



Quality Management of Peer Production of eLearning

Progress Report

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Project information

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Executive Summary

This report describes the work of the consortium managing the project Quality Management of Peer Production of eLearning, in its first year of operations during 2008. The overall aim of the project is to accelerate the creation of peer-produced e-learning content by providing a methodology to manage its quality. This overall aim also supports the empowerment of e-learners in vocational education and training in their development from passive receivers of e-learning content towards active producers of content of their specific knowledge areas.

The specific aim of the project is to develop a solid approach and methodology on how to organise and support the quality management process of peer-produced e-learning content. The project itself does not take a position of the e-learning tools (such as e-learning platforms or Learning Management Systems) used, but is developing and implementing a systematic process for the quality management of peer-produced e-learning content. The project will validate the developed methodology through four pilots in three different VET entities, and thus have the opportunity to consolidate the piloting experiences to the actual toolset developed and the training sessions organised.

The project is being conducted by a consortium of partners from Italy, Spain, Finland and Germany, and brings together the expertise necessary from all disciplines related to the project – namely of operating VET courses, and actors from the field of quality in eLearning. The project is currently concluding its first phase of operations which mainly involved desk research and the developing of a quality methodology – outputs whose results are described in this report and available off the project website. During the second year of the project, a QMPP handbook will be drafted and actually tested in the pilots, which will lead to a final result which will be disseminated throughout the partners' networks, to improve the quality of peer production in Europe.

So far, the main result has been the elaboration of the QMPP approach of a peer production cycle involving benchmarking, creating, validating, editing, enriching and updating content through a set of enabling policies, procedures, processes and tools. Each part of the approach is being analysed to identify the already existing practice, identify process elements therein and to build the QMPP quality approach thereon.

This report also gives details of the FMECA quality approach used in the project as well as the SUSTAIN dissemination approach taken to spread the results. Finally, it gives some ideas as to the basis for future work into the area.

More information is also available from the project website at <http://www.qmpp.net>

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1. Project Objectives

The overall aim of the QMPP project is to accelerate the creation of peer-produced e-learning content by providing a methodology to manage its quality. It is hoped that through this approach, e-learners in vocational education and training will be empowered to develop from passive receivers of e-learning content towards active producers of content within their specific knowledge areas.

Over the two year duration of the project, the QMPP consortium will develop a solid approach and methodology on how to organise and support the quality management process of peer-produced e-learning content. The project itself does not take a position on the contribution of specific e-learning tools to quality (such as e-learning platforms or Learning Management Systems), but is rather developing and implementing a systematic process for the quality management of peer produced e-learning content. The project will validate the developed methodology through three pilots in three different VET entities, and thus have the opportunity to consolidate the piloting experiences to the actual toolset developed and the training sessions organised.

The specific objectives of the project are as follows:

- to create a thorough understanding of the various useful methods and tools in peer production of e-learning
- to identify key approaches of quality management in peer production of e-learning content and to benchmark good practices in peer production of digital content (in other areas than e-learning)
- to define key processes to support peer production of e-learning content
- to produce the content for the quality management tools for the pilot projects
- to validate the approach through structured piloting of its quality management approach in three different VET entities
- to produce a handbook and other tools to support the quality management of peer-produced e-learning content
- to organize a set of training sessions and seminars to support the quality management of peer production of e-learning.

It has been determined that the results of the project are of interest to a wide variety of stakeholders, including:

- training professionals: people working as or with trainers
- peer producers: anyone collaborating to produce digital content for learning purposes. The nature of peer produced content means, that all peer producers effectively have the status of learners or students
- quality assurance specialists: it is envisaged that the results of this project would be particularly interesting to QA specialists working in the fields of VET and/or e-learning, and therefore they will be prioritised by the project
- training system managers in companies / public administration: this group includes anybody who is responsible for the purchasing decisions regarding training systems, and those responsible for the day-to-day administration of the same systems
- policy makers: this includes policy makers at every level from European administration down to individual educational institutions which are in a

position to make decisions as to policy priorities regarding VET and regarding peer production systems

- Media: including academic journals, mainstream media and specialised publications (whether on the web, print, or airwaves)

In order for the QMPP project to be a success, all these groups need to be reached by the partners, so as to familiarise them with the results. So as to be able to do this, the partners are setting up an informal 'QMPP learning community' whereby each of these stakeholder groups are targeted by a different partner, with each group being given the chance to interact amongst itself as with the QMPP consortium.

2. Project Approach

The project tackles the theme of quality production using two related methodologies:

- Desk research and discussion with stakeholders
- Development and testing of quality approaches

The first phase of the project identifies three main areas of activity:

- 'Setting the Scene': creates an understanding of the various useful methods and tools in peer production of e-learning. The key workpackage reviews the various tools, methods and approaches of peer production in e-learning content provision as well as identifies good practices in peer production. This is done through desk research and the collection of good practices by various partners in their own respective environments
- 'Benchmarking Peer Production' identifies key approaches of quality management in peer production of e-learning content by benchmarking peer production practices and processes in other areas such as the creation of technical documentation, joint editing efforts etc. This is done through structured benchmarking of other areas of peer production of digital content, and the organisation of three regional one-day expert panels, which explore the experiences in peer production mechanisms, processes and practices
- 'Designing Supporting Processes for Quality Management' achieves this goal through thematic interviews in selected VET institutions of their accurate needs and experiences and also through the use of expert panels

The Development and testing phase involves three activities:

- Development of a draft for a quality handbook
- Piloting the draft in four VET institutions in day to day peer production activities
- Evaluating the pilots, including through the use of two cross pilot workshops

The European added value of the project stems from three different sources. The first European aspect is that the quality management of peer production is not a national challenge, but rather a European challenge. Thus it is important to create such approaches and mechanisms on the European level and also to share them within various European countries. It could also be assumed that this challenge is not easily met only within one European country – the problem requires a wider basis to be solved-

The second European aspect is the validation of the methods of quality management of peer production of e-learning in several environments. The European consortium can facilitate the work in multiple VET entities and thus the consortium is also able to validate its approaches in various operational environments. This richness could not be reached in a single European country.

The third European aspect is the skills structure in various professions and vocations, which is becoming growingly European. Thus the project is also creating important approaches to the sharing of e-learning content and thus enabling both shorter lead-times as well as lowering costs in e-learning content provision.

Evaluation Approach

The Failure Modes, Effects and Criticality Analysis (FMECA) procedure was used to elaborate part of this Quality Report. A failure modes and effects analysis (FMEA) is a procedure for analysis of potential failure modes within a system for classification by severity or determination of the effect of failures on the system .

FMECA is an extension of Failure Mode and Effects Analysis (FMEA). In addition to the basic FMEA, it includes a criticality analysis, which is used to chart the probability of failure modes against the severity of their consequences. The result highlights failure modes with relatively high probability and severity of consequences, allowing remedial effort to be directed where it will produce the greatest value.

The typical goal, when FMECA is performed as part of a design Project, is to eliminate failure modes with high severity and probability, and to reduce as much as possible those with high severity or high probability. On doing this, the natural result is to potentiate the existing strong points of the process (Project) that would otherwise be held back by the critical weaknesses.

This enables priority ranking by means of the so called Risk Priority Number (RPN) and criticality analysis enables to focus on the highest risks.

The higher the resulting index the more urgent the need to find a solution. In the failure prevention phase, having identified the most urgent failure modes to address by examining the RPN in conjunction with its individual elements, the FMECA team applies creativity techniques to develop solutions to prevent failures from occurring.

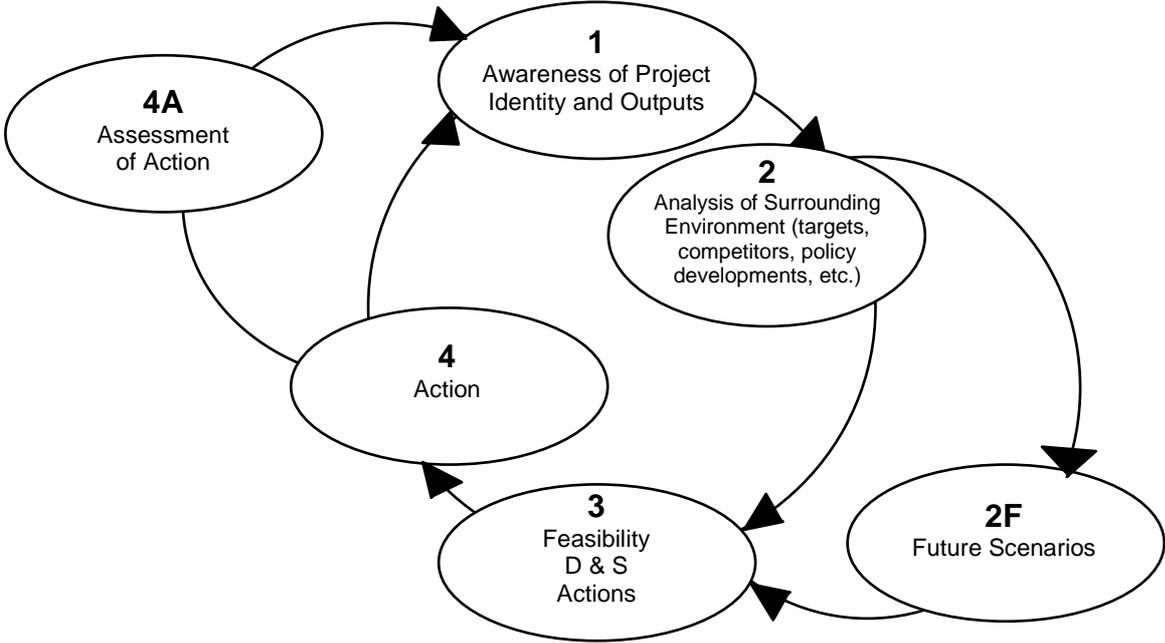
This evaluation approach is implemented through two the production of two quality reports by IAVANTE, which are based on feedback received from the partners and reported through purpose-produced grids.

Dissemination Approach

The project uses strategy uses the SUSTAIN dissemination approach, which was developed by SCIENTER within the framework of a Socrates ODL project. The approach consists of four distinct phases namely:

- Awareness of the project identity and its outputs
- Analysis of the surrounding environment
 - o Including analysis of future scenarios
- Feasibility of Dissemination and Exploitation Actions
 - o Including assessment of the actions

This approach is best visualised as following:



The first step of the approach involves elucidating the nature of the project, its outputs as well as target users and stakeholders. From here, the strengths and weaknesses of each part of the project are analysed, and possible future scenarios are extracted. Following this, the options for dissemination actions are considered, in line with the resources and priorities of the project. After this preparation phase, the actions themselves are held, also taking into account the opportunities which might be found by embedding them into already existing events.

The approach envisages that assessment activities will be carried out together with the actions, which in turn will feedback into the cycle, thus ensuring a continually current plan which is up to the needs of the project.

3. Project Outcomes & Results

The project has produced two main reports so far, being:

- Setting the Scene
- Benchmarking Peer Production

These can be downloaded from the project website at <http://www.qmpp.net>

The main result of these reports is the further elaboration of the approach. Within the QMPP project we have developed a metaphor for the effective management of quality in peer production. It includes two important elements - these are the “peer production cycle” and the “supporting activities”.

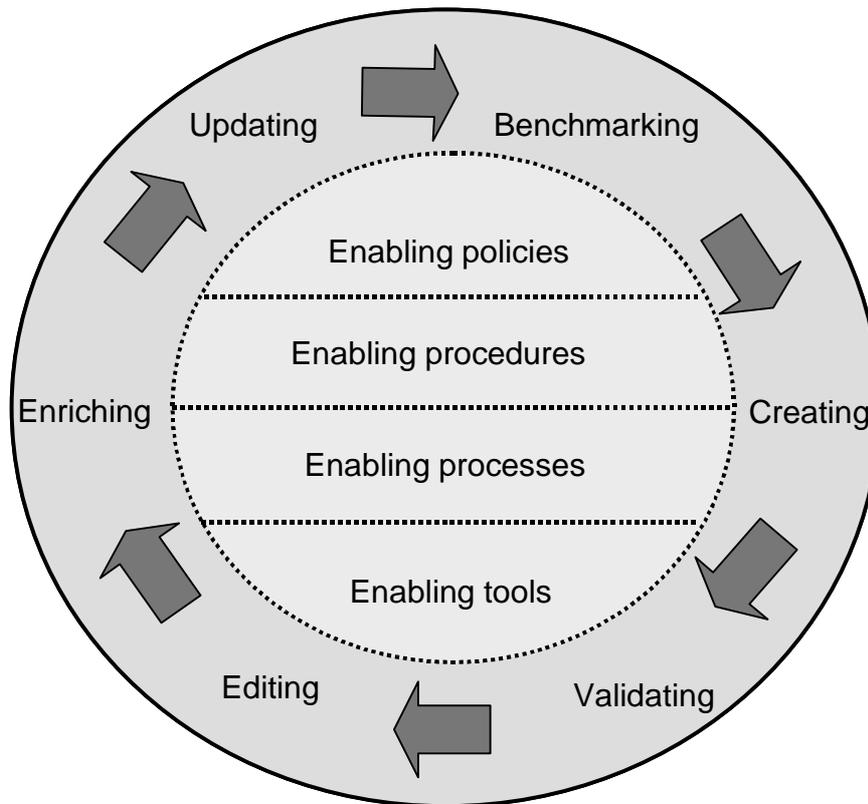
The “peer production cycle” includes the following phases:

- ◆ benchmarking – identifying of good cases and practices, identifying of good digital resources, identifying areas of lacking content, sharing learning experiences by sharing learning (b)logs etc.
- ◆ creating – (shared) authoring of texts and other resources; creating images, audio materials, video materials; creating wikis etc.
- ◆ validating – validating content with subject matter experts, validating content with peers, rating the validity of the content etc.
- ◆ editing – sharing editing responsibilities (from proof-reading to translation), undertaking peer reviews, creating alternative navigational routes etc.
- ◆ enriching – creating additional content materials, publishing individual works and team works, sharing or learning (b)logs, adding library links, social bookmarking, creating wikis etc.
- ◆ updating – monitoring existing content, updating existing content, adding specific area content etc.

However, as stated previously, it is obvious that organizations favouring peer production must also have enabling and supporting structures. These should include the following:

- ◆ enabling policies – organizational opportunities for peer production of content (such as time resources allocated for peer production), management support for peer production, access to various digital resources to be used in content production etc.
- ◆ enabling procedures – organizational support for peer production, guidelines for peer production and peer reviews, guidelines of intellectual property rights, agreement on compensation policies etc.
- ◆ enabling processes – practical support of peer production, agreed and supported processes and workflows for peer production
- ◆ enabling tools – joint and shared tools to be used in peer production to provide effective and fluent collaborative work.

These essential elements are summarized below:

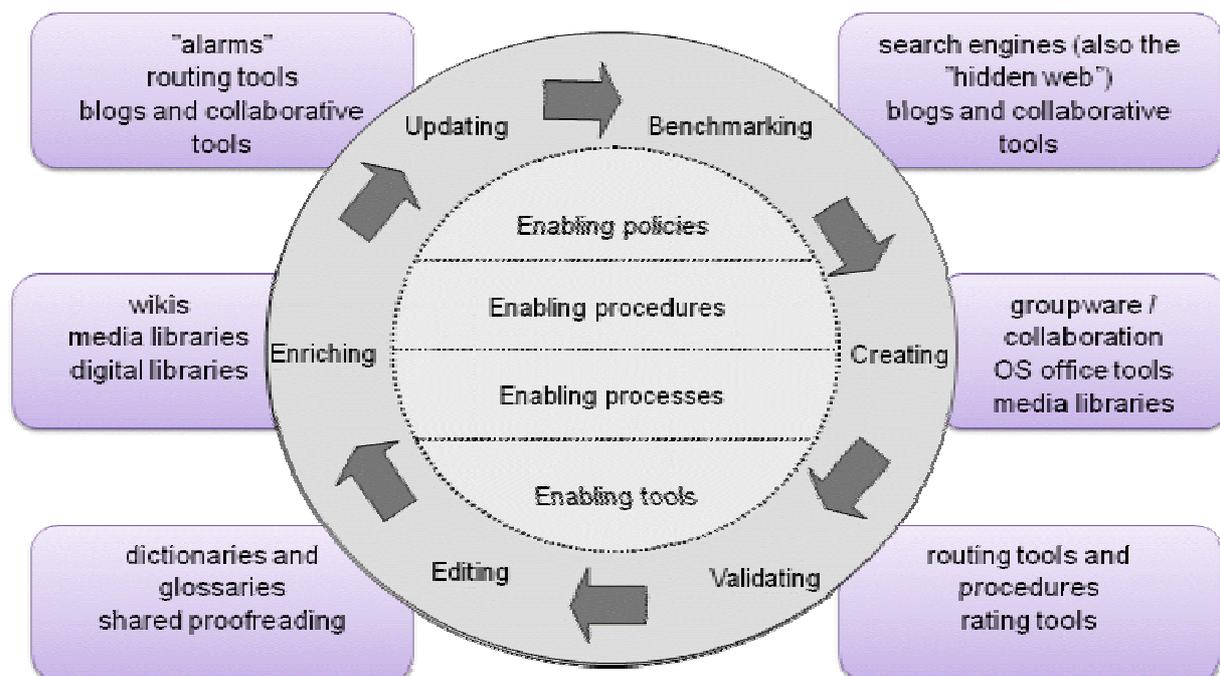


At this stage it should also be emphasized that in real life these stages are not linear or directly sequential. In the creation phase there is naturally authoring, re-authoring etc. – thus it can rather be seen that in each phase there are subphases. Also it is obvious that, for instance, after the validating phase the creation phase is restarted and better content is provided for the validation. It is important to note that in the contemporary Internet environment these phases can be really fast and that the user communities can react really rapidly, if needed.

Existing tools for peer production

It should be noted, however, that in many cases there are already existing good practices (and also open source tools), which have already been tested in various environments. This project is not aiming to develop own tools or toolsets. Rather the challenge is to bring together and integrate the various tools and approaches into a working model and solution, which can easily be utilized within various organizations.

The picture below visualizes the various phases of the “peer production cycle” and points out some of the already existing practices.



Quality challenges in peer production

The emphasis of the QMPP project is in testing and validating through the pilot the real challenges and opportunities of quality management in peer production of eLearning.

For the design of the experiments in piloting, it is necessary to identify the key issues in different phases. The following table summarizes the quality management challenges in each phase.

Peer production phase	Key concerns and key questions	Existing approaches and tools
Benchmarking	<ul style="list-style-type: none"> ▪ What content do we need for our learning activities? ▪ Is the required content already existing in a usable and available form? ▪ Can we access and use the content? ▪ Can we edit and enrich the content? ▪ Which obligations do we have with the existing content? ▪ How can we be sure of its quality? ▪ Are there (peer) references of the content? 	<ul style="list-style-type: none"> ▪ Search engines of the Internet ▪ Search engines of the "hidden web" ▪ Blogs ▪ Social bookmarking ▪ Various user groups

Peer production phase	Key concerns and key questions	Existing approaches and tools
Creation	<ul style="list-style-type: none"> ▪ What content do we want to create? ▪ What kind of a guiding structure for the content do we provide? ▪ What type of support do we provide for the creators? ▪ What is the division of labour between the different actors? ▪ How do we create the content? ▪ What routing of the work do we use? ▪ What is the timeframe of the content creation? ▪ How do we ensure the quality of the created content? ▪ Who can create content (open access vs. qualified peers)? ▪ How do we make sure that no third party IPRs are violated? ▪ How do we ensure the IPR issues? ▪ How do we ensure the media richness and attractiveness of the content? ▪ Which media will we use in presentation and how do we ensure the required media balance? 	<ul style="list-style-type: none"> ▪ (Open source) word processing and office tools ▪ Groupware tools ▪ (Open source) visualization tools ▪ Tools for podcasts, video casts etc. ▪ Media libraries ▪ Wikis and other structured environments
Validation	<ul style="list-style-type: none"> ▪ Who should validate the content? ▪ Which mechanisms are we using in the validation (e.g. expert review vs. peer review)? ▪ How do we ensure the feedback of the validation to the creators? ▪ How do we support the validation work? ▪ What is the timeframe for validation? 	<ul style="list-style-type: none"> ▪ Routing tools ▪ Rating tools (e.g. giving "stars" to the content) ▪ Groupware tools ▪ Direct editing to the wikis

Peer production phase	Key concerns and key questions	Existing approaches and tools
Editing	<ul style="list-style-type: none"> ▪ What kind of editing are we promoting? ▪ Who is entitled to edit the content (experts vs. all)? ▪ How do we share responsibilities of the editing work (e.g. voluntary division-of-labour vs. free access)? ▪ How do we support the validation work? ▪ Is the versioning a part of editing (e.g. making language versions)? ▪ How is the editing work validated? 	<ul style="list-style-type: none"> ▪ Dictionaries and glossaries (to support e.g. proof-reading) ▪ Groupware tools ▪ Direct editing to the wikis
Enriching	<ul style="list-style-type: none"> ▪ What kind of enriching are we promoting? ▪ How do we enrich the existing content? ▪ Who is entitled to enrich the content (experts vs. all)? ▪ How do we support the enriching work? ▪ How is the enriching work validated? ▪ Which media can be used in enrichment (e.g. podcasts, video casts etc.)? 	<ul style="list-style-type: none"> ▪ Wikis ▪ Social bookmarking and shared bookmarks ▪ Digital libraries ▪
Updating	<ul style="list-style-type: none"> ▪ How do we make sure that our content is up-to-date? ▪ How do we organize updating? ▪ Who is responsible for updating? ▪ What kind of updating are we promoting? ▪ Who is entitled to update the content (experts vs. all)? ▪ How is updating validated? 	<ul style="list-style-type: none"> ▪ Routing tools ▪ Alarms (e.g. based on calendars) ▪ Blogs ▪ Groupware

As one can understand, this table is not complete, but it serves as a working metaphor for the pilots to start the planning of their work and their key issues.

However, it should also be emphasized that the “inner circle” is also important in the quality management of peer production. Thus the issues of the organizational support are essential in making “quality happen”. The table below summarizes some of the key issues in the enabling and supporting structures of peer production.

<i>Enabling and supporting structures</i>	<i>Key concerns and key questions</i>
Enabling policies	<ul style="list-style-type: none"> ▪ How do we organizationally support peer production? ▪ How do we allocate time to peer production? ▪ How do we provide access to all needed resources, including digital resources? ▪ How do we compensate/award peer production? ▪ How do we ensure the appropriate approach to the IPR issues?
Enabling procedures	<ul style="list-style-type: none"> ▪ How do we organize the support to peer production? ▪ What guidelines do we provide for peer production in its various phases? ▪ How do we ensure required resources to support peer production (e.g. validators of content)?
Enabling processes	<ul style="list-style-type: none"> ▪ How do we communicate of the options of peer production? ▪ How do we support the workflows in peer production?
Enabling tools	<ul style="list-style-type: none"> ▪ What tools do we provide for peer production? ▪ Which tools do we actively support?

The challenge of quality management in peer production is interesting. As peer production as a mechanism also to produce eLearning materials and content will grow fast, the appropriate quality mechanism can also ensure that peer-produced eLearning materials and contents will reach wider audiences.

4. Partnerships

The consortium for the project is a balanced selection of both active developers of e-learning methods and content as well as VET entities undertaking vocational education and training using novel methods and approaches. The range of consortium partners include Northern Europe, Central Europe and Southern Europe. However, although the consortium represents well various areas of expertise, it is still kept relatively small by size to ensure fluency in work and accurate level of participation of each partner.

The activities within the consortium have been allocated according to the previous work references as well as interest expressed by the various members of the consortium. However, it is important to highlight the complementary competences of the consortium members. The various partners are also be responsible for the actual organisation of the local activities (national/regional expert panels as well as thematic interviews).

The members of the consortium are as following:

- HCI Productions Oy (Contracting Partner) - Finland
- SCIENTER (Coordinating Partner) – Italy
- European Foundation for Quality in ELearning (EFQUEL) – Belgium
- Association of Finnish eLearning Centres (FeLC) – Finland
- SCIENTER Espana – Spain
- University of Macerata - Italy
- FIM New Learning (within the University of Erlangen) – Germany
- IAVANTE Foundation – Spain

5. Plans for the Future

It is suspected that the capacity of learners is still an underutilised force in the provision of learning materials. As the accessibility (in terms of physical access as well as in terms of ease of use) of ICT tools to enable peer production continues to increase, novel methods of learning will continue to be developed.

This in turn will lead to increased adoption of such systems and technologies within education institutions, and will likely also vastly increase the role of non-formal learning within a lifelong learning environment. As these changes occur, further demands will come from higher and/or vocational education institutions as well as from employers for methods to verify the quality and scope of such learning. Thus, the demand for the methodologies being developed in this project is considered to be high moving into the future.

Furthermore, it is recognised that this project is a first step, both in terms of development of such methodologies as well as in the implementation of them in learning environments. It is therefore envisaged that:

- ◆ there will be scope to conduct further research and testing in these types of learning environments
- ◆ the demand for such types of quality management will also lead to a demand for training in quality management techniques
- ◆ the entire field of collaborative learning is a growing academic field, and there will be a hunger for more academic materials
- ◆ there will be demand for consultancy services to implement such systems in already present peer learning systems
- ◆ there will be an increased demand from educational institutions (whether public, private or in continuing education) to incorporate peer learning activities in their curricula

Together, these projections present significant opportunities for future work in this topic by the consortium, both from an academic and a financial viewpoint. So as to be able to quantify this and decide on steps forward, a commercialisation/sustainability plan will be developed in the final 6 months of the project.

6. Contribution to EU policies

The project was designed with the following objectives in mind:

- To support the development of innovative ICT based content, services, pedagogies and practice for lifelong learning: Although peer production has been recognized as an important factor in e-learning content creation especially in regard with the new Web 2.0 tools (such as Wikipedia, social bookmarking, Slashdot.org etc.), the conceptualisation how to manage and organise peer production has not been widely discussed. The particular interest of the QMPP project is to concentrate on the peer production of e-learning content. Thus, the project helps the importance of peer production of e-learning content to grow especially in the sector of vocational education and training as well as in professional continuing education.
- To support improvements in quality and innovation in vocational education and training systems, institutions and practices
The overall aim of QMPP project is to accelerate the creation of peer-produced e-learning content by providing a methodology to manage its quality. The specific aim is to develop in various VET entities a solid approach, methodology and toolset on how to organise and support the quality management process of peer-produced e-learning content. The target groups are VET entities using e-learning in their various programs, and in particular, the e-learning managers, teachers, and supporters. Thus, these beneficiaries can enjoy the benefits of peer production both by the increasing number of potential learning material developers but also utilise the potential of the learners in content creation and editing process.
- To promote ICT-supported learning, combination of ICT-based learning with other modes such as learning groups, family learning or tutoring and transnational virtual study circles
Peer production – and thus learner-created content – in e-learning is the core of the future e-learning provision. This focus also supports the empowerment of e-learners in vocational education and training in their development from passive receivers of e-learning content towards active producers of content of their specific knowledge areas. The e-learners have been empowered to utilise their professional skills in sharing their knowledge to other peers. In contemporary work information and knowledge selection, creation, and updating are critical skills in all professional areas. Thus QMPP will also contribute partially to the competence development of the peer learners by sharpening their knowledge selection, creation, and editing skills.