Detailed Implementation Plan month 13-30 - public version

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TENCompetence

Building the European Network for Lifelong Competence Development

Project acronym: Integrated Project TENCompetence

Thematic Priority: 2.4.10

Detailed Implementation Plan month 13-30

Start date of project: 01-12-2005   Duration: 4 years

Version 1.1

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1. General description and milestones

1.1 Introduction

This document forms the Detailed Implementation Plan for the second planning period (DIP-2) of TENCompetence, covering months 13-30. The present document is basically an update of:

• Chapter 8 of the DoW, detailing Internal Deliverables, Deliverables, time plan, and detailed WP descriptions for months 13-30 (chapters 1-6 in the present document)
• Chapter 9 of the DoW, detailing the IP Effort Form and Budget for months 13-30 (chapters 7 and 8 in the present document)
• Appendix A, Consortium description updated with UNESCO-IHE and the City of Antwerp participation and subcontracting (chapter 10 in the present document).

As the basic project approach as described in the DoW remains unchanged, this will not be repeated here. This document should be read in conjunction with the following:

• Annex I to the contract (Description of Work)
• The Periodic Activity Report month 1-12. This covers the major achievements and lessons learned during months 1-12, and these will not be repeated in this document.

1.2 Relation to DIP-1 outcomes and overall project planning

This document forms the Detailed Implementation Plan for the second planning period (DIP-2) of TENCompetence, covering months 13-30. As such it is an update of chapters 8 and 9 and Appendix A of Annex I to the contract (Description of Work).

The annual upgrades of the DIPs relate to the three project cycles as follows:
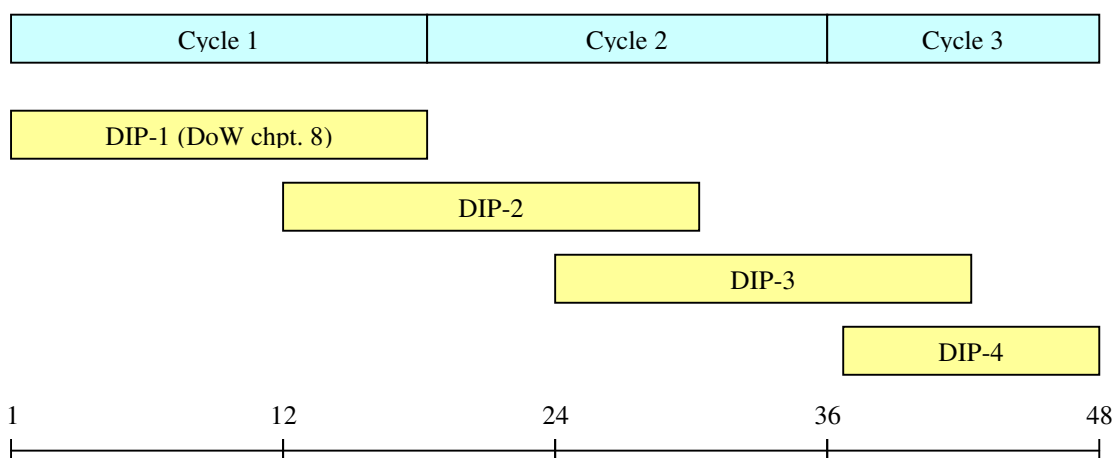

Figure 1. Project cycles and DIPs

Based on the internal review of project progress and lessons learned during months 1-12 (see Periodic Activity Report months 1-12), the basic project approach as described in the Description of Work (DoW) remains virtually unchanged. In line with this, the following guidelines were applied in defining DIP-2:

1. The seven key problems that TENCompetence aims to address[1] will guide DIP-2 formulation.
2. With project inception and requirements definition being emphasised under DIP-1, DIP-2 activities will put more emphasis on software development activities and pilots.
3. The total number of person months as compared to DIP-1 will increase by about 25%, following the natural bell curve of project implementation efforts.
4. All internal deliverables and deliverables initially planned for months 12-18 under DIP-1 will be retained in DIP-2.
5. The number of partners involved per WP will be reduced to concentrate efforts.
6. To enable a better synchronization and progress monitoring within and between WPs, the number of internal deliverables per WP should be higher than during DIP-1.

The following improvements in project activities and their allocation over WPs will be implemented under DIP-2:
1. The WP2-task of creating common understanding during cycle 1 will now be changed into creating a common future vision related to the fulfilment of the seven project objectives.
2. As part of this, task 6.1 (Research and develop new and existing flexible pedagogical models & learning activity models) will be better positioned in WP2.
3. More resources in the form of experienced design and programming experience will be allocated to WP3, necessitated by the emphasis on software development and integration in this cycle.
4. 'Assessment' has been reallocated from WP7 to WP6.
5. 'Learner Support Service' will after its first release (month 18) by WP7 be moved to WP8.
6. The tasks and responsibilities between WP9 and WP10 will be more clearly distinguished.

As planned in the DoW, two new partners will join the consortium in the role of major piloting partners. During month 13-30 they will participate in the preparations for pilot execution planned for months 31-42:
o The City of Antwerp (Stad Antwerpen) to prepare the Antwerp Lifelong Learning City pilot
o UNESCO-IHE to prepare the Water Management Education pilot

Two partners, ALTRAN SDB and CERTH/ITI, reduced their number of person months in months 13-30. The majority of months will be re-allocated to OUNL and the University of Bolton.

Where under DIP-2 the term 'milestones' was subordinate to 'deliverable', under DIP-2 and in line with Commission terminology, milestones indicate critical progress points at overall project level. In DIP-2 we will use the term 'internal deliverable' to

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[1]   See DoW, chapter 2.

indicate progress indicators subordinate to deliverables: all internal deliverables aggregate into deliverables.

1.3 Milestones

The following milestones have been defined for months 13-30.

	Milestone description	m.
M1	First release of the TENCompetence software (ID3.3)	17
M2	Second major release of the TENCompetence software, realising version 2.0 of the architectural design report (ID3.8)	27

2 Planning and timetable
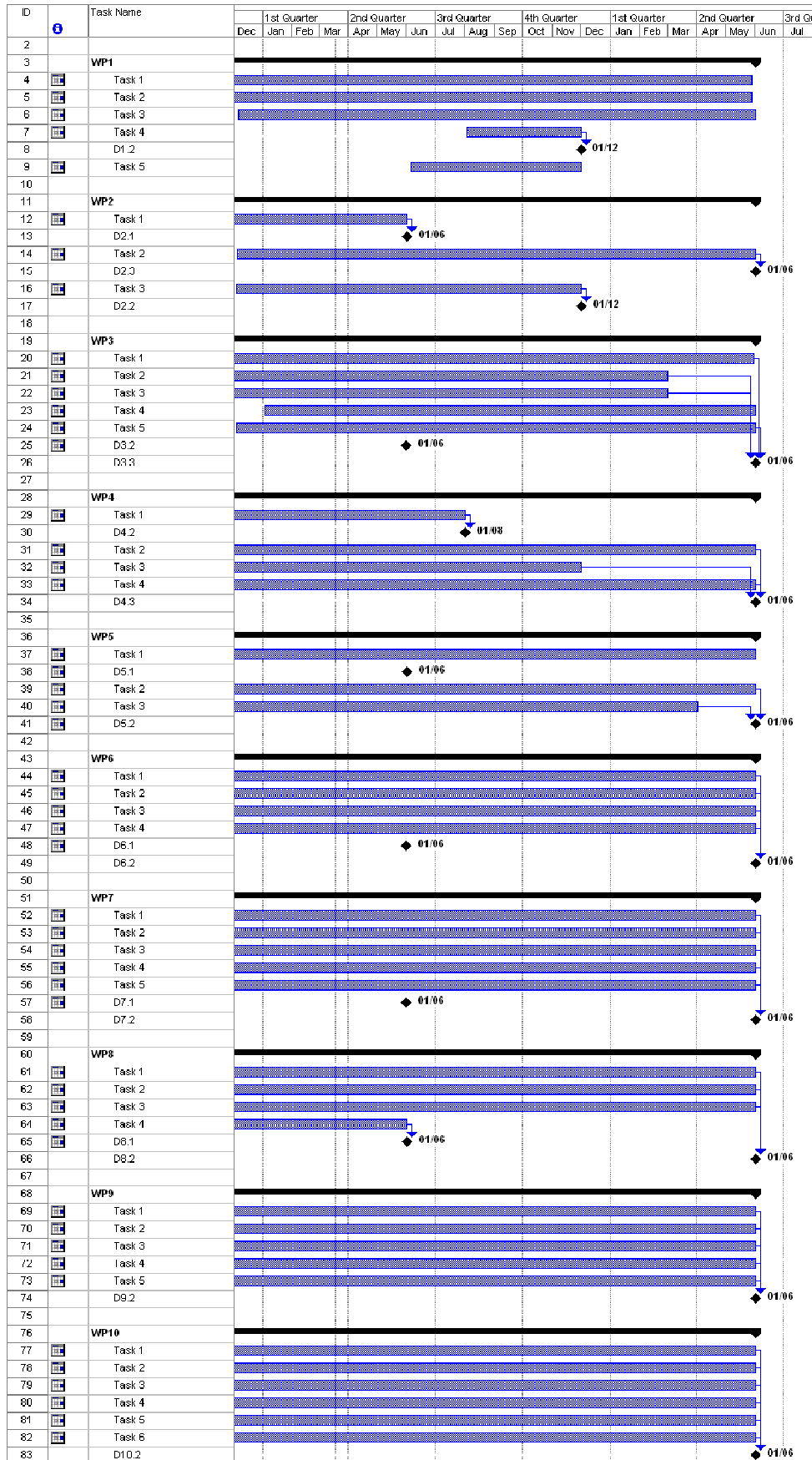
3 Graphical presentation of Work Packages

3.1 Work Package dependencies

The type, number, leadership and dependencies between the work packages remains unchanged.
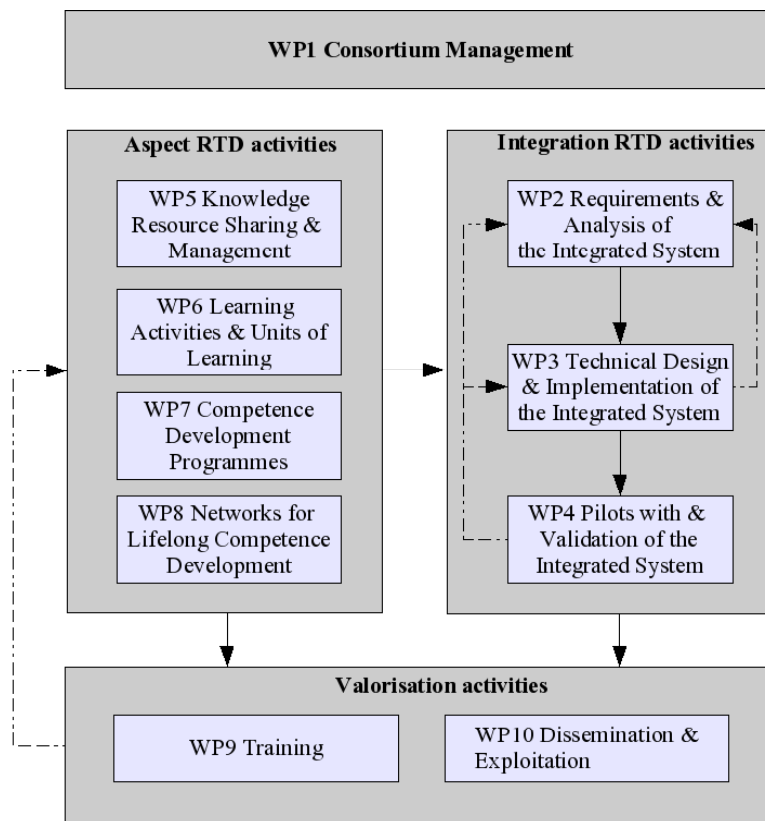
Figure 2. Work Package dependencies

3.2 TENCompetence client and aspect-components dependencies

The validated software components delivered by the aspect WPs should preferably be as loosely coupled to the TENCompetence client as possible. Some components however will have a more direct - deep - link than others as indicated in the figure below.
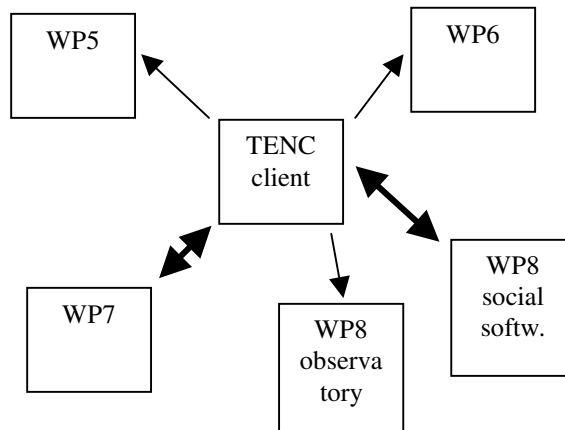
Figure 3. System coupling

4 Work Package list

	Title	Lead	p.m.	start	end	deliv.
1	Consortium management	OUNL	34	13	30	D1.2
2	Requirements and analysis of the integrated system	ALTRAN SDB	47	13	30	D2.1 D2.2 D2.3
3	Technical design and implementation of the integrated system	LOGICACMG	105	13	30	D3.2 D3.3
4	Pilots with the integrated system and validation of the project	FBM-UPF	62	13	30	D4.2 D4.3
5	Knowledge resources sharing and management	ILABS	63	13	30	D5.1 D5.2
6	Learning activities and units of learning	University of Bolton	71	13	30	D6.1 D6.2
7	Competence development programmes	UHANN	44	13	30	D7.1 D7.2
8	Networks for lifelong competence development	INSEAD	54	13	30	D8.1 D8.2
9	Training	OUNL	32	13	30	D9.2
10	Dissemination and exploitation	University of Bolton	58	13	30	D10.2

5 Deliverables list

	Deliverable title	WP	p.m.	type	diss. level	month
D1.2	Periodic Report (covering progress and expenditure reporting over months 13-24), including the DIP-3 for the period covering month 25-42 (month 24).	1	34	R	CO	24
D2.1	Integrated roadmap	2	12	R	PU	18
D2.2	Updated use case models and underlying vision documents and pedagogical model definitions	2	24	R	PU	24
D2.3	Updated functional and non-functional requirements, and process definitions	2	11	R	PU	30
D3.2	First tested version of the Integrated TENCompetence System	3	35	P	PU	18
D3.3	Aggregate of internal deliverable M3.8 and internal deliverables ID3.6, ID3.7 and ID3.9, including updated design and second release software	3	70	P	PU	30
D4.2	Report on the results of the evaluation of the cycle 1 pilots, including internal deliverable outcomes ID4.2, ID4.3, ID4.4, ID4.6, ID4.7 and ID4.9.	4	38	R	PU	21
D4.3	Report, containing internal deliverable outcomes ID4.5, ID4.8, ID4.10	4	24	R	PU	30
D5.1	Report with summary of WP outputs over month 1-18, and a roadmap for knowledge resources sharing and management	5	35	R+P	PU	18
D5.2	Report containing internal deliverable outcomes ID5.3-ID5.10	5	28	R+P	PU	30
D6.1	Report with summary of WP outputs over month 1-18, and a roadmap of learning activities and units of learning RTD	6	15	R	PU	18
D6.2	Compilation of internal deliverable outcomes ID6.4-ID6.5	6	56	R+P	PU	30
D7.1	Report with summary of WP outputs over first 18 months and a roadmap of competence development programmes RTD	7	15	R+P	PU	18
D7.2	Compilation of internal deliverable outcomes ID7.3-ID7.11	7	29	R+P	PU	30
D8.1	Report with overall WP8 results during month 1-18, and a roadmap of networks for lifelong competence development RTD	8	18	R+P	PU	18
D8.2	Compilation of internal deliverable outcomes ID8.2-ID8.14	8	36	R+P	PU	30
D9.2	Report, containing internal deliverable outcomes ID9.2-ID9.12	9	32	R	PU	30
D10.2	Report with an assessment of the WP-results including ID10.2 – ID10.6	10	58	R	PU	30

Internal Deliverables (under DIP-1 these were called 'milestones') are used for planning and internal monitoring purposes. Because of the dependencies between WP-activities, the tight scheduling of activities within WPs, and to facilitate overall monitoring by WP1, the number of internal deliverables as compared to DIP-1 has been increased. Internal deliverables are now always directly linked to activities, while the aggregated internal deliverables form the WP-deliverables.

Internal deliverable assessment will be based on assessment criteria, to be drawn up by the WP-leader in month 15 as part of the General management task. Internal deliverable assessment will in principle be the responsibility of the WP leader, with key internal deliverables also being submitted for review outside the WP (preferably by one of the subcommittees). Internal deliverables to be assessed externally to the WP are indicated in *bold italics* below.

	Internal Deliverables description	**m.**
WP1: Consortium management		
ID1.3	Update of the TENCompetence Handbook on Integrated Quality Assurance and Gender Mainstreaming (month 15)	15
ID1.4	Three-monthly Internal Consortium Reports (months 16, 19, 22, 24)	16 19 22 24
ID1.5	Informal Interim Activity Report	18
WP2: Requirements and analysis of the integrated system		
ID2.2	Integrated Roadmap (carried over from DoW)	18
ID2.3	Gender Mainstreaming Requirements Action Plan	17
ID2.4	*Analysis Report based on gap analysis*	15
ID2.5	*Elaborate Use Cases and Domain Model*	17
ID2.6	Series of documents reporting on vision sessions, linked to the seven problems addressed by TENCompetence - to be collected into an overall vision document	22
ID2.7	Updated high level Use Cases, Domain model and underlying vision documents and pedagogical model definitions	22
ID2.8	Updated functional and non-functional requirements, and process definitions, based on ID2.7.	23
WP3: Technical design and implementation of the integrated system		
ID3.2	Incident management procedure, including template	14
ID3.3	First release of the TENCompetence software (Milestone 1)	17
ID3.4	Setup of the infrastructure for the Digital Cinema pilot	14
ID3.5	*Intake procedure, including checklists for WP5-8 components*	15
ID3.6	*Version 2.0 of the overall design report of the TENCompetence architecture, according to the SOA approach, and the WP5-8 components to integrate, and an updated user interaction model.*	20
ID3.7	Final API definitions for the second release, beta version	24
ID3.8	Second major release of the TENCompetence software, realising version 2.0 of the architectural design report (Milestone 2)	27
ID3.9	Updated design for the third release of the TENCompetence software	30
WP4: Pilots with the integrated system and validation of the project		
ID4.2	*Evaluation outcomes of cycle 1 pilots of the initial system*	20
ID4.3	*Execution and Evaluation Plan for cycle 2 pilots*	26

ID4.4	Evaluation implementation plan Digital Cinema pilot	14
ID4.5	Evaluation implementation plan ICT Training pilot	15
ID4.6	*Evaluation implementation plan for cycle-2 pilots*	24
ID4.7	Finalize distribution of cycle 1 pilots information	13
ID4.8	Finalize distribution of cycle 2 pilots information	30
WP5: Knowledge resources sharing and management		
ID5.2	Roadmap for KRSM RTD	17
ID5.3	First cycle KRSM prototype system ready for validation	14
ID5.4	*First cycle KRSM validated prototype system for delivery to WP3*	18
ID5.5	API definition to be delivered to WP3	18
ID5.6	Second cycle KRSM system – beta release, comprising integrated component/service implementations ready for validation	24
ID5.7	*Second cycle KRSM system – final release, comprising integrated component/service implementations for delivery to WP3*	30
ID5.8	KRSM first cycle prototype evaluation plan	13
ID5.9	KRSM first cycle prototype evaluation outcomes	16
ID5.10	KRSM second cycle system evaluation results	28
ID5.11	Updated Roadmap as outcome of task 1 running till month 30	30
WP6: Learning activities and units of learning		
ID6.2	WP6 Prototype Tools - Tested 1st Release	18
ID6.3	WP6 Specifications for second releases	18
ID6.4	WP6 Prototype Tools - 2nd Release	24
ID6.5	Validation Testing and Usability Evaluation Results	30
WP7: Competence development programmes		
ID7.2	Prototypical navigation service and learner support service; Report with summary of WP outputs; and a roadmap of competence development programmes RTD	18
ID7.3	*Refined version of the learning path description, suitable to be brought as input to standardization bodies*	24
ID7.4	Specifications Report based on analysis of current practices and user needs for selecting or creating competence development programs	20
ID7.5	Evaluated user interface designs for selecting or creating CDPs	22
ID7.6	API definition to be delivered to WP3	18
ID7.7	Validated service for selecting or creating CDPs	30
ID7.8	Validated positioning service, first release	18
ID7.9	API definition to be delivered to WP3	18
ID7.10	*Validated positioning service, second release*	30
ID7.11	*Validated navigation service*	30
WP8: Networks for lifelong competence development		
ID8.2	State-of-the-Art, design and validated 1st release of TENCompetence Competence Observatory Prototype	18
ID8.3	API definition to be delivered to WP3	18
ID8.4	2nd Release of TENCompetence Competence Observatory Prototype, ready for validation	24
ID8.5	Competences ontology	24
ID8.6	Validated release, based on functional testing and usability evaluation results for TENCompetence Competence Observatory prototype	30
ID8.7	State-of-the-Art, design and validated 1st release of TENCompetence Overview tool, proactive sharing agent and game-like embedded	18

	dynamics	
ID8.8	API definition to be delivered to WP3	18
ID8.9	2nd release of TENCompetence Overview tool, proactive sharing agent and game-like embedded dynamics, ready for validation	24
ID8.10	*Validated release, based on functional testing and usability evaluation results for TENCompetence Overview tool, proactive sharing agent and game-like embedded dynamics*	30
ID8.11	State-of-the-Art, design and validated 1st release of TENCompetence Network Management Tool Prototype	18
ID8.12	API definition to be delivered to WP3	18
ID8.13	2nd release of TENCompetence Network Management Tool, ready for validation	24
ID8.14	*Validated release, based on functional testing and usability evaluation results for TENCompetence Network Management Tool*	30
WP9: Training		
ID9.2	*Training Plan for Participants in cycle 1 pilots*	13
ID9.3	Report on Winter School 2007	15
ID9.4	Report on Internal Workshop for Researchers and Developers	20
ID9.5	Report on Training for cycle 1 Pilots (month 20)	21
ID9.6	Report on Design and Evaluation Plan for TENCompetence Training Pilot	20
ID9.7	*Training Plan for Participants in cycle 2 pilots*	24
ID9.8	Report on Competence Network for Associate Partners	24
ID9.9	Report on Training for General Stakeholders	24
ID9.10	Report on Winter School 2008	27
ID9.11	Report on Training for cycle 2 pilots	30
ID9.12	*Report on the evaluation of the TENCompetence Training Pilot*	30
WP10: Dissemination and exploitation		
ID10.2	*Critical Use Cases & three potential business model outlines*	18
ID10.3	List with contacts, potential users, subscribers and associated partners	30
ID10.4	Compendium of workshop papers, special issues and book chapters edited by TENCompetence	24
ID10.5	Overview of workshops and events organised by TENCompetence and their impact	24
ID10.6	Report on TENCompetence standardisation initiatives, gathering together and presenting standardization initiatives and outcomes provided by other WPs	30

6 Work Package descriptions months 13-30

WP 1	Consortium Management				Period: month 13-30	
Partner ID	OUNL					
Person months	34					

Objectives:

1. To ensure the realization of the project objectives as defined in the WP descriptions.
2. To monitor the timely delivery of internal deliverables and deliverables.
3. To define, and subsequently monitor quality standards.
4. Ensure that results are achieved within budget.

Description of work:

This work package is responsible for the overall management of the consortium and the fulfilment of its obligations as defined in the contract. It aims to realise the project objectives by the timely production of deliverables, meeting pre-defined quality criteria, and within budget and legal requirements.

Task 1. Keep partners informed on, and monitor the proper execution of, project procedures (ID1.3)

Task 2. Assist the Board in overall progress monitoring and quality assurance. (ID1.4)

Task 3. Coordinate progress and financial monitoring and reporting to the Commission (ID1.5).

Task 4. Coordinate plan development for the next 18-month project cycle (D1.2).

Task 5. Call for SME Associate Partners
Associate Partners from SMEs may become involved during months 13-30 - either as participants in the aspect WPs by contributing to service development, or by providing services to WP3 for direct integration in the TENCompetence technical infrastructure. Such SMEs may receive compensation between € 2.500,- and 25.000,- related to their contribution to project activities. WP1, in close cooperation with WP10, will publish a tender to this effect, and already prepare a tender for cycle 3 (months 25-42) for SMEs wanting to participate in the TENCompetence business model deployment. The budget is included in the WP10 budget in conformance with the original Description of Work.

Deliverables:

D1.2: Periodic Report (covering progress and expenditure reporting over months 13-24), including the DIP-3 for the period covering month 25-42 (month 24).

Internal Deliverables:

Resulting from task 1:
- ID1.3. Update of the TENCompetence Handbook on Integrated Quality Assurance and Gender Mainstreaming (month 15)

Resulting from task 2:
- ID1.4. Three-monthly Internal Consortium Reports (months 16, 19, 22, 24)

Resulting from task 3:
- ID1.5. Informal Interim Activity Report (month 18)

WP 2	Requirements & Analysis of the Integrated System				Period: month 13-30	
Partner ID	OUNL	ALTRAN SDB	LOGICA CMG	FBM-UPF	SURF	
Person months	11	11	1	1	2	
Partner ID	UHANN	INSEAD	University of Bolton	UvA	SU	
Person months	1	5	5	8	2	

Objectives:

1. Realise the remaining objectives of the first 18 months period:
    a. Analyse the requirements (gap analysis, resulting in Analysis Report, month 15) & select and use underlying theories, models & methods used in the project to model the conceptual structure of, and processes in, the integrated system (in terms of a Domain Model).
    b. Create an Integrated Roadmap (D2.1) for further development and refinement of the functional requirements and integrated pilots for the next 18 months of the project.
2. Provide a common vision for the project goals at large and for the work in WP3-8 specifically. This is related to the fulfilment of the 7 main research objectives of the project, and the development of pedagogical models for life long competence development.
3. Elaborate this common vision in terms of specific functional and non-functional requirements and process definitions that are specifically dividing the work in the different work packages.

Description of work:

In months 13 to 30 the first task will be to complete the work started in the first year. This is mainly related with the analysis of the requirements delivered in the Initial Requirement Report. An Integrated Roadmap will be delivered for the next 18-month period of the project.

The second task will be to provide a common vision of the project. In addition to this the pedagogical models that are specified in core objective 1 will be elaborated (the other objectives are already dealt with in other work packages). This vision will be developed in a special working group, comprising visionary senior researchers from the consortium partners.
In the third activity, this common vision will be refined and/or extended into requirements and process definitions for the integrated system (WP3-4) and its underlying components (WP5-8).

General Task: Management, review and assessment.
This covers WP management in line with the gender plan, DIP-formulation, and review and assessment of activities, internal deliverables and deliverables.

Task 1. Complete the work planned under DoW (months 1-18)
During the first 12 months the functional and non-functional requirements have been captured in a Requirements Report. The result will be elaborated by a gap analysis

between the requirements, the first version of the domain model and already available software components/systems. It will be reported in the Analysis Report (ID2.4 in month 15). The report will be assessed by WP3 (system perspective) and WP4 (Pilot perspective). Based on this feedback, an Elaborated Use Case Model and Domain Model will be delivered as internal deliverable ID2.5 in month 17. The Domain Model will be specified using UML Class and Activity diagrams and will be published widely (through an open web site), to support that partners have a joint conceptualisation in the project and that the outside world can provide feedback. Finally, the Gender Mainstreaming Requirements Action Plan will be finalised in month 17 as internal deliverable ID2.3 under this task.

All these sub-tasks together will inform the compilation of an Integrated Roadmap for the first 18 months (D2.1). This will conclude the creation of common ground among the project partners as part of project cycle 1, and will form the start for the vision development tasks (see next).

Task 2. Vision development.
This task comprises three sub-tasks:
2-a. Provide a common vision of the project for WP3-8, directly related to solving the seven main problems identified by the project. A workgroup of visionary senior researchers will be set up for this purpose. This will result in a number of vision papers, to be collected into an overall TENCompetence vision document (ID2.6, month 22)
2-b. Develop pedagogical models for lifelong competence development. Provide descriptions of new, promising innovative pedagogical approaches that meet the demands of lifelong competence development and new available learning technologies. The models integrate individual, collaborative and organisational learning, and knowledge management, and include technological artefacts as support for personal competence development. The models will be elaborated in successive specification documents - to be collected into an overall TENCompetence Pedagogical Models document (part of D2.2 and D2.3). The subtask feeds into subtask 2a, thus providing an overall vision, to be elaborated and specified towards WPs 3-8 in task 3.
2-c. Based on the outcomes of subtasks 2-a and 2-b, updates to high level Use Cases and Domain Model will be generated in month 22 as internal deliverable (ID2.7). The internal deliverable is input to task 3 (see below). An issues list will be maintained and continuously reviewed and commented in between versions. At the end of this period, this will result in an overall update in the form of D2.3 (month 30).

Task 3. Operationalise the vision and models resulting from tasks 1 and 2 into specific functional and non-functional requirements and process descriptions for WP3 and WP5-8. This will start after delivery of Initial Requirements Report (month 12) with the involvement of WP3 and WP5-8. Updated Requirements Reports, based on an update of the Refined Use Case Models, process descriptions, and Domain model will be provided as internal deliverable ID2.8 in month 23 and as deliverable D2.2 in month 24.

Deliverables:

- D2.1: Integrated Roadmap (month 18), based on:
  - Gender Mainstreaming Requirements Action Plan (month 17)
  - Analysis report (ID2.4, month 15)
  - Domain Model (ID2.5, month 17)

- D2.2: Updated Use Case models and underlying vision documents and pedagogical model definitions based on ID2.6 - ID2.7 (month 24)

- D2.3: Updated functional and non-functional requirements and process definitions, with underlying Use Case models, vision documents and pedagogical model definitions (month 30)

Internal deliverables:

Resulting from task 1:
- ID2.2: Integrated Roadmap (carried over from DoW, month 18)
- ID2.3: Gender Mainstreaming Requirements Action Plan (month 17)
- ID2.4: Analysis Report based on gap analysis (month 15)
- ID2.5: Elaborate Use Cases and Domain Model (month 17)

Resulting from task 2:
- ID2.6: Series of documents reporting on vision sessions, linked to the seven problems addressed by TENCompetence - these may be thematic, or address the overall TENCompetence strategy: to be collected into an overall vision document (month 22)
- ID2.7: Updated high level Use Cases, Domain Model and underlying vision documents and pedagogical model definitions (month 22)

Resulting from task 3:
- ID2.8: Updated functional and non-functional requirements, and process definitions, based on ID2.7 (month 23)

WP 3	Technical Design & Implementation of the Integrated System			Period: month 13-30
Partner ID	OUNL	LOGICACMG	FBM-UPF	
Person months	14	25	10	
Partner ID	ILABS	UHANN	University of Bolton	
Person months	12	8	36	

Objectives:

1. Update the architectural design and its implementation to further improve the support of agile integration of isolated heterogeneous tools and applications and to model an SOA.
2. Integrate finalised WP5-8 components.
3. Select, design and implement adaptations of additional existing components that are currently state of the art.
4. Set up and maintain the infrastructure for the running pilots.
5. Programming new releases of versions of the TENCompetence integrated system and delivering these in coordination with WP4 to optimally support the pilots.

Description of work:

The work package is responsible for the technical design and implementation of the Integrated System. The requirements and analysis from WP2, the components coming from the aspect work packages, progressing internal WP3 insights and feed back from WP4 pilots are combined to continuously improve the software and architecture. The releases of the updated software are aligned with the pilots performed by WP4.

General Task: *Management, review and assessment.*
This covers WP management in line with the gender plan, DIP-formulation, and review and assessment of activities, internal deliverables and deliverables.

Task 1: *Update the overall TENCompetence architectural design.*
This updates D3.1 (Report with the overall design of the TENCompetence architecture, delivered in month 12) with:
   a) WP4's feedback from the cycle 1 pilots
   b) Changes necessary to fulfil the requirements in WP2's Analysis Report
   c) Interface specifications for the aspect work packages' components
   d) An SOA approach by defining the system's functionality in terms of services
This will result in ID3.6, version 2.0 of the Design Report (month 20). The updated design for the third release of the TENCompetence software (ID3.9) will be delivered in month 30.

Task 2: *Integrate finalised WP5-8 components.*
A first release of the infrastructure will be delivered in month 17 (ID3.3/Milestone 1). After using and testing this in the pilots, two versions of the second release will be delivered: the first (alpha) version based on the adapted API definitions, and the second (beta) version incorporating approved WP5-8 components to realise a loosely coupled system. The first version will be delivered in month 24, and the second and last version of the second release (ID3.8/Milestone 2) in month 27. New releases will appear regularly from then onwards. The final API definitions for the second release, second version (ID3.7) will be delivered in month 24.

Task 3: *Select, design and implement adaptations of additional existing components that are currently state of the art.*
Additional existing components will be added if these can fulfil requirements coming from WP2's analysis report or to comply with feedback from the WP4 pilots. A special intake procedure will be devised for this (ID3.5, month 15). When necessary these existing components will be adapted to fit in the architecture.

Task 4: *Set up and maintain the infrastructure for running pilots in the project.*
During months 14-30 the TENCompetence software will be installed and maintained on infrastructures suitable for hosting the pilots as defined in WP4. This infrastructure will comprise course implementations in CopperCore/SLED/APIS (month 14), to be complemented with the Personal Competence Manager (month 16). The first will be for the Digital Cinema Pilot, to be followed by the ICT Training Pilot (ID3.4). An incident management procedure will be set up in month 14 (ID3.2).

Task 5: *Design, implement and deliver new releases of the integrated TENCompetence system for supporting WP4 pilots*
Each release includes an update of the design and implementation of the integrative, service, application and technology layers. The timing of the releases will be aligned with the WP4 pilots. The first release will be delivered in month 15. The second release will be delivered in an alpha and a beta version: the alpha version based on the adapted API definitions, but in which the components from WP5-8 are not yet incorporated (month 24), and the beta version in which approved components will be integrated (M3.8, month 27) - this delivery planning will provide enough room for testing the integrated system before it is applied in the WP4 pilots. Starting in month 19 the components delivered from the aspect WPs will be assessed - based on a checklist (ID3.5) - to decide on their inclusion in the beta version of the second release.

Deliverables:

- D3.2: First tested version of the Integrated TENCompetence System, including the internal deliverables ID3.2 and ID3.5 (month 18)
- D3.3: Aggregate of internal deliverable ID3.8 and internal deliverables ID3.6, ID3.7 and ID3.9, including updated design and second release software (month 30)

Internal deliverables:

Resulting from task 2:
- ID3.3: First release of the TENCompetence software (month 17; Milestone 1).
- ID3.8: Second major release of the TENCompetence software, realising the software as described in version 2.0 of the overall architectural design report (month 27; Milestone 2).

Resulting from task 1:
- ID3.6: Version 2.0 of the overall design report of the TENCompetence architecture, according to the SOA approach, the requirements from WP2, feedback from the WP4 pilots, the service definitions for the WP3 functionality and the WP5-8 components to integrate and an updated user interaction model (month 20).
- ID3.9: Updated design for the third release of the TENCompetence software (month 30)

Resulting from task 2:
- ID3.7: Final API definitions for the second release, beta version (month 24)

Resulting from task 3:
- ID3.5: Intake procedure, including checklists for WP5-8 components (month 15).

Resulting from task 4:
- ID3.2: Incident management procedure, including template (month 14).
- ID3.4: Setup of the infrastructure for the Digital Cinema pilot and the ICT Training Pilot (month 14).

WP 4	Pilots with the Integrated System & validation of the project						Period: month 13-30	
Partner ID	OUNL	LO-GICA CMG	FBM-UPF	UvA	SU	SYN	UNES-CO	Ant-werp
Person months	4	4	12	7	7	8	6	14

Objectives:

1. Set up, run, and evaluate cycle 1 Pilots.
2. Define and plan cycle 2 pilots, including evaluation planning and updating requirements and scenarios.
3. Set up, run, and evaluate cycle 2 Pilots.

Description of work:

The goal of this work package is to define a diversified set of scenarios and develop corresponding pilots, to validate the integrated system in meeting the seven objectives of TENCompetence. The main focus of the remaining six months of cycle 1 (month 1-18) will be to setup the initial cycle 1 pilots and develop evaluation/validation approaches and methodologies. This process will generate new requirements, use-cases, and scenarios that will be finalized and communicated to WP2/3 by month 21. The focus of the second cycle is to prepare pilots for the evaluation of the integrated system comprised of the components developed by the aspect WPs (second release, beta version, of the integrated system). This period will witness the setup of cycle 2 pilots that include the health care pilot, the Water Management pilot, and the Antwerp City pilot, along with an extension of the Digital Cinema pilot. Other additional pilots with added value might be utilized to further validate the integrated components.

General Task: Management, review and assessment.
This covers WP management in line with the gender plan, DIP-formulation, and review and assessment of activities, internal deliverables and deliverables.

Task 1: Set up the cycle 1 pilot and validate the initial system (month13-21). Implement cycle 1 pilots (digital cinema pilot, month 15, and ICT Training, month 17) in accordance to the plans presented in D4.1 and conduct appraisal and validation activities. The outcome of these activities (ID4.2, month 21[2]) will be recombined into a set of recommendations for the second project cycle. Such recommendations will form the core of D4.2 that will be distributed to the concerned WPs for feedback.

Task 2: Definition, planning, and setup of cycle-2 pilots (month 13-30)**.** Defining and planning the cycle-2 pilots (ID4.3, month 26) in accordance with the plans proposed in D4.1. Such pilots will accord more attention to testing and evaluating the integrated components (whether developed in WP3 or provided by WP5-8 to WP3), in order to provide recommendations for cycle-2 infrastructure and validate the aspects of TENCompetence addressed in the second cycle. Pilots conceived for cycle 2 will jointly cover **all** of the aspects of TENCompetence defined in the DOW through the evaluation of the integrated system.

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[2] Initially under DoW planned for month 18.

Task 3: Provide pilot evaluation plans (month13-24)**.** Implement, Adapt, or Develop scientific evaluation methodologies and the measurement instruments for each pilot that describe the targeted factors to be measured. This will be done for the cycle 1 pilots (ID4.4, ID4.5) as well as for the planned cycle 2 pilots (ID4.6).

Task 4: Collect and distribute requirements, use-cases, scenarios, and other useful information (month 12-30). This task focuses on gathering descriptive scenarios and use-cases from the pilot definitions developed during the planning phases of both cycle 1 and 2. Extract and classify functional and non-functional requirements from the use-cases and pilot descriptions. Other useful information, such as competence development programs and academic materials will also be gathered. This information will be reformatted into the available templates/models provided from other WPs and periodically disseminated.

Deliverables:

- D 4.2: Report on the results of the evaluation of the cycle 1 pilots (conceptual validation of TENCompetence, and evaluation of first-release system implementation) (month 21). This includes the outcomes of ID4.2, ID4.4, ID4.5 and ID4.7.
- D4.3: Report, containing internal deliverable outcomes ID4.3 + ID4.6 + ID4.8 (month 30)

Internal deliverables:

Resulting from task 1:
- ID4.2**:** Evaluation outcomes of cycle 1 pilots of the initial system (month 20)

Resulting from task 2:
- ID4.3**:** Execution and Evaluation Plan for cycle 2 pilots (month 26)

Resulting from task 3:
- ID4.4: Evaluation implementation plan Digital Cinema pilot (month 14)
- ID4.5: Evaluation implementation plan ICT Training pilot (month 15)
- ID4.6: Evaluation implementation plan for cycle-2 pilots (month 24)

Resulting from task 4:
- ID4.7 Finalize distribution of cycle 1 pilots information (month 13)
- ID4.8 Finalize distribution of cycle 2 pilots information (month 30)

WP 5	Knowledge Resource Sharing & Management			Period: month 13-30	
Partner ID	ALTRAN SDB	ILABS	UHANN	INSEAD	SU	
Person months	13	16	12	9	13	

Objectives:

1. Research and develop new and flexible models for pro-active knowledge resources use, sharing and exchange, to stimulate and organise pro-active creation, storage, search, retrieval, packaging and quality rating of knowledge resources, usable for a variety of settings and users (individuals, teams and organisations involved in *lifelong competence development*).
2. Select and adapt existing open source tools such as Web 2.0 web-storage and publishing services, and/or create required ones to function as a service into the TENCompetence System. It should allow the effective and efficient implementation of the pro-active knowledge resource sharing and exchange models specified in the previous objective.
3. Experiment and evaluate the usability of the knowledge resource sharing & management components.

Description of work:

WP5 will provide a basic infrastructure for knowledge resource sharing and management adapted to different institutional and individual needs. The combination and possibly merging of existing state-of-the-art digital repository services together with emerging Web 2.0 services will be explored and implemented when possible. This will allow to meet the needs of different categories of users, individuals, groups/communities, organisations (e.g. corporate, academic institutions). In fact, along with the state-of-the-art repositories which reflect the 'black-box' pattern (e.g. DSpace, Learn eXact Lobster®), individual users may also take advantage of using all the Web 2.0-oriented services they may be already accustomed to, such as blogs, webpages, wiki's, online sharing services (e.g. Flickr-like, YouTube) and so on. After the definition of interfaces for basic services (e.g. share, search, storage, creation) and integration of knowledge resources available from existing initiatives (like ARIADNE, LORNET and MERLOT) in order to avoid cold-start problems, focus will be given to the models for pro-active sharing of knowledge resources as specified under Objective 1 above. These models will be used to realise the integration of social-networking based services such as online sharing webspaces, web-based publishing mechanisms and tagging, blogging, podcasting and subscription approaches in order to provide a basic infrastructure to the other aspect WPs.

General Task: Management, review and assessment.
This covers WP management in line with the gender plan, DIP-formulation, and review and assessment of activities, internal deliverables and deliverables.

Task 1. Research and development of new and flexible models for pro-active knowledge resources use, sharing and exchange. This task is devoted to the identification, definition and analysis of methods and models that will foster the exchange and sharing of knowledge resources. It will take into account different use and context modes (e.g. individual vs. collaborative use, mobility vs. fixed location

scenarios, human and social factors influencing knowledge sharing) that emerge over time. In particular, these models will draw from approaches from the Web 2.0 field which includes the integration of social-network based services such as the sharing of web spaces, web-based publishing mechanisms, tagging of contributions, blogging, podcasting and subscription approaches. Moreover, the Knowledge Resources Taxonomy, developed during the first year of the project, will be further improved, expanded and made more specific, in close cooperation with other TENCompetence WPs. A Roadmap for further research and development of models and services will be delivered in month 17 (Internal deliverable 5.2).

Task 2. Design and develop the KRSM services and tools

The Knowledge Resource Sharing and Management system (KRSM) developed at month 12 will be enhanced by adapting / selecting / developing existing or new services such as Web 2.0 ones in order to provide the users with the proper tools for handling knowledge resources. This will be released for testing in month 14 (ID5.3). The validated version (ID5.4) will be available in month 18, together with the API definitions (ID5.5) needed for the connection of these tools and services to the core system will be delivered to WP3.

On the basis of the information gained from both the internal and external evaluation processes (i.e. respectively, on the first cycle KRSM system, and on the WP4 pilots) new scenarios and use cases will be derived as well as an update of the existing ones. By using the models for pro-active sharing of knowledge resources and the scenarios and use cases, new user requirements will be developed and used for the second cycle KRSM system design and development to be finally released to WP3 in month 30 (ID5.7). The new components will integrate / substitute the ones used in the first cycle system, according to the results of the evaluation and to the emerging needs. Therefore, a priority list will be defined in order to guide the overall process. Again, mainly Web 2.0-oriented tools will be considered and will enrich the features included in the system (e.g. quality rating tools, recommender services). In order to allow for efficient knowledge resource exchange and sharing in heterogeneous Web 2.0 environment, metadata handling and distributed search will be explored.

In addition, the design of the system will be also focussed on smooth integration in the TENCompetence overall structure and on interoperability with third parties products (e.g. DSpace, Learn eXact®).

Task 3. Experiment and evaluate the usability of the knowledge resource sharing & management components. The experimentation and evaluation plan delivered at month 13 (ID5.8) will first guide the gap analysis to be performed on the first cycle KRSM releases (ID5.9, month 16). After that, the evaluation of the second cycle release will be performed between month 24 and month 28 (ID5.10). The evaluation plan will be updated and upgraded according to the emerging needs that may occur during the project period lifespan.

The outcome of these evaluations will be used for the improvement of the system and will be given as input to task 2.

Deliverables:

- D5.1. Report with summary of WP outputs over month 1-18, and a roadmap for knowledge resource sharing & management RTD (month 18).
- D5.2. Report, containing internal deliverable outcomes ID5.3-ID5.10 (month 30).

Internal Deliverables:

Resulting from task 1: Research
- ID5.2: Roadmap for KRSM RTD (month 17)

Resulting from task 2: Design & development
- ID5.3: First cycle KRSM prototype system ready for validation (month 14)
- ID5.4: First cycle KRSM validated prototype system for delivery to WP3 (month 18)
- ID5.5: API definitions to be delivered to WP3 (month 18)
- ID5.6: Second cycle KRSM system – beta release, comprising integrated components/service implementations ready for validation (month 24)
- ID5.7: Second cycle KRSM system – final release, comprising integrated components/service implementations for delivery to WP3(month 30)

Resulting from task 3: Experiment & evaluate
- ID5.8: KRSM first cycle prototype evaluation plan (month 13)
- ID5.9: KRSM first cycle prototype evaluation outcomes (month 16)
- ID5.10: KRSM second cycle system evaluation results (month 28)
- ID5.11: Updated Roadmap (month 30) as outcome of task 1 running till month 30.

WP 6	Learning Activities & Units of Learning			Period: month 13-30	
Partner ID	OUNL	ILABS	CERTH/ITI	University of Bolton	SU	UvA
Person months	25	10	2	24	8	2

Objectives:

1. Extend and evaluate existing open source IMS LD Authoring and Run-time tools to support the requirements of lifelong competence development and to function as components and/or services into the overall TENCompetence system and evaluate the usability of the produced software components/tools.

2. Develop and validate a formal specification model for defining assessment processes that combines new types of assessment with the ones already included in the IMS QTI specification, and validate the produced specification.

3. Create a roadmap for further research and development in the field of Learning Activities and Units of Learning in the context of Competence-based Lifelong Learning.

Description of work:

WP6 contributes to the objective of researching and developing innovative, standards-based methods and tools for the creation, storage, use and exchange of formal and informal learning activities and units of learning, including tools for the assessment of the learning process and learning outcomes. A finding of the first period is that the connection protocol cannot be developed from first principles, but rather is better abstracted from work on runtime carried out in WP6.

The overall WP6 activities are organized around three main components of the TENCompetence Domain Model, namely the *IMS LD Authoring Component,* the *Assessment Component* and the *IMS LD Run-time Component*, with different scope per project cycle. As a result, during cycle 2 (month 13-30), the WP6 activities are organized in three main tasks, one per component (Tasks 6.1 and 6.2 respectively), with the following detailed description:

General Task: Management, review and assessment.
This covers WP management in line with the gender plan, DIP-formulation, and review and assessment of activities, internal deliverables and deliverables.

Task 6.1. IMS LD Authoring Component. Although there are a number of existing IMS LD Authoring Tools (such as Reload LD Editor, CopperAuthor), in TENCompetence a higher-level graphical interface is needed to enable practitioners visualize and assemble Units of Learning easily. The design paradigm of this tool should be closer to common practices on designing pedagogical scenarios, rather than to the XML-based structure of the IMS Learning Design specification. Extra research is needed in identifying such design practices in representing pedagogical models in a way which is easy to understand and useful to users of such tools, including both desk research and iterative field research via the evaluation of configurations of the TENCompetence IMS LD Authoring Tool releases. During cycle 2 (month 13-30), this task will focus on

(a) Design of the Authoring Component, and the fit with the wider infrastructure defined within TENCompetence. Special attention will be paid to support non-expert authors (teachers and/or learners) in producing high quality activities and learning designs.

(b) Implement the prototype Authoring Component based on (a) with a high-level graphical interface

(c) Validate the prototype Authoring Component

(d) The planning and execution of a usability evaluation study (in respect to the provided flexibility for learning designers and practitioners to define their own pedagogical scenarios) of the TENCompetence IMS LD Authoring Tool

Task 6.2. Assessment Specification. Assessment in lifelong competence development is a complex process with many actors, which can and needs to be supported in a variety of ways. The scope of the TENCompetence Assessment Specification is to provide the means for defining assessment processes, as an internal part of the design process of a Unit of Learning, by combining new types of assessment (e.g. 360-degree assessment, portfolio assessment) with the ones already included in the IMS QTI specification. During cycle 2 (month 13-30), this task will focus on (a) the elaboration of the Assessment Specification defined during previous period (month 1-12) and its integration with the IMS Learning Design specification, (b) the development of a proof-of-concept Assessment Authoring Tool for demonstrating the use of the TENCompetence Assessment Specification and its integration with IMS QTI, (c) the elaboration of a set of examples to be used for validating the TENCompetence Assessment Specification, and (d) the planning and execution of validation testing of the TENCompetence Assessment Specification via the use of the Assessment Authoring Tool.

Task 6.3. TENCompetence IMS LD Run-time Component. The range of services available in the IMS Learning Design specification is restricted. The current structure for a service in the IMS LD specification essentially maps an open set of roles to a fixed set of service roles, limiting the ability of IMS LD Run-time engines to connect to external communication and collaboration services (e.g Instant Messaging, Chat services). During cycle 2 (month 13-30), this task will focus on

(a) investigate mechanisms to connect communication and collaboration services to IMS LD Runtime Engines.

(b) implement the IMS LD Runtime Component based on an existing runtime engine (e.g. Coppercore), enhanced to support external collaboration and communication services, informed by the connection specification (a),

(c) abstract and formalize the results of (a) and (b) to create a protocol for connecting communication and collaboration services to IMS LD Runtime Engines

(d) the elaboration of a set of examples to be used for validating the enhanced IMS LD Runtime Component (b), and

(e) validate the enhanced IMS LD Runtime Component

(f) improve integration and usability of runtime environment components (CopperCore, CCSI, Clicc and SLeD…) and integrate these into Learn eXact.

Task 6.4. Create a roadmap for further research and development in the field of Learning Activities and Units of Learning in the context of Competence-based Lifelong Learning.

Deliverables:

- D6.1: Report with summary of WP outputs of month 1-18, and a roadmap of learning activities and units of learning RTD (carried over from DoW, month 18), based on:
  - Report with pedagogical models suitable for competence development (already delivered as ID6.1 in month 12)
  - Templates of the pedagogical models designed for use in authoring environments (already delivered as ID6.1 in month 12)
  - Integrated assessment model and connector protocol (see below: ID6.3)
  - A prototype of the integrated environment (see below: ID6.2)

- D6.2: Compilation of internal deliverable outcomes ID6.4-ID6.5 (month 30)

Internal Deliverables:

- ID6.2: WP6 Prototype Tools - Tested 1st Release (month 18, carried over from DoW), including the following items:
  - (a) Design and prototype of the TENCompetence IMS LD Authoring Tool"
  - (b) Tested first release of proof-of-concept Assessment Authoring Tool supporting the TENCompetence Assessment Specification
  - (c) Tested first release of enhanced IMS LD Run-time Component
  - (d) API definitions for tools/components for delivery to WP3

- ID6.3: WP6 Specifications (month 18), for implementation within the 2nd Releases of the WP6 Prototype Tools, including the following items:
  - a) Integrated Assessment model with IMS Learning Design that combines classical and new forms of assessment
  - b) Protocol for connecting communication and collaboration services to IMS LD Runtime Engines

- ID6.4: WP6 Prototype Tools - 2nd Release (month 24), including the following items:
  - a) Second release of the TENCompetence IMS LD Authoring Component
  - b) Second release of proof-of-concept Assessment Authoring Tool supporting the TENCompetence Assessment Specification
  - c) Second release of enhanced IMS LD Run-time Component

- ID6.5: Validation Testing and Usability Evaluation Results (month 30), including the following items:
  - a) Usability Evaluation results (in respect to the provided flexibility for learning designers and practitioners to define their own pedagogical scenarios) of the 2nd release of the TENCompetence IMS LD Authoring Component
  - b) Validation Testing results of the TENCompetence Assessment Specification via the use of the 2nd release of the Assessment Authoring Tool

WP 7	Competence development programmes			Period: month 13-30	
Partner ID	OUNL	UHANN	FBM-UPF		
Person months	15	17	12		

Objectives:

1. Refine the learning path description, as developed in the first cycle. The description makes use of existing standards where applicable, and enhances these based on the identified user needs. The proposal will be brought to the attention of the relevant standardisation bodies with the support of WP10.
2. Identify current practices and user needs in selecting or creating competence development programmes, and develop novel user interface designs that address these needs, making use of techniques known from the fields of adaptive (educational) hypermedia and e-learning standardization efforts.
3. Develop and deliver (based on selected, adapted, or newly created) validated services for the creation, storage, search, retrieval, reuse, sharing and quality rating of competence development programmes. These service implementations should be fit for integration in the TENCompetence system.
4. Develop and deliver a validated user positioning service for competence development programmes. Both bottom-up approaches, such as latent semantic analysis, and top-down approaches, such as adaptive hypermedia and semantic Web techniques, will be explored.
5. Develop and deliver a validated user navigation service for competence development programmes. Both bottom-up approaches, such as recommendation algorithms, and top-down approaches, such as adaptive hypermedia and semantic Web techniques will be explored.

Description of work:

Competence Development Programmes are formal or informal collections of learning activities and units of learning that are used to build competences in a certain discipline or job. Collections of learning activities and units of learning can be related and combined in various ways to form a programme (as contrasted to a unit of learning which is a tight integration of learning activities). Depending on the competences to be built, these programmes can be small (e.g. a crash course) or quite extensive (e.g. a masters programme). In addition to formal programmes offered by institutions, it is also possible to create individualized competence development programs, based on individual user needs or exploratory behaviour, and to exchange these individual programmes.

This work package is directed at the development of models and services to realise the creation, storage, search, retrieval and quality rating of competence development programmes. There are currently no standards available to describe programmes in an interoperable way. One of the objectives of the work package is to develop and evaluate concepts, methodologies and user interface designs that extend existing standards and to disseminate the results in order to create awareness and appreciation of the concepts.

General Task: Management, review and assessment.
This covers WP management in line with the gender plan, DIP-formulation, and review and assessment of activities, internal deliverables and deliverables.

***Task 1.** Refine the learning path description*, as developed in the first cycle (carried over from DIP-1, part of D7.1). The description makes use of existing standards where applicable, and will be enhanced based on the identified user needs. Work in the second cycle will concentrate on satisfying the needs identified during the first project cycle.

***Task 2.** Identify current practices and user (curriculum developer) needs* in selecting or creating competence development programmes, and d*evelop novel user interface designs* that address these needs, making use of techniques known from the fields of adaptive (educational) hypermedia and e-learning standardization efforts. Work will concentrate on services with novel user interfaces for curriculum designers in the professions or fields of expertise selected as case studies for the TENCompetence Project.

***Task 3.** Select or adapt existing, or create, services and validate and deliver these services* for the creation, storage, search, retrieval, reuse, sharing and quality rating of competence development programmes. These components should be fit for integration in the TENCompetence system. Work in the second cycle will concentrate on the development of services for the selection and creation of CDPs, as developed in the previous task. The API definition for later integration will be delivered to WP3.

***Task 4.** Develop, validate and deliver a user positioning service* for competence development programmes. Both bottom-up approaches, such as latent semantic analysis, and top-down approaches, such as adaptive hypermedia and semantic Web techniques, will be explored. Work during the second cycle will concentrate on combining metadata-driven reasoning with latent semantic analysis, as well as planning techniques and user preferences. The prototype must conform to the technical standards & architectural constraints as defined in the project under WP3. The API definition for later integration will be delivered to WP3.

***Task 5.** Develop, validate and deliver a user navigation service* for competence development programmes. Both bottom-up approaches, such as recommendation algorithms, and top-down approaches, such as adaptive hypermedia and semantic Web techniques will be explored. Work during the second cycle will concentrate on collaborative filtering, usage profiling and visualization. The prototype must conform to the technical standards & architectural constraints as defined in the project under WP3. The API definition for later integration will be delivered to WP3.

Deliverables:

- D7.1: Report with summary of WP outputs over the first 18 months and a roadmap of competence development programmes RTD (carried over from DIP-1, month 18), based on:
    - the design of assessment[3], positioning, navigation and learner support services[4]
    - competence descriptions, translation to a standards based language, prototypes

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[3] This aspect has been moved to WP6, but was maintained here as part of the policy not to change deliverables that were carried over from DIP-1 to DIP-2. In practice this means that the work resulting in the assessment service will be carried out under WP6.

[4] This aspect has been moved to WP8, but was maintained here as part of the policy not to change deliverables that were carried over from DIP-1 to DIP-2. In practice this means that the work resulting in the assessment service will be carried out under WP8.

    of
   - competence development programmes for the disciplines and fields selected
   - a new learning path description specification
   - prototypical assessment[5], positioning, navigation and learner support services[6]
   - API definitions

- D7.2: Compilation of internal deliverable outcomes ID7.3-ID7.11 (month 30)

Internal deliverables:

- ID7.2: Prototypical navigation service and learner support service[7]; Report with summary of WP outputs; and a Roadmap of competence development programmes RTD (carried over from cycle 1: month 18)

Resulting from task 1:
- ID7.3 Refined version of the learning path description, suitable to be brought as input to standardization bodies (month 24)

Resulting from task 2:
- ID7.4: Specifications Report based on analysis of current practices and user needs for selecting or creating competence development programs (month 20)
- ID7.5: Evaluated user interface designs for selecting or creating CDPs (month 22)

Resulting from tasks 3:
- ID7.6: API definition to be delivered to WP3 (month 18)
- ID7.7: Validated service for selecting or creating CDPs (month 30)

Resulting from task 4:
- ID7.8: Validated positioning service, first release (month 18)
- ID7.9: API definition to be delivered to WP3 (month 18)
- ID7.10: Validated positioning service, second release (month 30)

Resulting from task 5:
- ID7.11: Validated navigation service (month 30)

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[5] See footnote 3.
[6] See footnote 4.
[7] Idem.

WP 8	Networks for Lifelong Competence Development			Period: month 13-30	
Partner ID	OUNL	CERTH/ ITI	INSEAD	SU	SYN	
Person months	10	1	23	8	12	

Objectives:

1. Develop and validate a Competence Observatory that will monitor and capture the competences in different professional, academic, and personal development fields.
2. Enhance the TENCompetence clients and services with Social Network based concepts and tools to provide an integral overview of competence development opportunities available to users.
3. Develop and validate value-adding intelligent agents, simulation and game dynamics embedded in online competence development contexts.
4. Research and explore management policies that support the community's capacity for self-organization while preserving the autonomy of individual users.
5. Identify gaps in our community resources in this field and develop and contribute to the community resources, to be consolidated into a roadmap (month 18, carried over from DIP-1).

Description of work:

The ultimate WP8 objective is to provide personalized support in all stages, from the identification of relevant competencies to the choice of the appropriate competencies development approach, to the sharing of community-resources and experiences within the learning network. The workplan during DIP-2 (month13-30) reflects an increased focus/specialization on the following specific tasks:

General Task: Management, review and assessment.
This covers WP management in line with the gender plan, DIP-formulation, and review and assessment of activities, internal deliverables and deliverables.

Task 1. Development and Maintenance of TENCompetence Competence Observatory
The TENCompetence Competence Observatory will monitor and capture the competences in different professional, academic and personal development fields. Included in this task is the development of an ontology of competences, e.g. basic skills, entry level, high performer, novices to experts, specific to general, which will enable mapping of new developments and competences to existing knowledge bases and models. The competences in the TENCompetence Competence Observatory will be specified in an interoperable way following the current state of the art specifications for describing competences namely IMS RDCEO and HR-XML. This task will focus on (a) the software implementation of the TENCompetence Competence Observatory (b) the creation of relevant documentation for the TENCompetence Competence Observatory (c) the evaluation of TENCompetence Competence Observatory with real users and (d) the maintenance of the TENCompetence Competence Observatory. The API definition for later integration will be delivered to WP3 (month 18).

Task 2: Develop and test components to provide an integral overview of both formal and informal competence development opportunities and use stimulus agents and game-like involvement and interaction dynamics to foster collaboration and proactive community resources sharing.

Based on the research conducted in the first phase of the project (original tasks 8.2 and 8.3), the TENCompetence Competence Development Overview Tool (TC-DOT) will provide an innovative way to facilitate navigation through the space of available formal and informal competence development opportunities, supported by visualizations and tools based on Social Network Analysis (SNA) and Social Connection Dynamics. This task includes the design, usage and impact analysis of network visualization and navigation techniques based on SNA and similar tools to improve the efficiency and effectiveness of competence development decisions and facilitate the access and active involvement of individuals. Software Agents will be embedded in the TC-DOT to support "intelligently" community resources workers in the whole community resources management. Furthermore, this task includes the exploration of the value resulting from integrating emerging mechanisms and tools like Conzilla and Collaborilla (developed in the context of parallel projects such as Pro-Learn and Luisa) in the TENCompetence Framework, and their usefulness in supporting the formalization of community resources gained from the analysis of social interaction patterns and its alignment with (in) formal competence development processes. The API definition for later integration will be delivered to WP3 (month 18).

Task 3 Develop and test models and tools to manage the network management.

This task describes, develops and tests tools and models that help understand and manage the dynamic behaviour of networked communities. In the first 18 months task 3 has developed and tested the device of ad hoc transient communities. Their first application focused on mutual, peer-to-peer support of learning network users. In the second period the use of ad hoc transient communities - as a generic device to increase the connectivity of members of networked communities - will be investigated. To that end, task 3 will describe community resources sharing needs in networked communities other than the need for peer support, identify through a survey the most pressing needs, develop an appropriate community model for them, simulate the model to identify fitting management policies, validate the model by consulting experts, develop requirements for a service that embodies this model including the identified management policies, build a prototype service and empirically test its validity. The software components that will be developed within this task will be integrated with those of Task 2.

Task 8.4: Roadmapping

Develop a roadmap for further work to inform the planning process for the next cycle (carried over from DoW, month 18)

Deliverables:

- D8.1: Report with overall WP8 results during month 1-18 (carried over from DoW), and a roadmap of Networks for lifelong competence development RTD (month 18) including the following items:
    - State-of-the-Art, Design and 1st release of TENCompetence Competence Observatory Prototype (ID8.2, ID8.3)
    - State-of-the-Art, Design and 1st release of TENCompetence Overview tool, proactive sharing agent and game-like embedded dynamics ID8.7, ID8.8)
    - State-of-the-Art, Design and 1st release of TENCompetence Network Management Tool Prototype ID8.11, ID8.12)

- D8.2: Compilation of internal deliverable outcomes ID8.2-ID8.14 (month 30)

Internal deliverables:

Resulting from task 1:
- ID8.2: State-of-the-Art, Design and validated 1st release of TENCompetence Competence Observatory Prototype (part of DoW ID8.2; month 18)
- ID8.3: API definition to be delivered to WP3 (month 18)
- ID8.4: 2nd Release of TENCompetence Competence Observatory Prototype, ready for validation (month 24)
- ID8.5: Competences ontology (month 24)
- ID8.6: Validated release, based on functional testing and usability evaluation results for TENCompetence Competence Observatory Prototype (month 30)

Resulting from task 2:
- ID8.7: State-of-the-Art, Design and validated 1st release of TENCompetence Overview tool, proactive sharing agent and game-like embedded dynamics (part of DoW ID8.2; month 18)
- ID8.8: API definition to be delivered to WP3 (month 18)
- ID8.9: 2nd release of TENCompetence Overview tool, proactive sharing agent and game-like embedded dynamics, ready for validation (month 24)
- ID8.10: Validated release, based on functional testing and usability evaluation results for TENCompetence Overview tool, proactive sharing agent and game-like embedded dynamics (month 30)

Resulting from task 3:
- ID8.11: State-of-the-Art, Design and validated 1st release of TENCompetence Network Management Tool Prototype (part of DoW ID8.2; month 18)
- ID8.12: API definition to be delivered to WP3 (month 18)
- ID8.13: 2nd release of TENCompetence Network Management Tool, ready for validation (month 24)
- ID8.14: Validated release, based on functional testing and usability evaluation results for TENCompetence Network Management Tool (month 30)

WP 9	WP name: Training			Period: month 13-30	
Partner ID	OUNL	LOGICA CMG	Univer-sity of Bolton	SU	SURF
Person months	15	6	4	4	3

Objectives:

1. Maintaining the TENCompetence Network for PhD students to support research exchange in the academic community.
2. Maintaining the TENCompetence Network for Associate Partners, in particular SMEs, to stimulate exchange of experience between the academic and business partners, to prepare the future TENCompetence organizational infrastructure including various service providers.
3. Organizing training for the consortium and associate partners, in particular SME, to develop a set of competencies (also entrepreneurial ones) required to design, develop, and deploy TENCompetence services.
4. Organizing training for general stakeholders, including workshops and hands-on activities.
5. Setting up, running, and evaluating a Training Pilot to create a shared and full understanding of the TENCompetence infrastructure by partners and associate partners.

Description of work:

Training activities within the project have a twofold purpose: (1) they support exchange of knowledge and skills in the TENCompetence community, and (2) they prepare a network of TENCompetence service providers and general stakeholders. The TENCompetence system will provide training opportunities for on-line, face to face and blended competence development situations, including social and collaborative scenarios. In this implementation plan special attention will be given to training for the planned pilots, evaluation of the training, and preparation of next training plans.

The tasks for the project period between the month 13 and the month 30 are:

General Task: *WP9 management, review and assessment.* This covers WP management in line with the gender plan, DIP-formulation, and review and assessment of activities, internal deliverables and deliverables.

Task 1. Maintain the TENCompetence Network for PhD Students in line with the research activities carried out in the Aspect RTD work packages. A spectrum of on-line, face to face, and blended training opportunities will be provided, among these two Winter School events (internal deliverable ID9.3 and ID9.10).

Task 2. Maintain the TENCompetence Network for Associate Partners, in particular SME, to spread the research results of the consortium as well as to getting the feedback and understand the issues surrounding the implementation of the project results. An overview of the activities and their results will be supplied each year (internal deliverable ID9.8).

Task 3. *Organize Training for Consortium and Associate Partners* (especially SME in their potential role of service providers) to promote design, development, deployment, and use of the project outcomes. Training activities will focus on developers of services, producers of learning resources, trainers, and service providers (internal deliverable ID9.4). Emphasis will be given on the TENCompetence pilots, i.e. for each cycle a training program is designed and executed (internal deliverables ID9.2, ID9.5, ID9.7, and ID9.11).

Task 4. *Organize Training for General Stakeholders* (potential end users) including those who will have an important vote in the final uptake of the system – managers of universities, schools, other educational institutes, large organizations, etc. An overview of the activities and their results will be supplied each year (internal deliverable ID9.9)

Task 5. *Set up, run, and evaluate a Training Pilot* to create a shared and full understanding of the TENCompetence infrastructure by partners and associate partners. The pilot will enable the partners and associate partners to create hands-on experience with the available tools and will supply additional feedback to WP3. The task will start with a design of the pilot and an evaluation plan (ID9.6). The results will be monitored and analysed and be described in ID9.12).

Deliverables:

- D9.2: Report, containing internal deliverable outcomes ID9.2-ID9.12 (month 30)

Internal deliverables:

Resulting from task 1:
- ID9.3: Report on Winter School 2007 (month 15)
- ID9.10: Report on Winter School 2008 (month 27)

Resulting from task 2:
- ID9.8: Report on Competence Network for Associate Partners (month 24)

Resulting from task 3:
- ID9.2: Training Plan for Participants in Cycle 1 Pilots (month 13)
- ID9.4: Report on Internal Workshop for Researchers and Developers (month 20)
- ID9.5: Report on Training for Cycle 1 Pilots (month 21)
- ID9.7: Training Plan for Participants in Cycle 2 Pilots (month 24)
- ID9.11: Report on Training for Cycle 2 Pilots (month 30)

Resulting from task 4:
- ID9.9: Report on Training for General Stakeholders (month 24)

Resulting from task 5:
- ID9.6: Report on Design and Evaluation plan for TENCompetence Training Pilot (month 20)
- ID9.12: Report on the Evaluation of the TENCompetence Training Pilot (month 30)

WP 10	Dissemination		Period: month 13-30	
Partner ID	OUNL	ALTRAN SDB	LOGICACMG	FBM-UPF
Person months	6 + 8[8]	3	3	3
Partner ID	ILABS	UHANN	INSEAD	SYN
Person months	3	1	3	3
Partner ID	University of Bolton	UvA	SU	SURF
Person months	16	1	1	7

Objectives:

1. To disseminate, on an on-going basis, the RTD outcomes: specifications and standards, architectures, components and technical manuals which are developed by the project. to ensure general awareness and to create a body of interested and involved parties.
2. To support internal dissemination between project partners and associates.
3. To promote standardisation of project outcomes.
4. To promote and support special interest groups around the solutions developed by TENCompetence.

Description of work:

The core activity of WP10 is to ensure that awareness of the TENCompetence project and its outcomes is as high as possible among identified stakeholders worldwide. The project vision will be presented on the basis of the work carried out by WP2 and other working groups, and related to the seven key problems addressed by the project. This process will be guided by the media matrix established in year 1, and to be updated as necessary at each planning stage. Access to the resources and infrastructure developed by the project is provided, together with the resources and forums they need in order to use them. This activity creates a body of interested parties who can then opt to become Subscribers and Associate Partners of the project. Activities with stakeholders fall within the scope of WP10 up to and including the time when they register as Associate Partners and up to the level of dissemination. Management of contacts between Associate Partners and project partners is through an appointed project participant in the Associate Partners home country, in a process managed by WP10. Training for Associate Partners is structured and supported by WP9.

The public website and internal collaboration site established under DIP-1 will be reviewed and revised as the achievements of the project become available. Support will be provided for the standardisation of project outcomes, and the practical interoperability of the solutions developed.

General Task: Management, review and assessment.
This covers WP management in line with the gender plan, DIP-formulation, and review and assessment of activities, internal deliverables and deliverables.

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[8] For subcontracting to Associate Partner SME's for whom a tender will be published through WP1, but for which the budget-vote has been included in the WP10 budget.

Task 1: Awareness and availability of project outcomes. This task takes care that all project outcomes become publicly available (specifications and standards, architectures, software components, reports and manuals; connected to the right licenses) by among others using project web sites, DSpace, and Open Source channels. It includes creating news items and professional publications on project events and outputs.

Task 2: Organising workshops and events.
Workshops and events will be organised for the wider public, as contrasted with events and workshops organised by WP9 for TENCompetence (associate) partners.

Task 3: Pro-active internal dissemination.
This covers all activities to inform all (associate) partners on progress between and over individual WPs.

Task 4: Promoting standardisation of project outcomes by:
• raising awareness at standardisation bodies about TENCompetence work
• delivering specs to these bodies produced by TENCompetence:
  ▪ assessment model
  ▪ learning path specification
  ▪ LD services connector
  ▪ competence framework
• participating in working groups of these bodies

Task 5: Establishing and supporting a wider TENCompetence user group, including Account Management.
Through mailing lists, online forums and FAQs the identified stakeholders are provided with resources which enable them to start work with project outcomes.
Two types of association with the project are to be made available
a) Subscribers, who can
- follow developments through regular mailings, which could take the form of a newsletter
- participate in forums and public events, SIG's communities
- access to certain areas of the partner website
b) For selected contacts a Memorandum of Understanding is prepared defining their contribution to the project, and what the project can provide to them. On signature these contacts become Associate Partners, and training for them is structured and supported by WP9.. A project participant from the Associate Partner's home country is appointed to act as principal point of contact with the project.

Task 6: Define critical use cases and potential business models.
These will prepare the future TENCompetence organizational support structure, and may serve as input to WP9 for defining Associate Partner training needs.

TEN Competence

Deliverables:

- D10.2: Report with an assessment of the WP-results including ID10.2 – ID10.6. (month 30)

Internal Deliverables:

Resulting from task 1:
- ID10.4: Compendium of workshop papers, special issues and book chapters edited by TENCompetence (month 24)

Resulting from task 2:
- ID10.5: Overview of workshops and events organised by TENCompetence and their impact. (month 24)

Resulting from task 4:
- ID10.6: Report on TENCompetence standardisation initiatives, gathering together and presenting standardization initiatives and outcomes provided by other WPs (month 30)

Resulting from task 5:
- ID10.3: List with contacts, potential users, subscribers and associated partners (ongoing, consolidated version month 30).

Resulting from task 6:
ID10.2: Critical Use Cases & three potential business model outlines (month 18)

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7 IP effort form months 13-30

WP	DIP-2 (m13-m30)	OUNL	Altran	LogCMG	UPF	ILABS	CERTH	UHANN	INSEAD	UB	UVA	U-Sofia	SURF	SYN	UNESCO-IHE	Antwerp	OUNLMM	Totaal
	DIP 2																	
	Consortium Management																	
		0	0	0	0	0	0	0	0	0	0	0	0	0		0	34	34
	RTD aspects & integration																	
2	Requirements & Analysis of the Integrated System	11	11	1	1			1	5	5	8	2	2					47
3	Technical Design & Impl. of the Integrated System	14		25	10	12		8		36								105
4	Pilots with the Integrated System & Validation	4		4	12						7	7		8	6	14		62
5	Knowledge Resource Sharing & Management		13			16		12	9			13						63
6	Learning Activities & Units of Learning	25			10	2				24	2	8						71
7	Competence Development Programmes	15			12			17										44
8	Networks for Lifelong Competence Development	10					1		23			8		12				54
10	Dissemination & Exploitation	14	3	3	3	3		1	3	16	1	1	7	3				58
		93	27	33	38	41	3	39	40	81	18	39	9	23	6	14	0	504
9	**Training**																	
	Training	15		6						4		4	3					32
	Training WP management																	0
		15	0	6	0	0	0	0	0	4	0	4	3	0	0	0	0	32
																		570
		108	27	39	38	41	3	39	40	85	18	43	12	23	6	14	34	570

8 Budget months 13-30

9 Budget full project period

Form A3.2

10 Consortium description and subcontracting

This chapter comprises the update of 'Appendix A - Consortium Description' of the DoW.

A.1 Partners and Consortium

According to the DoW two partners joined the consortium for the Water management pilot (UNESCO-IHE) and the Antwerp Lifelong Learning City (ALLCITY) pilot respectively. The contributions of both partners are fully dedicated to WP4.

UNESCO-IHE (partner number 15)
UNESCO-IHE Institute for Water Education is dedicated to scientific research, postgraduate education and training in the fields of water, the environment and infrastructure. The Institute is a globally active "partner in action", through solution-oriented research, education and capacity building operations. UNESCO-IHE determines education, training and research demands through its international network of 13,000 alumni in more than 160 countries, the Institute's community of partnerships, including public and private organisations active worldwide.

Mr. Carel Keuls is a senior knowledge management advisor at UNESCO-IHE Delft. He has a background in Social Sciences and Knowledge Management. He brings in a 10 years experience in bridging gaps between (regional) policy making and information technology predominantly in the field of Regional Planning. For the last five years he focussed on developing and supporting collaborative knowledge networks. He joined UNESCO-IHE full time in 2005.
At present he is involved in two Capacity Building Programmes (NileNet Africa, WRIM-CBN Indonesia) for various clients (DGIS, NUFFIC, etc.). He is currently team leader of the Water Resources and Irrigation Management Capacity Building Network Project in Indonesia, in which 10 well known universities collaborate.

City of Antwerp (Stad Antwerpen) (partner number 16)
The ALLCITY project aims at matching the local industry and education needs better and to provide substantial support for the further development of the Antwerp Regional Technological Centre (RTC) that is being founded by Voka (Chambers of Commerce of Antwerp – Waasland) with funds of the Flemish Government.
The city of Antwerp has built up a tradition of facilitating cross-sectoral collaboration between the different educational institutions on its territory and of common consultation and cooperation between educational and industrial partners.
More than ten years ago the city of Antwerp founded the Antwerp Education Council who gives neutral educational advice to the City Council on educational issues. All main actors are part of the Council.
The city administration for education was renamed "Learning City" three years ago and now also has a separate administration for general educational policy, so that LLL objectives can be met in a better way.

Antwerp has also decided to allocate its educational means in a global policy structure, called Baobab. Its mission is to allocate the means in specific projects with measurable results, to be executed by third parties.

Local Project coordinator: Patrick Janssens.

A.2 Sub-contracting

All of the major skills and knowledge for this project are present within the member organizations, so no major subcontracting is envisaged. There are only three areas currently foreseen for subcontracting.

First of all, some expert services will be required in defining and possibly monitoring the gender mainstreaming activities. This has been estimated in the order of maximum 6 man months and thus –given the limited size - the standard tender procedures of the co-ordinator OUNL will apply.

Secondly, in the 2nd and 3rd cycle the Water Management pilot will require a subcontract. UNESCO-IHE will run the pilot in the Nile region, but for detailed local background knowledge and day to day provision and support, needs to call on resources of a local organisation, i.e. HRI. HRI (Hydraulics Research Institute, Egypt, Cairo http://www.hri-egypt.org/main.asp) is a governmental organisation with which UNESCO-IHE already has an ongoing collaboration. The total sum of the sub-contract has been budgeted for Euro 25.000 (Funding equivalent Euro 12.500).

Thirdly, a special fund to stimulate SME-participation as Associate Partners was created at the start of the project. This will be activated in the second project cycle.