.	We discovered that more than any other task, this ergonomic testing and improvement was a key, if not <b>the</b> key of our work as 'go-between' technical partners and our CoP's members.
6.0	A non-PALETTE service, which was discovered to be lacking in our portfolio is added: a forum.	In the "information gathering chain", it looked like there was a missing link: the mailing-list is too loosely structured and SweetWiki and Amaya are too far in the chain to be seen as where the information springs from.	A non-PALETTE tool, SMF (Simple Machine Forum), phpBB clone with less security issues.	A transversal reading of the forum's thread should help @PRETIC members writing articles (they read the thread in a transversal way then copy and paste the pertinent parts in a SweetWiki or Amaya XHTML document).

Step	Sequence of events	Expected Results and Evaluation Criteria	Tool Requirements	Notes
7.0	The tools are fixed in order to become more CoP-oriented.	One of the major issues the CoP's members had with PALETTE tools is that they are too far from what they know and use. The core logic that lies behind the tools and services is nearly perfect, but the interface itself (the only thing CoP's members really see) needs a facelift.	Amaya and SweetWiki.	It is our hypothesis that provided CoP-oriented versions of the tools of services, we will be able to motivate a critical number (from 6 to 12?) CoP's members. The rest should be a snowball effect.
8.0	First results.	<ul style="list-style-type: none"> <li>SweetWiki is used and is filled with a mixture of new and recycled material.</li> <li>Web pages, word processed documents, presentations and all sort of documents are produced. Collaborative work begins.</li> </ul>	Same as above.	It took more time than first expected, but we think that's what collaborative design is about.
8.1	Strengthening of our first results.	'Super users' appear and use SweetWiki advanced functions (ontology management). A well-maintained Wiki/ontology couple is our evaluation criteria.	Same as above.	@PRETIC will not be an emerging CoP anymore. It will be a fully formed CoP.

Please note that points 7.0 and above refer to 'the future'.

#### Scenario time line

	Event 1	Event 2	Event 3	Event 4
Face-to-face	First meeting with a first version of @PRETIC core team. Not too successful because of a lack of focus on the CoP's real needs.	Meeting with @PRETIC's core team. They were briefed about PALETTE, PALETTE tools and services, especially Amaya and SweetWiki. A workshop was organized.	Face-to-face interviews with ten @PRETIC members in their school, conducted by the mediator.	
At a distance	Opening of a CoP-oriented mailing-list to discuss the implementation of PALETTE tools in @PRETIC.	Ergonomic analysis of tools and service is realized with a precise notion of what the CoPs needs are.	A forum is introduced in order for the CoP to discuss topics in an easy way (see before for the 'missing link' idea).	Ergonomic work is conducted and is processed by the developers.

#### 4.4. Comments on the use of services in the scenario

- The most important point that we had to explain to our CoP's members was the concept of participatory design. We choose to let them know that they are part of a process, that their feedback is one of our most important source of ideas for creating better tools.
- As an aftermath, they know that they will have to work with a tool that is not finished, since they are themselves (in a certain fashion) the writers of the tool they use. This aftermath is easily forgiven when they realize that doing so allows them to literally tailor the tool to their own everyday needs.
- The work of rewriting (or, more exactly, digesting) years of knowledge summed in their mailing-lists is hard work. It asks motivation. We will help them by providing them an access to their own archives, revised and pre-sorted by both our researchers and computers, so that a first sorting (that is, what can be done without being CoP's members – filtering spam, cutting attachments, printing documents, etc.) helps them staying motivated.
- Standards are more than a will to write good code, for the pleasure of writing good code. They actually serve a purpose: interoperability. By complying with them, one can rest assured that the day one won't work on a project anymore (for whatever reason), his successors will be able to take his place.
- More than anything else, @PRETIC members are in a search of recognition of their roles as PR. This quest is so strong and unanimous that we just can't try and learn from the CoP without having this issue in mind.

#### 5. Conditions of participation

- Any @PRETIC (@PRETIC-as-a-CoP) member can participate, that is any secondary school teacher which manages a CCM (computer lab);
- Every @PRETIC member, being the responsible of a computer lab, has the needed technical skills;
- Technical skills is one thing, motivation is another one: smooth tools and services are needed;
- This scenario was written after having had long discussions and exchanges with various representative @PRETIC members.

#### 6. Validation procedures

Please refer to the validation documents produced by @PRETIC's validator (see page 31).



## APPENDIX 9 – Scenario for ADIRA

**Document version:** 0.2

**Date:** 24/06/07

**Contributors:** Liliane Esnault (EM Lyon), Frédéric Vermeulin (GATE-CNRS)

### 1. Document content

#### 1.1 ADIRA

ADIRA has been initially created, almost forty years ago, to foster the development of Information Technology in the Rhône-Alpes Region (<http://adira.org/>). It regroups 800 IT/IS professionals in the area, both on the provider side (consultancy and software houses, like Cap Gemini, local branches of major players in the sector like IBM or Cisco for example, as well as local players in specific competences niches, etc.) and on the users side (IS managers, IT project managers, but also CEOs of Small to Medium Businesses, etc.). The members are companies, represented by one or several persons in charge of or interested in local networking with the major players in the area.

The main objective of ADIRA is currently to ensure a large diffusion of best practices together with keeping players well aware of the trends and opportunities of innovation in the IT/IS sector, thus enabling the emergence of innovative practices in order to create more value and keep companies at a competitive level in their area.

To achieve these goals, ADIRA acts at different levels and with different means:

- ADIRA is mainly a large network of persons representing their companies.



Fig. 1 – Example of news from members of ADIRA

- The networking takes place mainly through a set of events, called conferences. There are between ten and twenty events a year (not including the meetings of clubs).

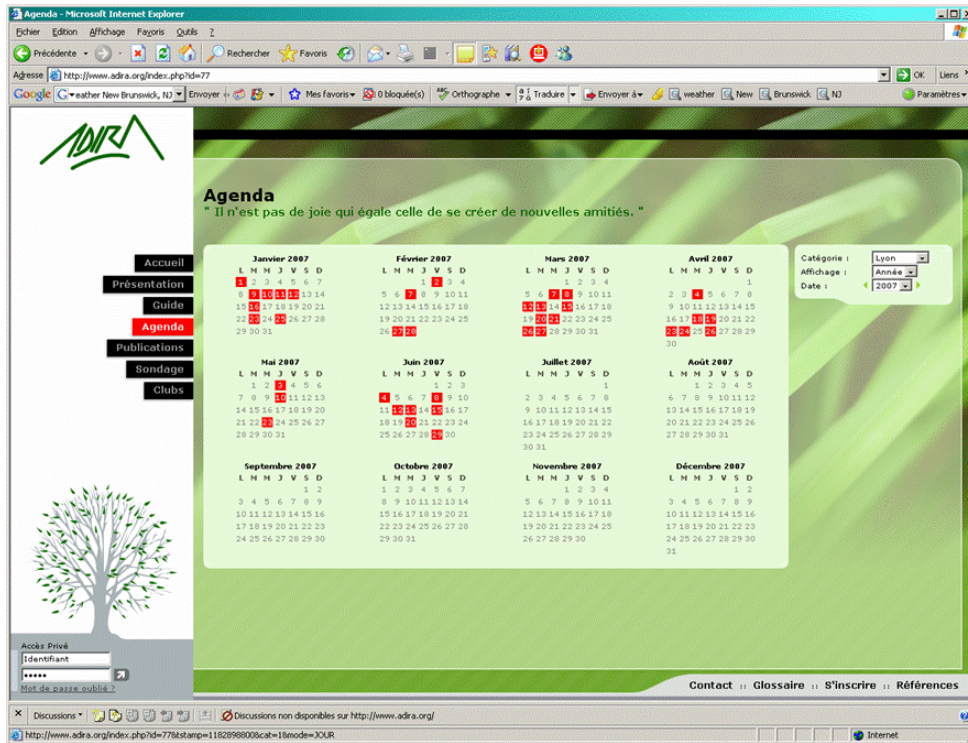


Fig. 2 - Agenda of events for the first half of 2007

- ADIRA also houses a set of 11 clubs and work groups



Fig. 3 – Example of clubs and work groups

- ADIRA maintains a Web site (<http://www.adira.org>), with a public space and a space for members only.

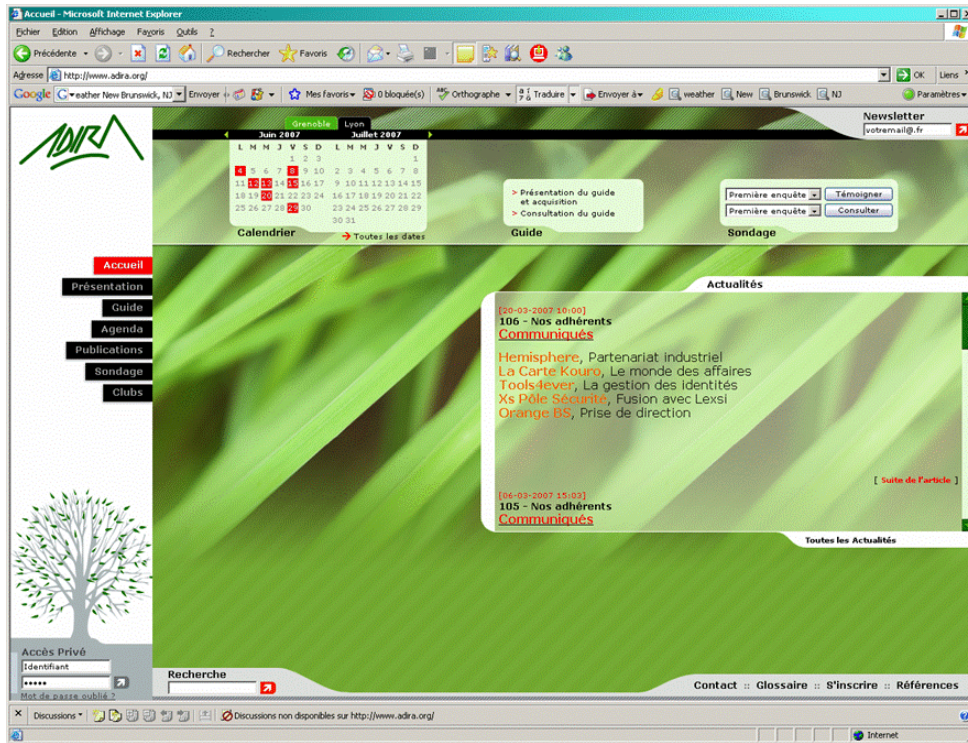


Fig. 4 – ADIRA home page

- ADIRA publishes an annual guide book of the IT professionals in Rhône-Alpes. This Guide Book is recognized in the profession. From a couple of years it is accessible on line, including for updating their information by the companies which are displayed in it.

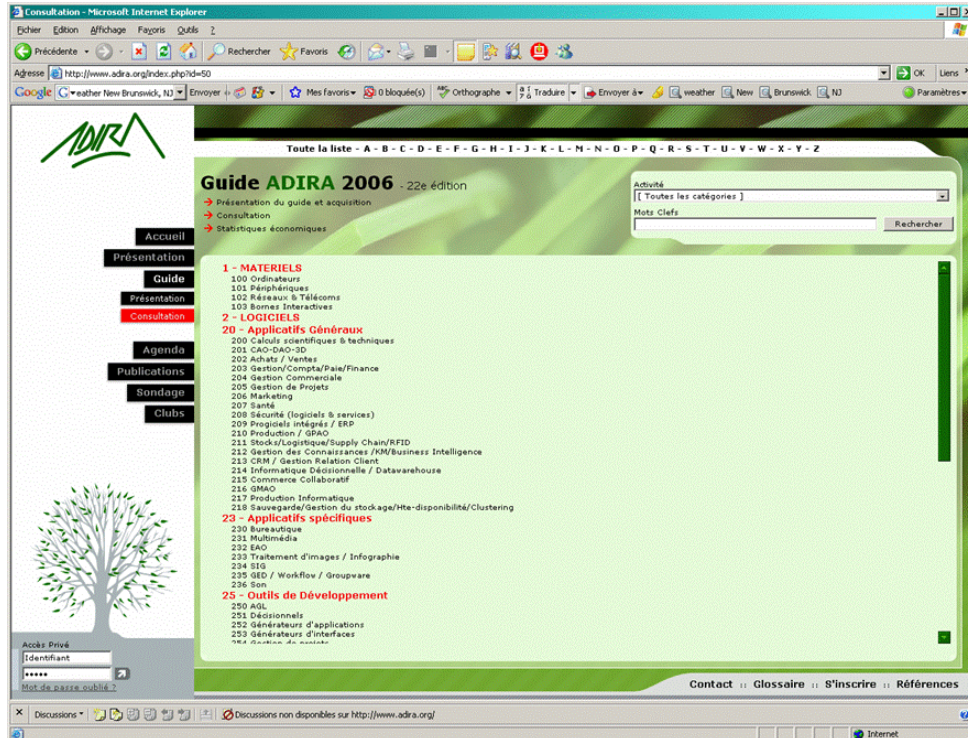


Fig. 5 – On line Guide book of IT professionals edited by ADIRA

ADIRA also publishes booklets (generally produced by the work groups) or results of surveys (like the survey about salaries in the IT sector).

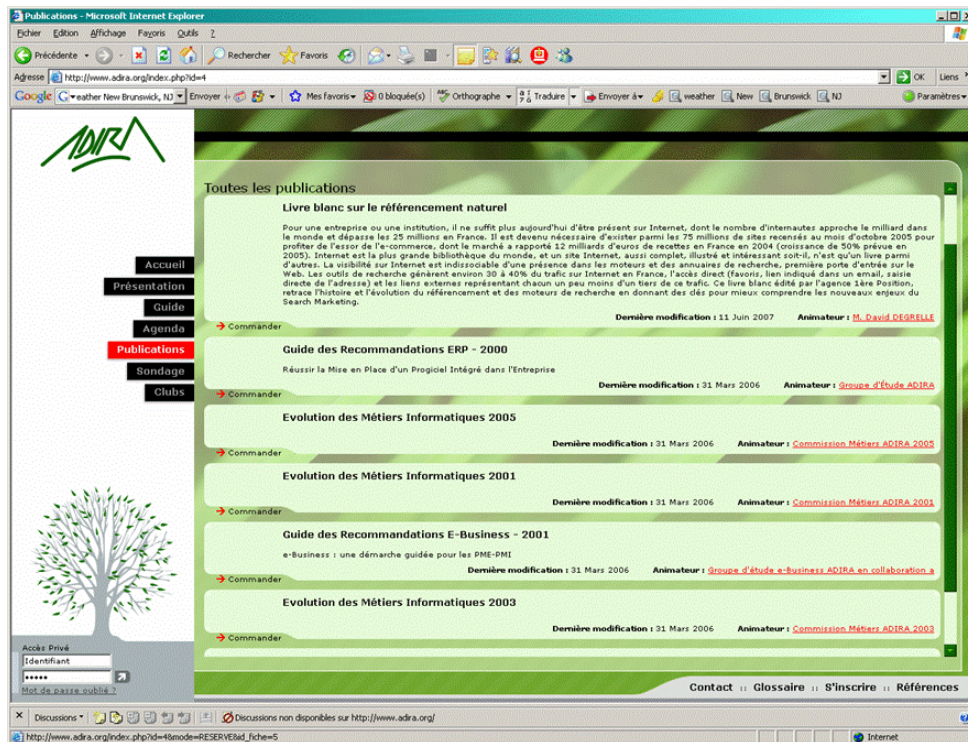


Fig. 6 – Example of publications

## 1.2 Community of interest, CoPs and Work Groups in ADIRA

ADIRA itself is more a community of interest than a real CoP; or, better, it could be called a “Community of Competences”, as its main objective deals with developing the competences among its members by keeping them well informed about the leading practices in the area.

Some permanent groups within ADIRA can be considered as CoPs like the “Comité Stratégie” which gathers most of the CIOs of the leading companies in Rhône-Alpes. This committee surveys the main trends at the level of strategic orientations for IT in companies and gives advices, for example, on how to orientate the future conferences and the future work of ADIRA so that it could better benefits to all the members.

Most of the work groups are task forces which job is to enlighten some specific aspects of IS/IT which seem to take a significant development, and to develop elements of understanding helping companies to make their mind about these developments. Examples of such groups were: ERPs for SMBs, Implementing e-Business in SMBs, management of competences, ITIL, Open Source Software, etc. It is also the case of the work group on CoPs which aims at having people in ADIRA more familiar with the concepts and advantages of CoPs, as well as having ADIRA reflects upon the concept for itself, like: does ADIRA want to become a large CoP, or is ADIRA willing to develop more CoPs in the future, etc?

Some work groups intend to develop CoPs among their members, such as the work group on SI Urbanists. This group works on aspects like building the identity of this new job in companies, defining what are Urbanists’ specific activities, what is their specific position in the hierarchy of the IS department, which are their specific tools and how they communicate and position themselves with the rest of IT professionals. Concretely, this workgroup is in the process of building a CoP of IS Urbanists. The work group on CoPs is thus working closely with this work group.

## 1.3 Scenario purposes

This scenario aims at clarifying several processes in ADIRA and in the workgroups, all of them related to the larger processes of knowledge reification and capitalization. As was said before, the purpose of the Work group on CoPs is to foster the reflection about the interests of CoPs for ADIRA

and for its members (the interest of developing or supporting or animating CoPs in companies or between companies, in the IT/IS sector). At a second level, the reflection aims at recommending possible tools or service to support the development of these CoPs. The elicitation of the processes will underline the possible lack of activities, resources and/or tools to support them.

One must keep in mind the specific context of people in companies. They already have Information Systems and companies' wide tools to support them, like: Web sites, enterprise portals, collaborative systems, communication networks and facilities. These equipments are heterogeneous from one Company to another. They are mastered by the IS department and users, most of the time, are not able to choose their own tools, for different reasons (economic, security, architecture compatibility, maintainability, etc.). Furthermore, the open source world is not the most developed in companies (less than 10% market share globally). Nevertheless, it is always possible to have people being aware of novelties (this is the spirit of ADIRA), and becoming champions for introducing innovation in their companies.

The scenario described hereafter aims at

- presenting the main processes regarding knowledge creation and capitalisation within ADIRA
- facilitating the reflection upon some improvements
- enabling the reflection upon the possible roles of CoPs within ADIRA (or possibly making ADIRA evolve towards a CoP itself)
- supporting the reflection upon the possible value of CoPs for the benefit of ADIRA members (companies and individuals)
- improving the quality of work within work groups in ADIRA
- supporting the reflection and facilitating the work within the specific work group on CoPs and helping the members achieving their goals for this specific work group

Thus this scenario is not analysed mainly in terms of “needs” (implicitly referring to possible uses of tools), but in terms of actor-networks and processes.

## **2. Typical actor-networks and processes involved in the scenario**

### **2.1 The process of Knowledge capitalisation at individual level (path of a new member)**

The main goal of ADIRA is to enable its member stay at the leading edge in IT/IS knowledge. This is not achieved through training or formal learning, but through sharing knowledge; between providers and customers, between experts, consultants and users, and from professional to professional. New members come generally by word of mouth, because being a member is a must in the IT/IS business in Rhône-Alpes.

There is no formal process for gaining knowledge. Most of the members are only attending conferences, which are famous both for the knowledge content and the conviviality and quality of networking. A conference is generally sponsored by a “player” on the market (an IT provider, either in service, software, hardware or telecom industry) and comprises a presentation of a new trend (a new technology, a new concern, a new set of solutions, etc.) and a testimony of a couple of clients who have already experienced the novelty and give first hand and very frank information about their experience. Some conferences are coupled with cultural events (a concert, a play, a conference by a well known scientist, writer or philosopher who accepts to play the game of bridging her own area of expertise with the IT world. At the end there is always a cocktail which enables networking with the speakers and between attendants. Most of the time there is no formal output given to attendants. Some time a video from the special guest conference or a book are available, or some documentation about the company and products at stake.

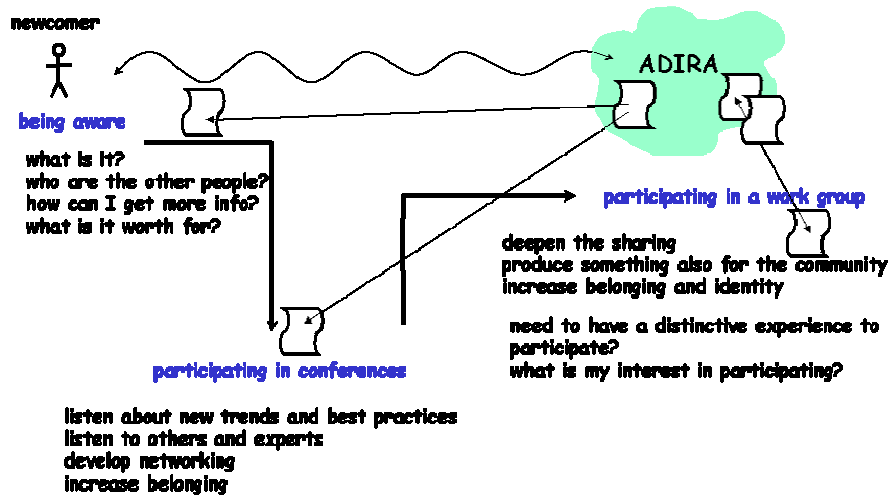


Fig. 7 – Actor network and processes for individual knowledge capitalisation in ADIRA

Some members are volunteering to participate in, or animate a work group of a club. These workgroups or clubs are places where people collectively reflect upon a theme or a problematic, in order to produce more in-depth knowledge, to reify it, and to publish it for the remainder of the community.

### 2.2 The process of Knowledge capitalisation at Community level

At the community level there is not much formal capitalisation as well. Some reports and booklets are available. There is a monthly newsletter, with an editorial, press releases from members and the agenda of events for the months.

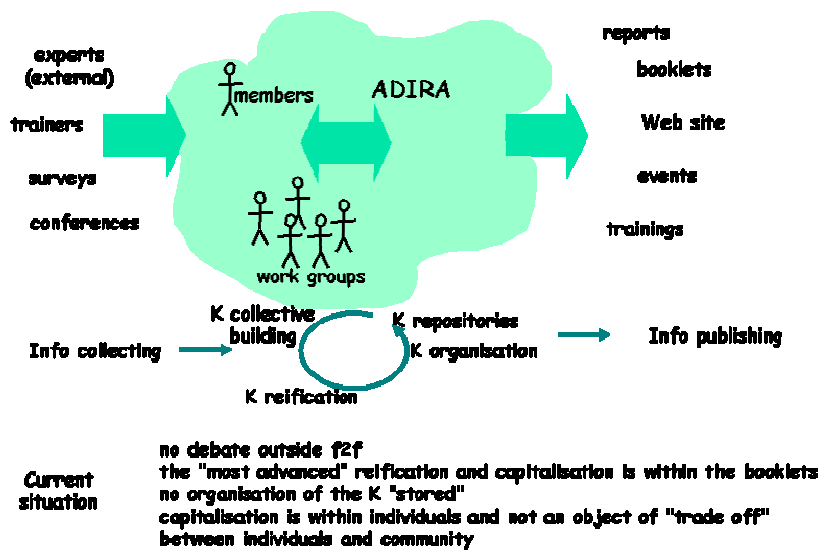


Fig. 8 – Actor network and processes for knowledge capitalisation in ADIRA (community level)

ADIRA does not maintain a repository of documentation related to the subjects of conferences, for example. The meeting accounts from the workgroups which are doing some are available in the private part of the Web site. Group animators are allowed to publish information and manage the participants of their group.



Fig. 9 – Private space for a workgroup animator

Group participants have access to the news, activities, events and meeting accounts of their group in their private space. There is no collaborative space at group level or at community level.

### 2.3 Workgroup functioning

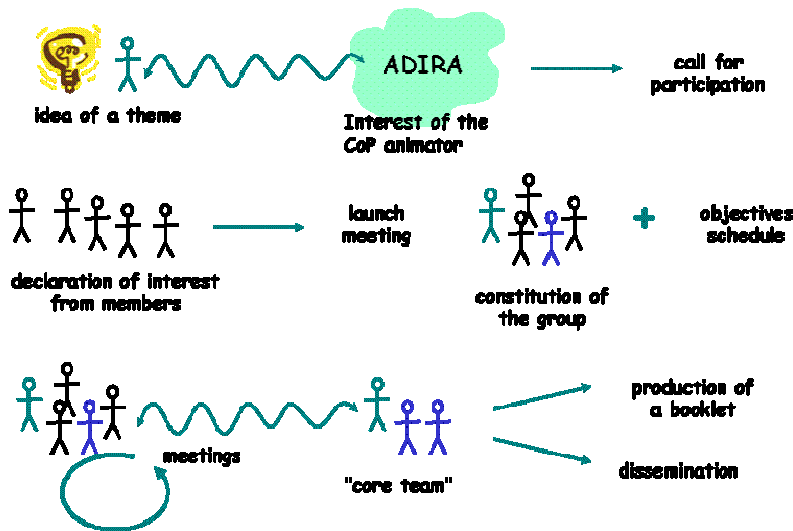


Fig. 10 Actor-network and process for the creation of a workgroup

### 2.4 Knowledge reification in a work group (example of the workgroup on CoPs)

The main goals of a workgroup are to:

- share about something new (a trend recognized as interesting enough for the whole community)
- go beyond the average knowledge within the community
- produce a booklet summarizing the findings with a practical view point (“how to”) and a dissemination event (conference, training)

The typical constraints for its functioning are:

- one year and a half life cycle
- one meeting every six weeks or so
- not much time available for participants to work between meetings
- no appropriate tools (mail with attached documents)

As consequences:

- the role of the animator is of key importance in maintaining the work group alive and well
- there is often the constitution of a “core team”, especially when it comes to writing reports or the final booklet
- people come to meetings irregularly and it is difficult to maintain a common level of knowledge with the current state of (absence of) support available
- the contribution of most of members is not used as efficiently it could be
- there is a possible lost of knowledge

Let us take the example of the workgroup on CoPs. This group meets every six weeks or so. During these meetings, participants are exchanging, and constructing knowledge, which is reified in documents like meeting accounts, and, at the end of the work, a publication containing the conclusions, and intended to the other members of the association.

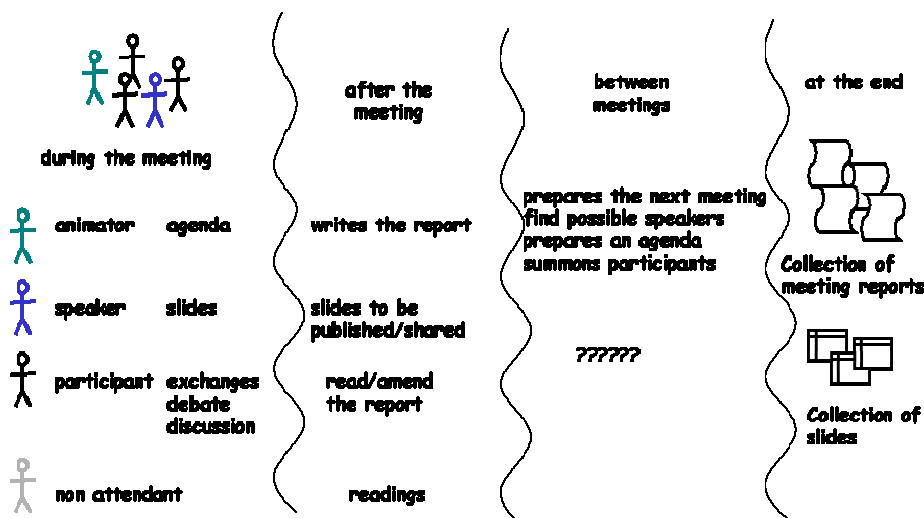


Fig. 11 – Current actor network and knowledge reification process in a workgroup

Here is an attempt to describe a more efficient way of collaborative knowledge reification and capitalisation with a possibility to:

- debate between the meetings
- enrich the accounts,
- improve discussions
- easily blackbox their results
- enable a high level reification of knowledge...



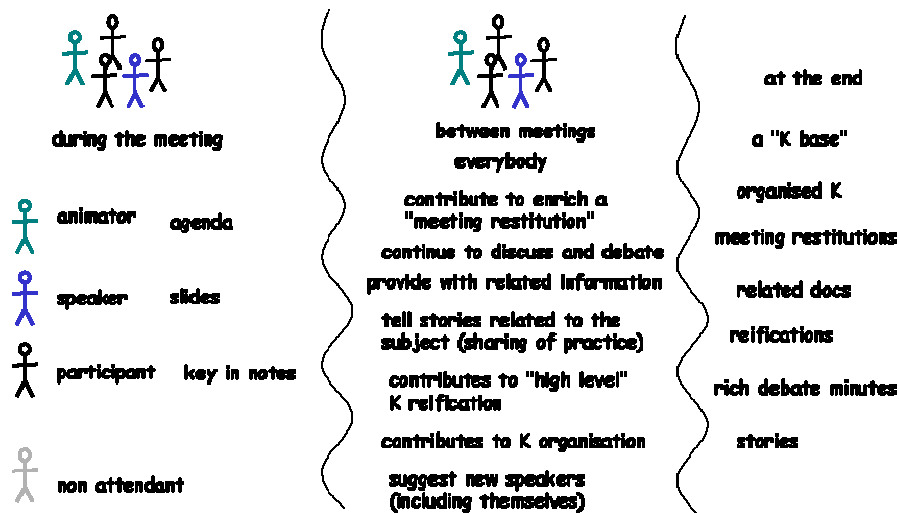


Fig. 12 – Efficient (expected) actor network and knowledge reification process in a workgroup

### 3. Description of categories of needs

#### 3.1 Needs at workgroup level

At the level of a workgroup, there are crucial needs in order to improve

- collaboration, including collaborative writing of documents (text and graphics)
- knowledge reification and sharing
- information storage and access (information repository)

Due to the fact that group members are volunteers and that they have their own work, all the services needed to improve group work should be accessible from a common place (portal?) compatible with companies constraints (firewalls, security, etc.). It means that it has to be Web-based technology (not including protocols such a FTP or ICQ, for example, which are blocked by firewalls), not requiring local implementation of data other than in the workstation, and not requiring maintenance by the local (companies) IT departments.

The main functionalities and characteristics required are:

- easy access from all workplaces for all participants
- publish, share, store, organise, retrieve information
- equal rights: everybody can write, modify, delete, everybody has an equal responsibility regarding information
- collaborative work on documents with tracking of actions and actors
- support debate and link debate to information
- possibility to stabilise intermediate or final state of a document (document owner?)
- shared agenda
- keep track of tasks and activities

The types of information manipulated are typically (but not exhaustively):

- free format documents
- formatted (and/or structured) documents and templates
- links
- graphical documents
- multimedia clips (audio, video)
- constraint: accept most usual formats; people must be able to work with their usual editing applications

The typical activities are:

- create an entry, new or by posting
- modify, delete, publish, share, annotate, tag an existing document

- give a status to information (private, public, shared, provisional, final, etc.)
- visualise collaboration
- stabilise intermediate or final state of a document
- create a debate, participate in an existing debate
- search for information
- post an entry into the shared agenda (event of interest, or next meetings)
- follow the completion of an activity

One could also think about a possible use of services related to reflexive asynchronous debate, which could not only enable people to argument, but also to store their discussions in a way that would allow them to question the debate afterwards:

- how did we come to an agreement?
- what is learnt from the discussion?
- how to blackbox the result of a discussion?

### **3.2 Needs at community level**

Most of the processes described at a group level would be also interesting at the level of the community. Thus, the services should be able to be implemented in the ADIRA Web site, administrated and maintained (1st level) by ADIRA staff.

### **3.3 Possible use of PALETTE Services**

The most evident service to implement is probably SweetWiki (a Wiki has already been tested by the group on CoPs).

e-Logbook could be of use to keep track of the collaborative activity (with the possibility to include a shared agenda?)

CoPe\_it! could be fruitful a support for reflexive debate.

Nevertheless, some elements should be taken into account in order to hope that ADIRA itself or any workgroup could use PALETTE services:

- technologies have to be agreed by It departments within companies, and compatible with current architectures, standards and uses
- the applications have to be maintained on an on-going basis by the providers
- they must be accessible on the Web in a single place (possibly by a link on ADIRA Web site)
- there should be a common interface to access all the services. It should look like a single integrated application
- information repository has to be managed by the provider housing the application (or possibly on the ADIRA servers). It should be one single common repository, so that users will not have to duplicate information or explicitly redirect access to information from one service to the other

## **4. Methodology of scenario design**

The scenario is elaborated by the mediator of the ADIRA CoP, with the help of the validating person. The knowledge of the mediator as a long time member of ADIRA and animator of several workgroups is taken as a basis for elaborating this scenario. The general secretary of ADIRA is a member of the workgroup and can also intervene to confirm the relevance of the scenario to the functioning of ADIRA and the workgroups.

## **5. Validation procedures**

The scenario will be presented to the workgroup in a meeting.

Some tools are currently tested by the group and some members of the groups are well aware of what is currently available on the Web as non-PALETTE possibilities.

It should be kept in mind that the workgroup is mainly and firstly interested in the organisational aspects of CoPs, their interest, their possible use in companies or transversally to companies, their impact on the processes of knowledge management, competences management, their interest in jobs which are either emerging (like IS Architects or IS Urbanists) or continuously evolving (like IS Project Managers).

The reflection about tools and or services is only secondary to this. Some will probably be tested, but most of the people are more interested in developing awareness about generic functions than implementing specific applications.

## **6. Current state of reflection and action (end of June 2007)**

The scenario (functionalities, activities, information, and possible needs) has been accepted by the workgroup.

Some tools are implemented: the Wiki already used is in the process of being replaced by SweetWiki (SwikiAdira <http://argentera.inria.fr/swikiadira/>). CoPe\_it! will be presented in the next meeting in September.

A new CoP is being created in the company of one participant of the workgroup. The idea has emerged from the reflection of the group. The birth and development of this CoP will be looked at as a longitudinal case study for the group.