



COMPETENCES FOR ACCESS TO THE CONSERVATION- RESTORATION PROFESSION

E.C.C.O.

European Confederation of Conservator-Restorers' Organisations



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IMPRESSUM

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Lastly, thanks are due to the entire E.C.C.O. committee for the intellectual freedom and vigour which was so generously and voluntarily made available to this project. It is hoped this work serves as a useful reference point in the constantly evolving field of Conservation-Restoration.



INTRODUCTION

This booklet presents the work conducted by E.C.C.O. on defining the competences required to enter the profession of Conservation-Restoration. It is based on existing definitions of Conservation-Restoration (E.C.C.O. 2009) and the recognition that the Conservator-Restorer has a public responsibility to contribute to the preservation of cultural property and dissemination of related knowledge for the benefit of present and future generations.

The final report, printed in full, was ratified by the General Assembly, in Brussels, June 2010. It combines the concept mapping technique with the language of the European Qualifications Framework (EQF) to create a framework that describes the areas of competence required for access to the Conservation-Restoration profession and legitimate use of the title. This is expressed through the rubric of knowledge and skills. Competence is defined as the combination of knowledge and skill together with experience that allows the professional Conservator-Restorer to deliver work consistently and responsibly. E.C.C.O. proposes that it is exactly this combination exercised in the discrete areas of activity described in the framework representing EQF level 7 (equivalent to a Master's degree) that defines the level required to become a Conservator-Restorer. As such this represents the point at which an individual starts to develop as a professional.

Impact of this work

The advantage of the approach adopted by E.C.C.O. lies in the broad applicability of its results. Regardless of specialism, a Conservator-Restorer will be able to recognise the level and scope of professional competence required in each area of the framework. This provides the opportunity for comparison between the requisites for professional competences as they are mapped by E.C.C.O. and as they may be applied in reality. Comparisons can be made on an individual basis, in the delivery of educational programmes or as a guide for the membership of a professional organisation. The real value in mapping and evaluating the activities of the Conservator-Restorer, however, is in the identification of the special skill, knowledge and experience that gives this person the authority to act directly on the cultural heritage.

Intended use

A great deal of interest has already been expressed towards the work presented in this document from a broad spectrum of interested parties, including: the practising Conservator-Restorer, professional bodies and educational institutions. While this work is relevant to a great many people and institutions operating in the cultural heritage section, it is primarily intended for E.C.C.O. member organisations. It is hoped that this work will promote an active debate about the competences required to enter this constantly evolving field. For this reason the E.C.C.O. committee proposes to review this work after a period of five years during which time responses from its membership and further afield will be welcomed.

THE FINAL REPORT

The E.C.C.O. committee was mandated by delegates at the General Assembly held in March 2008, to propose entry-level competences and proficiency of a person qualifying to use the title of 'Conservator-Restorer'. In accordance with E.C.C.O./ENCoRE guidelines (E.C.C.O. 2004) this corresponds to the descriptor given in the European Qualifications

Framework (EQF) level 7, which equates to a postgraduate academic Master's degree. The work supports the delivery of the professional Conservator-Restorer qualification through an academic route but it is acknowledged that there are other routes into the profession that provide a similar level of skills, knowledge and competence.

In addition to the central piece of work that is reported here, the proposed competences for access to the Conservation-Restoration profession, the proficiency levels at Bachelor's degree and PhD are also suggested. This completes the typical range of academic qualifications encountered within the field of Conservation-Restoration and are equivalent to European Qualification Framework levels 6 and 8. They represent the intermediate goals of an education programme and the extended goals of lifelong learning that a professional should aspire to.

In order to fulfil its mandate, the working group agreed the following principles:

- Proficiency required for undertaking Conservation-Restoration work is informed by current professional practice.
- Access to the profession begins at level 7, and the Conservator-Restorer title is reserved for this level or above.



- Individuals work in the field of Conservation-Restoration but do not have the right to use the title Conservator-Restorer. In defining the competences of the Conservator-Restorer other practitioners in the field of cultural heritage may share some of the competences and be able to locate themselves relative to this profession – for example: Conservation Scientist and Technical Art Historians.
- E.C.C.O. sees ENCoRE, together with education providers, as responsible for learning outcomes. It is E.C.C.O.'s role to articulate the professional profile and to set the standard of competence for entry into the profession. Competence in this context is the ability to achieve and deliver work of a consistently high standard within one's specialist field.
- E.C.C.O. sees the Conservator-Restorer as a specialist in the cultural heritage sector which includes many different participants and stakeholders. Each professional group will have specific roles within the field of cultural heritage.

The work presented here builds on these principles. The results are presented in such a way as to have the potential to be used as a professional assessment tool, either by individuals or organisations. Level 7 is fixed in terms of entry into the profession and is accompanied by the specific Conservation-Restoration descriptor as ratified by the E.C.C.O. GA in Sofia 2009, descriptors for levels 6 and 8 are also proposed.

BACKGROUND

The Bologna Agreement, resulting from a meeting of the Ministers of Education of EU member states in June 1999, led to the establishment of a common European Higher Education Area (EHEA). Its aim is to improve the efficiency and effectiveness of higher education in Europe. What is now referred to as the Bologna process unifies the European higher education structure and demands that each education programme is described in terms of the qualification it provides and its organisation. The aim is to calibrate and make transparent the different levels and types of qualifications available in all third level educational institutions throughout Europe by 2012. It is therefore necessary for European bodies, such as E.C.C.O., to define the access requirements for their individual professions from which the levels and types of qualifications can be developed.

By 2012 all educational programmes must articulate their goals in terms of learning outcomes. This reflects a shift in the delivery and appraisal of education from a teacher-centred approach to a student-based one that expresses the outcome of a course of study in terms of what the student is expected 'to know, understand and be able to demonstrate after completion of a process of learning' (European Commission 2009:13)

The general descriptors for levels 6, 7 and 8 as expressed in the European Commission document 'Towards a European Qualifications Framework for Lifelong Learning', were interpreted from a professional standpoint.

'Each of the reference levels in an EQF requires a description of what is distinctive about qualifications that are classified at that level' (SEC 2005:16). These are known as descriptors and are interpreted through the rubric of knowledge, skills and competence across the eight levels of the EQF.





This rubric is distinguished across these levels through a differentiation in scale of cognition or learning, level of skills and competences.

The first five EQF levels correspond to school education, the last three correspond to what is commonly understood to be a 3-year undergraduate Bachelor degree education programme (level 6), a 2-year postgraduate Master's degree programme (level 7) and a 3 year doctorate research programme (level 8). As yet post doctorate development is not included in this scale and there is no mechanism for recognising lifelong learning on this scale.

LIFELONG LEARNING/ACCREDITATION

The EQF is interpreted at national level through respective National Qualifications Authorities where it is stressed that recognition of levels 7 and 8 can only be verified/certified through nationally accredited educational institutions. The granting body for the validation of level 7 must therefore be a university or other official higher education establishments.

The Recommendation on the establishment of the EQF for Lifelong Learning was formally adopted by the Council of Europe and European Parliament in April 2008. Under this recommendation member states are encouraged to promote the validation of Lifelong Learning. 'It is only when member states have accepted to validate such informal learning that classification in one of the EQF levels will be possible'. While the benchmark for access to the profession using the title 'Conservator-Restorer' is set at Master's degree (EQF level 7), informal learning as a route to the profession has been historically recognised by most of the European countries. E.C.C.O. has articulated its Guidelines considering that 'To maintain the standards of the profession, the Conservator-Restorer's professional education and training shall be at the level of a university Master's degree (or recognised equivalent) in Conservation-Restoration'. The training is further detailed in *E.C.C.O. Professional Guidelines III* (E.C.C.O. 2004). To date, in some EU countries, this equivalency has been mediated through the accrediting function of individual professional Conservation-Restoration bodies. Accreditation is recognised as a system of professional self-regulation in its articulation and measurement of standards in professional practice. However where accreditation systems are in operation, they are not calibrated with the EQF levels. This document represents a starting point from which this work might be done.





DIRECTIVE 2005/36/EC ON THE RECOGNITION OF QUALIFICATIONS / THE EQF

It is noted for the purposes of this document that the Directive 2005/36/EC (European Parliament 2005) is a legally binding instrument and takes precedence over the EQF. This Directive affects regulated and non-regulated liberal professions in

its recommendations on the mutual recognition of these same professions. Article 12 of the Directive makes recommendations on the recognition of Lifelong Learning once a Member State has accepted its validation.

The Directive uses five levels in which to classify qualifications in contrast to the EQF which has eight levels. The quinary stratification of the Directive has the effect of creating a much broader range between the levels into which qualifications fall. It is not, therefore, as precise a tool as the EQF in calibrating qualifications. Its purpose is to allow for the easier transit of the migrant worker within his/her professions across European borders, by directing for these equivalencies/comparisons of qualification to fall into wider categories. The Directive addresses professional compensatory measures that are allowable in the host country and takes into consideration the regulatory effect of professional bodies.

TOWARDS AN EUROPEAN RECOMMENDATION FOR THE CONSERVATION-RESTORATION OF CULTURAL HERITAGE

E.C.C.O., with the support of ICCROM, has prepared a draft for a *Recommendation on the Conservation-Restoration of Cultural Heritage in Europe*. The work was carried out with the participation of ENCoRE and includes an annexed charter, which defines the terms used in Conservation-Restoration.

This draft 'comes within the scope of the regulatory framework developed by the Council of Europe in relation to the conservation and preservation of cultural heritage' (E.C.C.O. 2009:6). It could create a framework 'capable of promoting a dynamic process for implementing [Conservation-Restoration] principles guiding the recognition and protection of cultural heritage in Europe' (E.C.C.O. 2009:7). The draft text links into other resolutions and conventions adopted by the Council of Europe such as the Convention for the Safeguard of the Architectural Heritage of Europe, adopted in 1985 (CoE 1985), the European Convention for the Protection of the Archaeological Heritage (revised), adopted in 1992 (CoE 1992) and the Framework-Convention on the Value of Cultural Heritage, adopted in 2005 (CoE 2005).

This text details the nature of Conservation-Restoration in the safeguarding of cultural heritage and identifies Conservation-Restoration 'as one of the essential factors in ensuring its (cultural heritage) transmission to future generations' (E.C.C.O. 2009:9). The document stresses that 'high quality interventions on cultural heritage can only be ensured through systems of professional qualification including continuous professional development as the basis for recognition of the people, firms and organisations in charge of Conservation-Restoration' (E.C.C.O. 2009:9). E.C.C.O. considered this as the guiding principle for its involvement in defining the EQF descriptors and articulating the competences for the profession. By interpreting the generic descriptors given in the EQF, E.C.C.O. is working to guarantee that conditions of access to and exercise of the profession are calibrated at the correct level.

CONSERVATION-RESTORATION DESCRIPTORS FOR LEVEL 7 (MASTER'S DEGREE)

As stated earlier it was unanimously agreed at the E.C.C.O. General Assembly 2007 that entry point to the profession, as defined by this organisation's *Professional Guidelines* (E.C.C.O. 2004), corresponded to EQF level 7. The first challenge for the working group was to examine each of the three generic EQF descriptors at this level and then to interpret them in terms of access to the profession. The immediate result would ideally have articulated the knowledge, skills and competences in the generic language of the descriptor at that level. This however proved to be difficult.

The potential problem of a direct approach to defining the descriptors for education and access to the profession became immediately apparent. A single statement would be too general to be meaningful and would run the risk of becoming at once both prescriptive and outmoded from the outset. Furthermore, there is a distinct danger that simple statements of knowledge, skills and competences might lead to the access level becoming too rigid, and thus possibly becoming an impediment to the creation of new knowledge, hindering the development of the profession.

These concerns led to a more fundamental examination of both the EQF and the professional role of a Conservator-Restorer. It brought to the forefront the hierarchical structure of the EQF, namely increased knowledge, skills and competence as learning proceeds, which presents the process of learning as an ascent through the levels. An examination of this process, exemplified by the increasing complexity of the generic descriptors, allowed the paradigm of expanding knowledge, skills and competence as it correlates to the appropriate access points for the profession to be explored. As a result the area and boundaries of knowledge, skills and competences in absolute terms required by the individual within a particular set of circumstances is not defined within this framework. Rather, the eligibility of someone entering the profession is expressed as: possessing the appropriate level of knowledge, skill and competence necessary to

accept responsibility for Conservation-Restoration within a certain specialism or discipline and within the profession's ethical norms.

The meeting held on 20th February 2009 between delegates of E.C.C.O. and ENCoRE discussed how the EQF generic descriptor for level 7 could be interpreted for the Conservation-Restoration profession. This formalised the approach of the two different organisations in that it was agreed that E.C.C.O.'s mandate is to approach the descriptor in terms of entry to the profession whilst ENCoRE's is to approach it in terms of the education needed to meet that entry requirement. For the purpose of this document each generic descriptor category for level 7 is quoted, followed by an interpretation that was jointly agreed by E.C.C.O. and ENCoRE.

At Level 7, the EQF requires:

Knowledge: Highly specialised knowledge, some of which is at the forefront of knowledge in a field of work or study, as the basis for original thinking and / or research. Critical awareness of knowledge issues in a field and at the interface between different fields. (European Communities, 2008:12)

Both E.C.C.O. and ENCoRE interpret *highly specialised knowledge* as the knowledge in an area of Conservation-Restoration that is only attained following an education that is 'an appropriate balance of integrated theoretical and practical teaching...' (ENCoRE 1997, clause 6). We interpret *critical awareness of knowledge issues in a field* as the ability to acquire knowledge, evaluate its validity and reliability, and apply it, in order to justify all decisions subject to the Conservator-Restorer's own area of specialisation, and if required to carry out or manage actions stemming from these decisions. This translates into a *highly specialised knowledge* of the principles, theories and practices of Conservation-Restoration within ones specialism/field, an *advanced knowledge* within the fields that are adjacent to ones specialism and a *comprehensive knowledge* of the cultural heritage sector in general.

Skills: Specialised problem-solving skills required in research and/or innovation in order to develop new knowledge and procedures and to integrate knowledge from different fields. (European Communities, 2008:13)

Both E.C.C.O. and ENCoRE interpret *specialised problem-solving skills* to mean a level of ability to practice Conservation-Restoration informed by *highly specialised knowledge* and governed by ethics. This is required to find, adapt or create new knowledge and procedures within the boundaries of the profession.

It includes an ability to observe, collect and critically analyse relevant information in order to reach appropriate conclusions and carry out a course of actions; the ability to continuously analyse and evaluate the situation and the process in order to adjust where needed; the ability to integrate knowledge from different fields, and the ability to create new knowledge and procedures where they arise; the ability to communicate knowledge.

A proficient level of manual dexterity and sensitivity must be demonstrated in the field of specialisation which may also be transferable or shared between other specialisations within relevant fields. This equates with a cognitive ability to carry out familiar processes within a given specialisation, which enables unfamiliar processes to be attempted. It includes a high level of familiarity with methods, materials, tools and instruments within the given specialisation and the ability to adapt and develop new tools and methods.

Competence: Manage and transform work or study contexts that are complex, unpredictable and require new strategic approaches. Take responsibility for contributing to professional knowledge and practice and/or for reviewing the strategic performance of teams. (European Communities, 2008:13)

Both E.C.C.O. and ENCoRE consider the Conservator-Restorer to be competent when he/she has gained the necessary skills, knowledge and experience to operate within his/her specialist field and in accordance with the ethical and practical boundaries of the profession. This represents the ability to work consistently and responsibly, with appropriate caution within ones field as a whole, and involves the application of knowledge and skills as represented earlier. It includes the ability to use existing Conservation-Restoration concepts, create new strategic approaches and apply their principles and ethics in a variety of situations.

PROFILING THE PROFESSION

This section systematically develops a description of the level of knowledge, skills and competence required for anyone entering the Conservation-Restoration profession. It represents the point at which a person can legitimately use the title of Conservator-Restorer. It also represents, typically but not exclusively, the end of a postgraduate academic Master's degree and the start of a professional career. Although E.C.C.O. recognises that people graduating from a recognised education programme at Master's level may wish to and will be qualified to take on different roles within the cultural heritage sector, for example collections management, this document focuses specifically on the Conservation-Restoration professional.



Through the profiling of actions that determine the nature of our work a conceptual map is proposed. This examines Conservation-Restoration in terms of a decision making process which seeks to 'secure the transfer of maximum significance from past to future for the benefit of all people everywhere' and 'involves managing change [...] through negotiation' (Staniforth 2002) with stakeholders and other professionals in the cultural heritage sector. It firmly identifies Conservation-Restoration as an integrated part of the management of cultural heritage which informs how it is preserved. The competences that are required are therefore located against this background and the framework constructed to reflect this situation. It explicitly acknowledges the need for research and documentation at every stage of the decision making process (see also E.C.C.O. 2001), which are some of the guiding principles of professional Conservation-Restoration and which gives it its academic status. Manual dexterity in the practical application of diagnostic techniques and the execution of conservation and restoration treatments, as an essential requisite of professional practice, is measured in terms of skill. Almost everything a Conservator-Restorer does contains an element of skill.



A colour coded scale of skill has been proposed by E.C.C.O. which has been used to evaluate all actions, across the framework.

The framework describes the Conservation-Restoration process as it evolves through examination and diagnosis leading up to direct intervention or preventive action if required, after which post-intervention processes are considered. They are presented diagrammatically as a central spine representing analytical progression which follows accepted ethical principles and from which the various activities emerge.

Each stage is considered to be governed by professional ethics and the imperative to document which may lead to the dissemination of new knowledge which as activities in their own right, are also evaluated. The sub activities can be added to the spinal steps, shown in the expanded conceptual model below (see Figure 2)

The Conservation-Restoration process (marked in blue requires the following steps (marked in red):

- The first step characterising the start of the process involves examination and diagnosis. It involves assessment of the nature of the object, the causes of alteration and the risks that the cultural heritage faces in its current situation.
- This leads to the second step requiring an assessment of needs which includes current use and planned future use.
- The third step involves the selection of Conservation-Restoration activities and the planning and organisation of actions/treatments. It includes consideration of, for example the desired results, level of intervention required, evaluation of alternatives, constraints on actions, stakeholder demands, risks and options for future use
- All of which requires planning and organisation including consideration of health and safety, legislation, insurance, project planning, finance and equipment and facilities
- The fifth and central step is the carrying out of a chosen course of action or treatment. This step encompasses Preventive measures, Remedial measures, Restoration processes and management processes.
- The outcome of which is the Conservation-Restoration result. This includes evaluation of the change in risk, success of treatment or activity and communication of the results. It also includes identification of future actions required to sustain the cultural heritage.
- The seventh step is the aftercare advice which is informed by the future actions that have been identified in the previous step. This may include a schedule of future works and guidelines for care and maintenance.

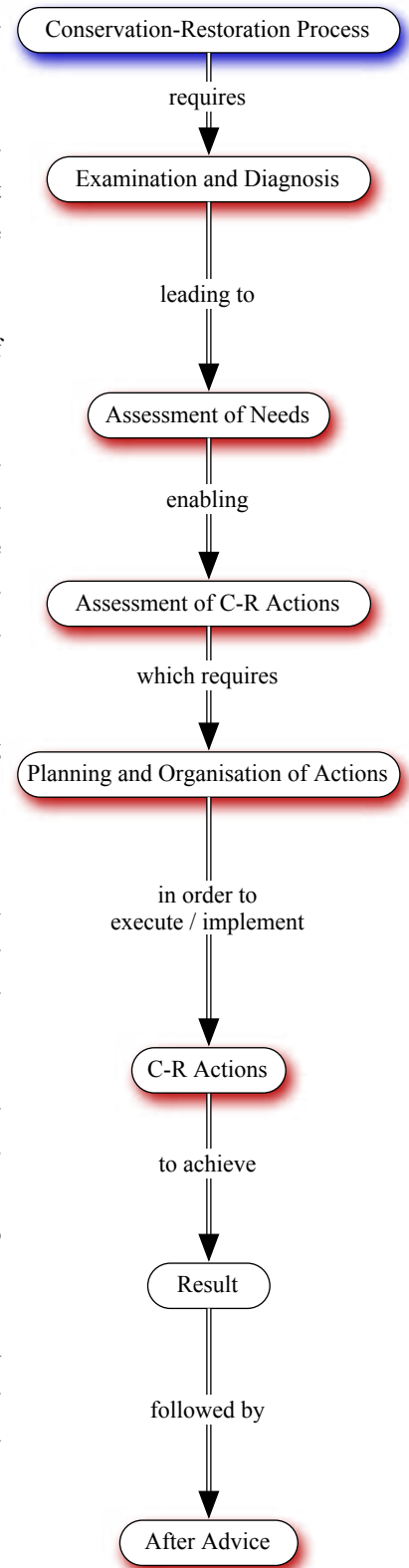


Figure 1: The spinal steps

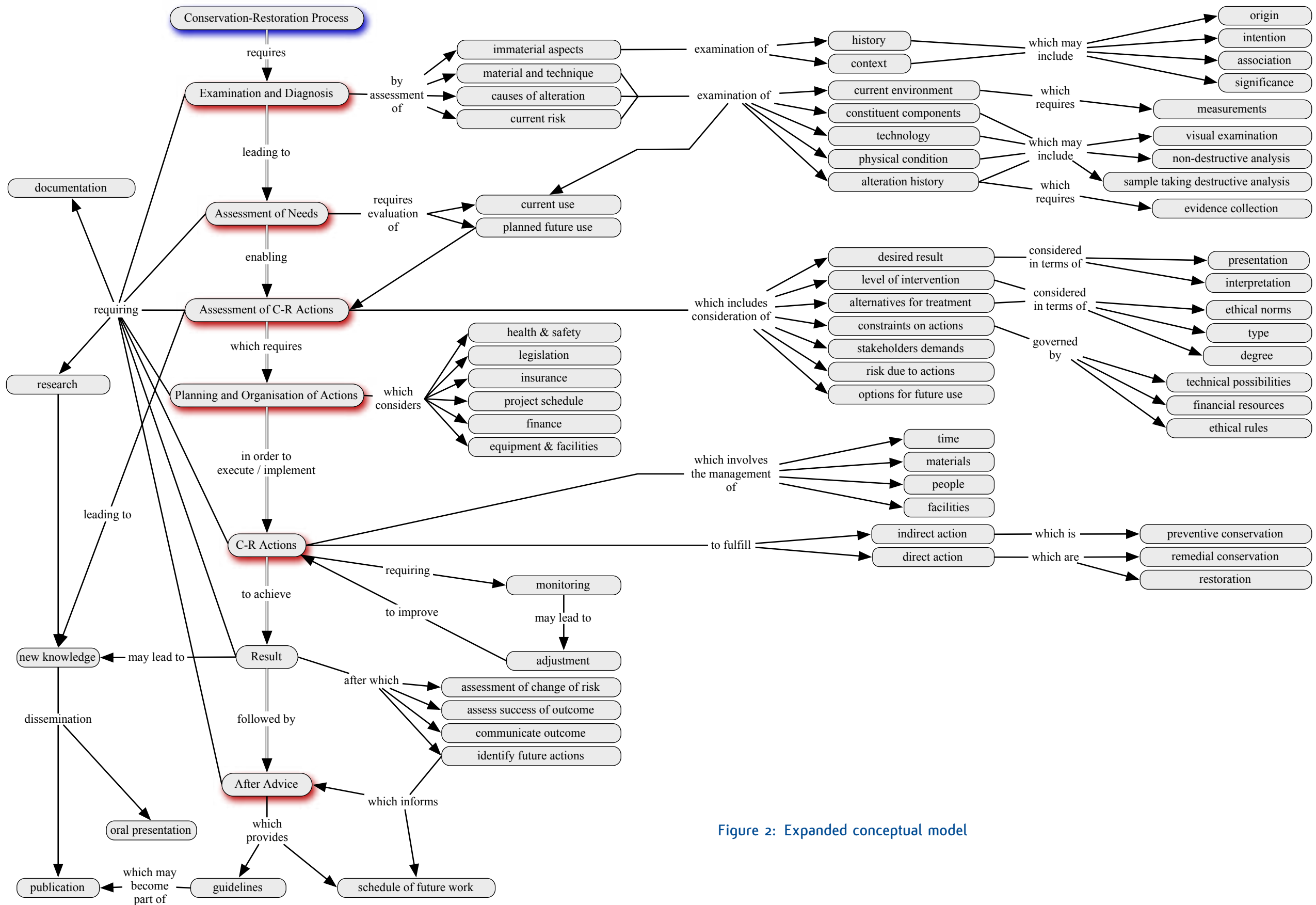


Figure 2: Expanded conceptual model

Evaluation of Knowledge Skill and Competence

This section examines the rubric of knowledge, skills and competence as a hierarchy of learning. The EQF system gives separate descriptors for these three aspects of learning. After detailed analysis E.C.C.O. chose to focus on knowledge and skill because they may be evaluated in their own right. Whereas competence is interpreted as the combination of knowledge and skill together with experience that allows the professional Conservator-Restorer to deliver work consistently and responsibly. The scales used for knowledge and skills are described below.

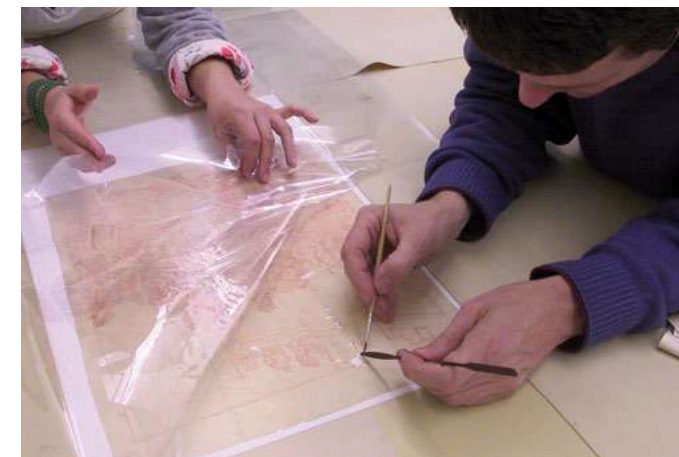
Evaluation of Knowledge

Having identified the activities of the Conservator-Restorer, each needs to be evaluated or interpreted in terms of knowledge content, i.e., the amount of knowledge and the type of knowledge that the working group understands as integral to professional requirements.

The taxonomy developed by Anderson and Krathwohl (2001), based on the original work by Benjamin Bloom (1956), has been used for this purpose. It contains the following knowledge (cognition) scale:

1. **Remembering** – to know something exists and where to find it.
2. **Understanding** – to be able to comprehend something in its context and make associations between things
3. **Applying** – to be able to use knowledge in an appropriate context in order to achieve a desired result in a predictable way.
4. **Analysing** – to be able to apply knowledge in a critical way using a level of awareness that allows one to explain the results, i.e. to reconstruct how the result was achieved. Decision making comes out of analysis, which although coming from the application of an analytical approach lacks experience.

5. **Evaluating** – to apply knowledge in order to measure a situation in terms of its broader context and in relation to determining future outcomes. This allows results to be weighed up in terms of decision-making and a broader managerial context. Evaluation comes from experience.



6. **Creating** – a broad width of knowledge and experience which allows one to extend the boundaries of knowledge. This requires highly developed foresight and meta-cognitive understanding.

The Type of Knowledge is classified as follows:

- A. **Factual** – of or relating to a piece of information presented as having objective reality
- B. **Conceptual** – of or relating to, or consisting of abstract or generic idea generalised from particular instances
- C. **Procedural** – of or relating to a particular way of accomplishing something or of acting
- D. **Meta-cognitive** – transcending (more comprehensive than) conscious intellectual activity – typically exhibited by an experienced practitioner.

Each level is a development in learning behaviour arising directly from the preceding level. Using the above classification systems, each activity box shown in figure 2 has been given a set of coordinates relating to the level and type of knowledge required. In applying the knowledge scale and category it became apparent that level 7 must be determined relative to levels 6 and 8, not only within the scope of formal academic education but also acknowledging the expertise that may be acquired following years of work and continuous professional development (CPD).



Evaluation of Skill

The level of skill required to carry out each activity has been assessed in the same manner. Skill is generally defined as: the proficiency, facility, or dexterity that is acquired or developed through training or experience. It suggests a special ability or expertise enabling one to perform an activity with ease and precision in order to obtain the desired result.

1. **Basic Skill** – is when a person possesses only the ability to carry out basic tasks in a complex Conservation-Restoration process. They are unlikely to possess an in-depth knowledge of any subject area required to carry out the task unsupervised and may not be aware of many of the ethical rules that apply. They operate well within the boundaries that are laid down by the profession.

2. **Intermediate Skill** – is when a person possesses a higher level of skill both in terms of its breadth and

depth. They are expected to possess basic skills across the whole field of expertise, be able to place different concepts within that field, and to have knowledge of the rules. They are able to carry out basic Conservation-Restoration tasks unsupervised and work within a team on complex problems.

3. **Proficient Skill** – is when a person is expected to possess adequate skill to carry out Conservation-Restoration processes autonomously and understands the spirit of the rules that govern that field. They are capable of carrying out tasks and processes to a level that is acceptable within the profession, but may not work as effectively as an experienced Conservator-Restorer and may not possess adequate skill to carry out the most difficult tasks.

4. **Expert Skill** – is when a person possesses a comprehensive ability to carry out tasks and undertake processes within their field of expertise. They are able to also carry out tasks and undertake processes proficiently in associated fields. They will be able to apply knowledge and the understanding of processes in a new and innovative way and will be able to adapt and create new methods within the field of Conservation-Restoration.

Each level has been colour coded on the strategic map.

Starting with EQF level 7, which is entry level into the Conservation-Restoration profession, the level and type of knowledge together with the level of skill was identified for each of the sub-activity boxes. The resulting map is presented below.



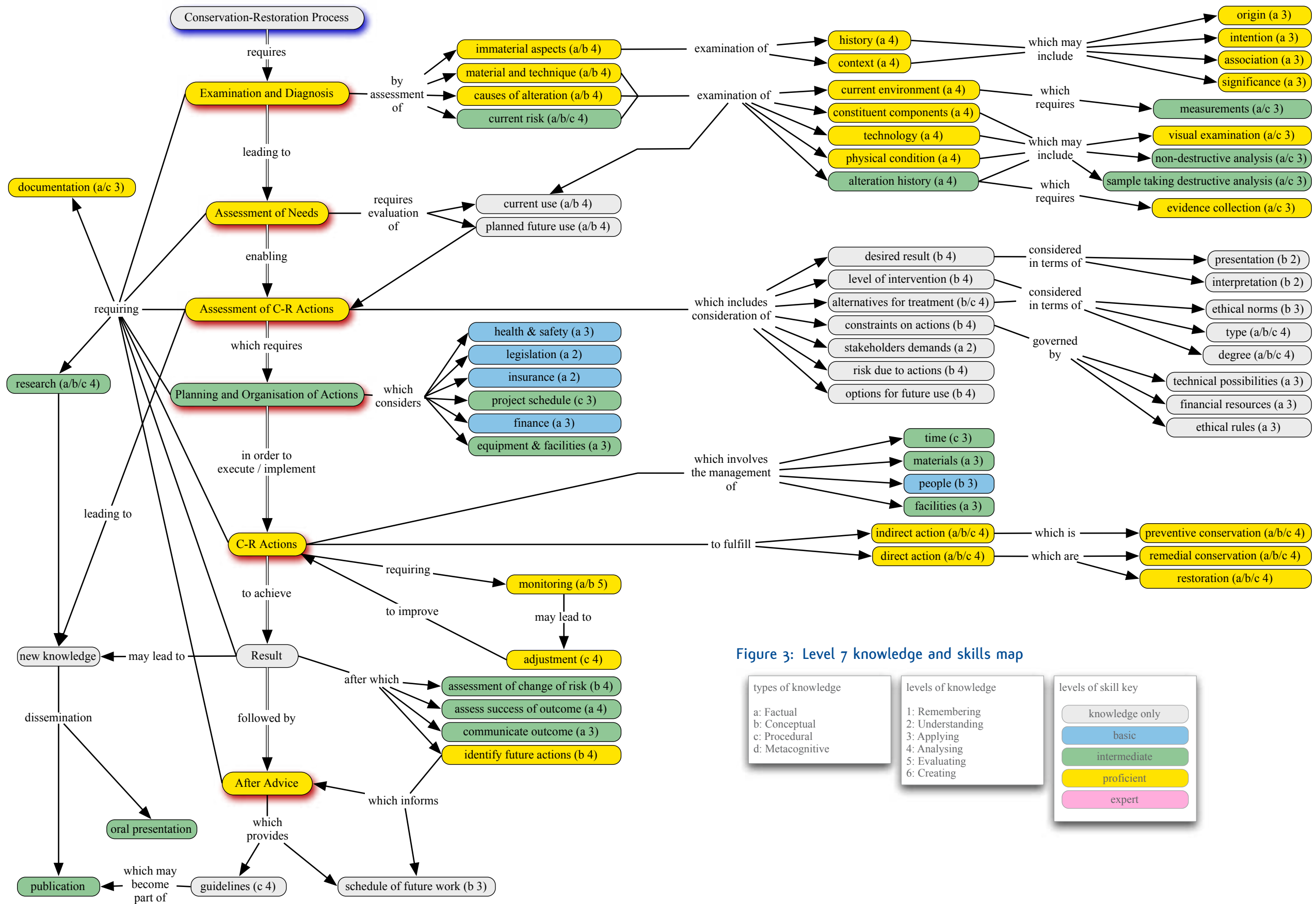


Figure 3: Level 7 knowledge and skills map

types of knowledge	levels of knowledge	levels of skill key
a: Factual	1: Remembering	knowledge only
b: Conceptual	2: Understanding	basic
c: Procedural	3: Applying	intermediate
d: Metacognitive	4: Analysing	proficient
	5: Evaluating	expert
	6: Creating	



EQF LEVEL 7

The map (figure 3) shows that the type of knowledge at this level is mostly conceptual (B) and procedural (C) and that this level of knowledge allows the practitioner to apply their knowledge (3) and

analyse results (4). EQF level 7 is therefore interpreted as working within the range of Conservation-Restoration processes that are well established and familiar, they are only beginning to examine the processes themselves. Someone entering the profession rarely ‘creates’ new ways of addressing Conservation-Restoration problems. The practitioner is not yet an expert in their field as their work is yet to become meta-cognitive. Whilst they possess sufficient critical awareness to change and adjust a process, they may only be able to analyse the results without evaluating the process itself.

Someone with an EQF level 7 qualification entering the profession possesses a range of skill between intermediate and proficient/cognitive, the greatest level of skill is where the Conservator-Restorer interfaces directly with the cultural heritage. The colour coding on the map illustrates this very clearly, the denser areas of yellow correspond directly to the analysis and treatment of the cultural heritage.

The organisation and planning related to Conservation-Restoration work requires an intermediate level of skill for professional good practice, while a basic level of skill in health and safety, legislative issues, insurance and finance is sufficient. It is recognised that management skills are not exclusive to this field but that basic skills are required.

INTERPRETATION OF THE CONCEPT MAP

Concept mapping creates a particular picture of reality representing a situation or phenomenon, thereby identifying the key concepts together with their relevant interconnectivity. It externalises propositions, which facilitates the understanding

of a situation, allowing informational exploration that leads to the uncovering of relational structure. Within the map, shown in figures 2 and 3, each concept is represented by a node, which is identified by a short name. The links have been given a descriptive verb. The combination of nodes and descriptive links form a proposition, which represent a semantic unit. In this case these are meaningful statements about different areas of competence. The links are directional and are labeled with a simple explanation of the relationship, thereby creating a hierarchical structure which moves from the more general central spine to the more detailed extremities. The map can be interpreted in a number of ways:



From the Conservation-Restoration Professional's Perspective

The map makes explicit the processes of Conservation-Restoration, the outcome of which demonstrates the role of the professional Conservator-Restorer as key contributor in the ‘management of change’. It identifies the level and type of competences that are specific to this process and which are required to ensure that cultural significance and physical integrity are revealed and preserved in a measured and qualitative way. For ease of interpretation the map represents these competences as a process in which preventive and remedial conservation and restoration are embedded, presenting professional duty within ethical codes of conduct which demands restraint.



An essential part of the process is the evaluation against professional norms of the quality of both the decisions and actions taken. Although all parts are equally represented within the map, in reality, depending on a given set of circumstances, each area will receive varying levels of consideration. For example if remedial conservation is not required for a particular cultural heritage entity only preventive meas-

ures need be considered. In some circumstances it may not be necessary to carry out detailed scientific investigation of an object or situation where sufficient information is already known. This does not however negate the need for all aspects of Conservation-Restoration to be represented as all must be considered before a course of action is selected. Furthermore, it is expected that all areas will be exercised at one point or another during the course of a typical range of professional duties. If an area is not exercised over a prolonged period of time it may be necessary for an individual to undertake an education programme in order to regain the full set of competences.

One possible use of the map is within an accreditation system. If adopted for this use, the Conservator-Restorer would have to demonstrate that he/she can fulfil the criteria in each discrete area of activity in order to use the title. This would obviously have to be carried out via a formal assessment process. Alternatively, the map can be used by the professional practitioner as a self-assessment tool in order to identify where further professional development is required. Its potential use for the development and evaluation of educational programmes is discussed in the next section.

Within the professional context the concept maps can be interpreted as a narrative sequence demonstrating discrete areas of activity that qualify any intervention, negotiate its purpose and measure its effectiveness or usefulness. In this case it can be read as a linear set of linked areas of expertise as follows:

Examination and Diagnosis

Analysis of the *materials and techniques, causes of alteration* and *current risk* requires factual, conceptual and procedural knowledge executed with an intermediate to a proficient level of skill.

The diagram expands these categories to describe the information and methods of analysis that are available, again seeking procedural knowledge to facilitate implementation and the ability to analyse outcomes. Work to be executed with a proficient level of skill.

Assessment of need

Analysis of *current* and *future use* of the object/collection is based on factual and conceptual knowledge.

Selection of Conservation-Restoration Actions

An informed choice on a course of action is governed by analysis of:

- The *desired outcome*, expressed in terms of presentation and interpretation, which requires conceptual knowledge;
- The efficacy of *alternate treatments*, which requires conceptual and procedural knowledge;
- The *constraints to proposed actions*, which requires conceptual knowledge; understanding the stakeholders demands requires factual knowledge;
- The *risks due to proposed actions*, which requires conceptual and procedural knowledge of treatments;
- The *options for future use*, which requires conceptual knowledge.



The diagram expands on these categories to cover the ethical rules and norms, technical possibilities and financial resources requiring factual, conceptual and procedural knowledge. These are considered to be areas and levels of knowledge with regard to decision making that do not require specialist skill that is above and beyond general transferable skills. Having reached this point it can be argued whether intervention is necessary.

Planning and Organisation of Actions

Considers the application of business and organisational skills necessary to operate as a Conservator-Restorer. This typically requires factual and conceptual knowledge in areas of *insurance, health and safety, project scheduling and accessing equipment and facilities*. Intermediate skill is a level required for those entering the profession.

Conservation-Restoration Actions

Management skills to an intermediate level with regard to *time, materials, people and facilities* are a necessity for anyone entering the profession. This requires factual and conceptual knowledge.

A person entering the profession must be able to apply and analyse the processes associated with Conservation-Restoration treatments, which include preventive and remedial measures and restoration. This requires factual, conceptual and procedural knowledge to a proficient level of skill.

Furthermore in order to operate as a professional one must be capable of *continuously monitoring* procedures and outcomes thereby enabling *adjustments* to be made when necessary. This requires analysis allied to procedural knowledge.

Results

Analysis of outcomes is a requirement of any professional practice. It should include an assessment of the *change of risk* to the object, the *level of success* achieved and the *identification of any future actions*. This requires procedural knowledge.

Aftercare Advice

An important part of the Conservation-Restoration process is the analysis of *future actions*. This includes preventive care and the delivery of relevant *guidelines* for care and use. It requires procedural knowledge. Such work may contribute to *ongoing research and future publications*.

From the Education Delivery Perspective

The map offers a powerful tool for the development of Conservation-Restoration education across Europe. In an established education programme the current curriculum can be examined in terms of the contribution that it makes towards increasing the level of skill and knowledge in a particular area. A picture of the effectiveness of individual parts of a course can thus be built up through the construction of a map that mirrors the map presented in figure 3, which presents the contribution of each element. In the first instance this can be done via the mapping of learning outcomes.



Such an exercise promotes a cyclic process of evaluation that compares course content and structure with access requirements, identifies areas that are lacking, adds or makes revisions and then revisits the map in order to measure their impact.

One issue with this approach already raised by educators is the lack of specification of the actual knowledge and skills considered necessary to carry out a particular task. This has been avoided by E.C.C.O. as it is seen to be overly prescriptive; therefore one thing that the map does not provide is a description of the curriculum. Such a specification is dependent on the national situation and the particular professional specialism that the course aims to supply.

It is up to the individual education establishments, in consultation with their country's professional bodies, to define the precise content in terms of the type of professional Conservator-Restorer that is required. The map assists in this specification by defining the different areas of competence against which the curriculum can be set and from which the pedagogical means of delivery can be developed.

Whilst the map is an important tool for identifying the level and scope of a particular subject and the sequence in which it is taught, it can also be used to evaluate the education programme as a whole. In simple terms this can be summarised as: when the start point and end point are known it is possible to develop an efficient route between these two points. This increases the value of this tool by enabling the subject matter with an education programme to be distributed in a logical and steadily progressive way, thereby improving knowledge uptake and the development of adequate skills. The application of this model to different education programmes across Europe will be the subject of future research.

Having presented the construction and interpretation of the EQF level 7 map for Conservation-Restoration the next section will examine the levels below and above.

EQF LEVEL 6

Level 6 (figure 4) requires a level of knowledge which provides an understanding of the processes of Conservation-Restoration and seeks an intermediate skill base in their application. The emphasis on intermediate skill recognises the need for manual dexterity as a significant factor in Conservation-Restoration work.



Critical understanding of the concepts and procedures leading to an assessment of needs and selection of Conservation-Restoration actions is under development but has not reached a sufficient level for autonomous decision making.

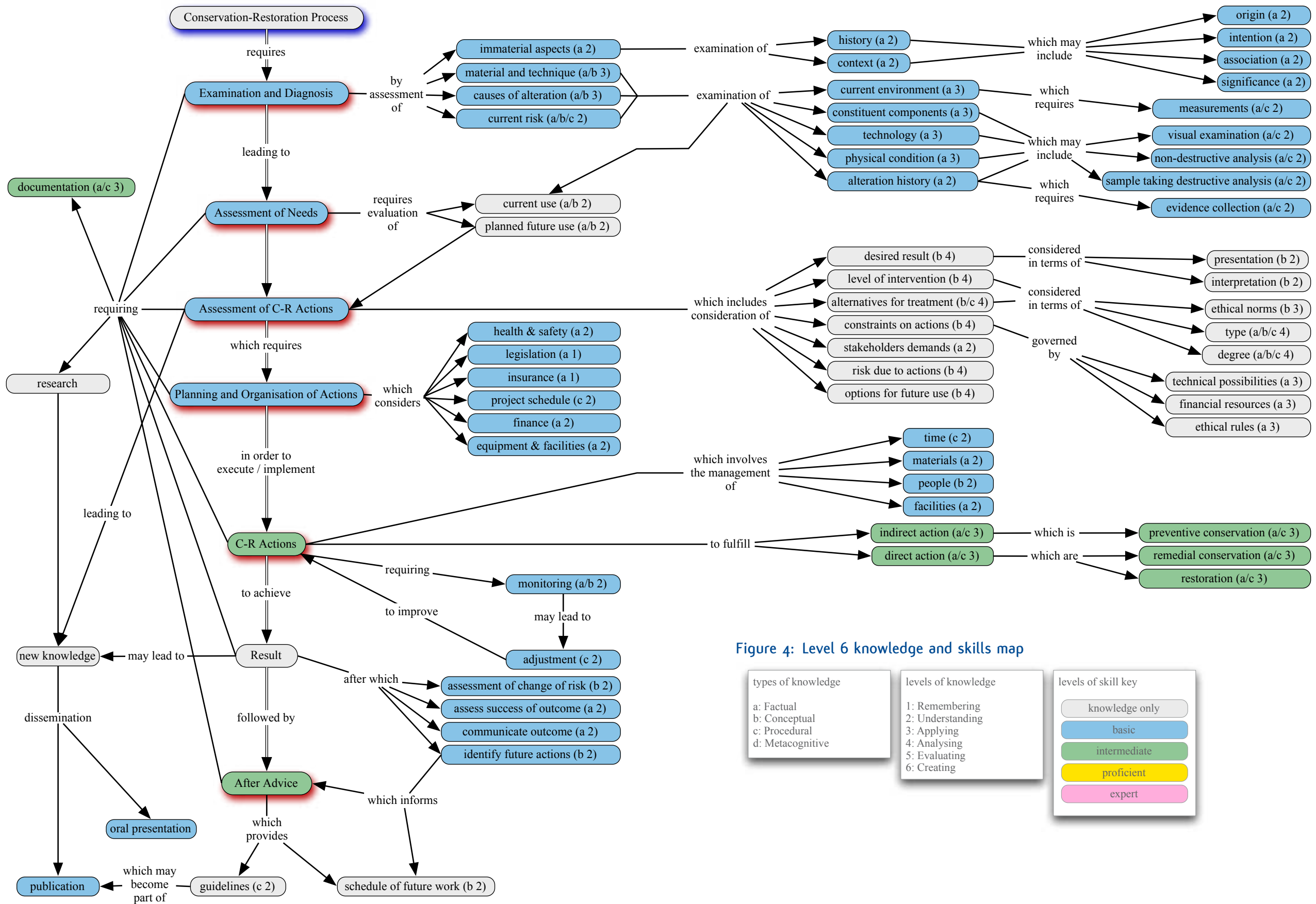


Figure 4: Level 6 knowledge and skills map

types of knowledge	levels of knowledge	levels of skill key
a: Factual	1: Remembering	knowledge only
b: Conceptual	2: Understanding	basic
c: Procedural	3: Applying	intermediate
d: Metacognitive	4: Analysing	proficient
	5: Evaluating	expert
	6: Creating	

Descriptors EQF level 6

As a result of the work on the framework E.C.C.O. proposes the following interpretation for descriptor level 6:

Knowledge: advanced knowledge of a field of work or study, involving a critical understanding of theories and principles. (European Communities, 2008:12)

E.C.C.O. specifies this as: The knowledge that is attained following a period of education equivalent to a Bachelor's Degree in Conservation-Restoration. A *critical understanding of theories and principles* allows an individual to work within Conservation-Restoration in a particular restricted area under supervision of a professional Conservator-Restorer.

Skills: advanced skills, demonstrating mastery and innovation, required to solve complex and unpredictable problems in a specialised field of work or study. (European Communities, 2008:13)

E.C.C.O. specifies this as: Having a level of manual dexterity and problem solving skills sufficient to master technical tasks within Conservation-Restoration. As the work is carried out on unique cultural heritage individuals at this level will not be able to operate autonomously.

Competences: manage complex technical or professional activities or projects, taking responsibility for decision making in unpredictable work or study contexts take responsibility for managing professional development of individuals and groups (European Communities, 2008:13)

E.C.C.O. specifies this as: The ability to manage complex technical processes within well-defined areas of Conservation-Restoration and to take responsibility in unpredictable work contexts for non-complex technical tasks. Whilst able to manage technical facilities and undertake general managerial duties such persons are not qualified to oversee the Conservation-Restoration process. The person possessing this level of competence is able to manage individual technical staff.

EQF LEVEL 8

Level 8 represents the highest level of the learning scale which allows its full spectrum to be understood. A considerable difference between evaluation and analysis is recognised between level 7 and 8. Evaluation presupposes experience and the ability to assess the validity and reliability of the analysis itself. If the level 7 map is considered, which is entry into the profession, as the Conservator-Restorer becomes experienced they will increase their skill and knowledge. This can be illustrated on the map as a higher level code and colour in individual boxes. As progress is made more boxes will show a higher level 8 competence. In some cases however the competence may actually fall below the level specified for use to the title if areas of skill and knowledge are not maintained.

Whilst the entry level to the profession, represented by the level 7 map, is fixed, the development of skill and knowledge past this point is specific to each Conservator-Restorer, depending on their circumstances. Therefore, though the map remains the same the coding will vary from person to person. Two examples are given in figure 5 and 6: the experienced practitioner and the PhD graduate:

The skill of an experienced practitioner who has maintained and increases their expertise to level 8 through a process of continuous professional development within their specialist field (including expanding or branching into other fields) is described in terms of reaching the highest expert/meta-cognitive level. This is clearly illustrated by the colour coding on the map in figure 5, which illustrates how knowledge and skills may develop after some years as a professional. Their competence in examination and diagnosis has increased and they have become experts in carrying out and evaluating Conservation-Restoration processes. They have also increased their competence in planning and organising and in assessing the results.



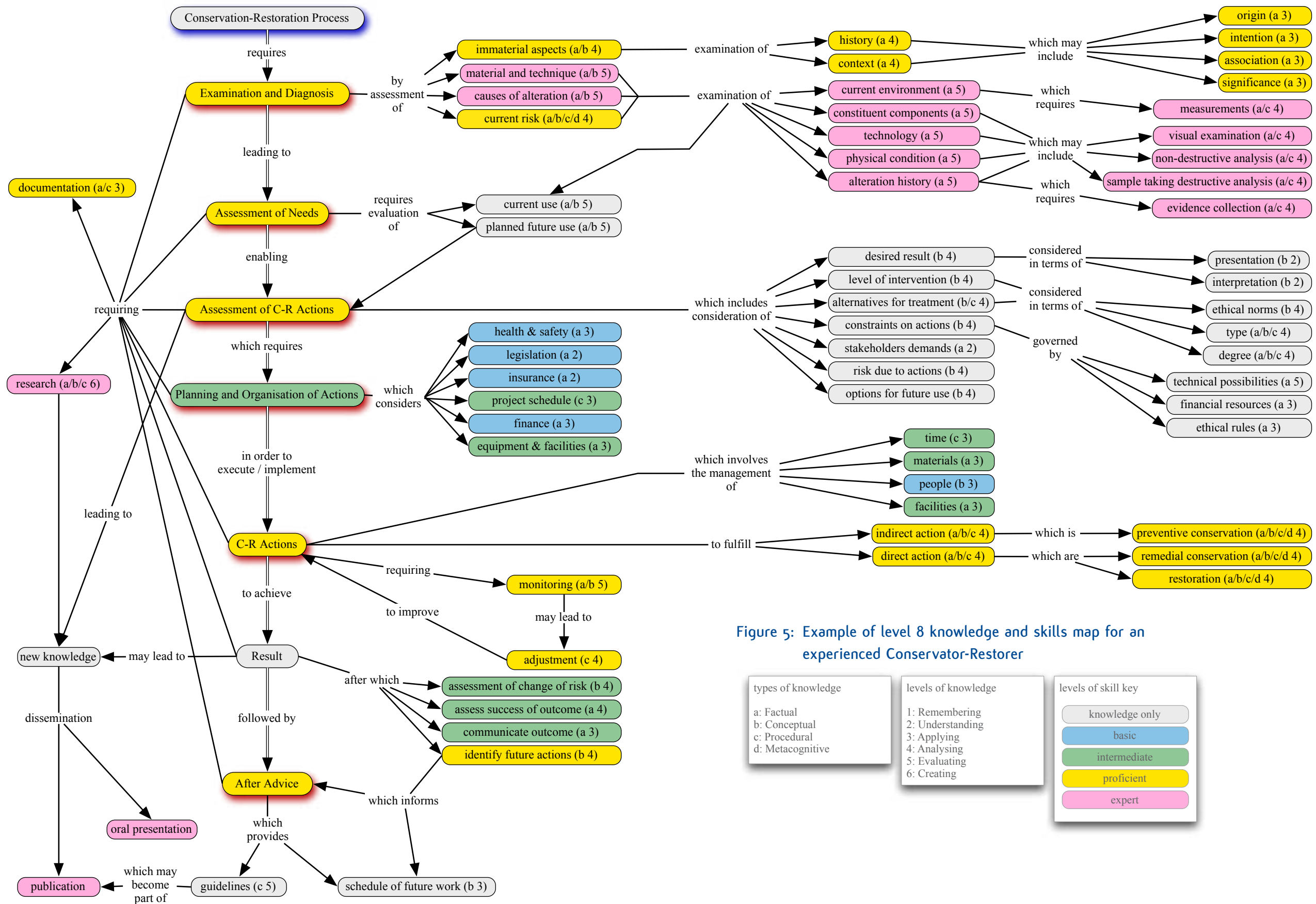
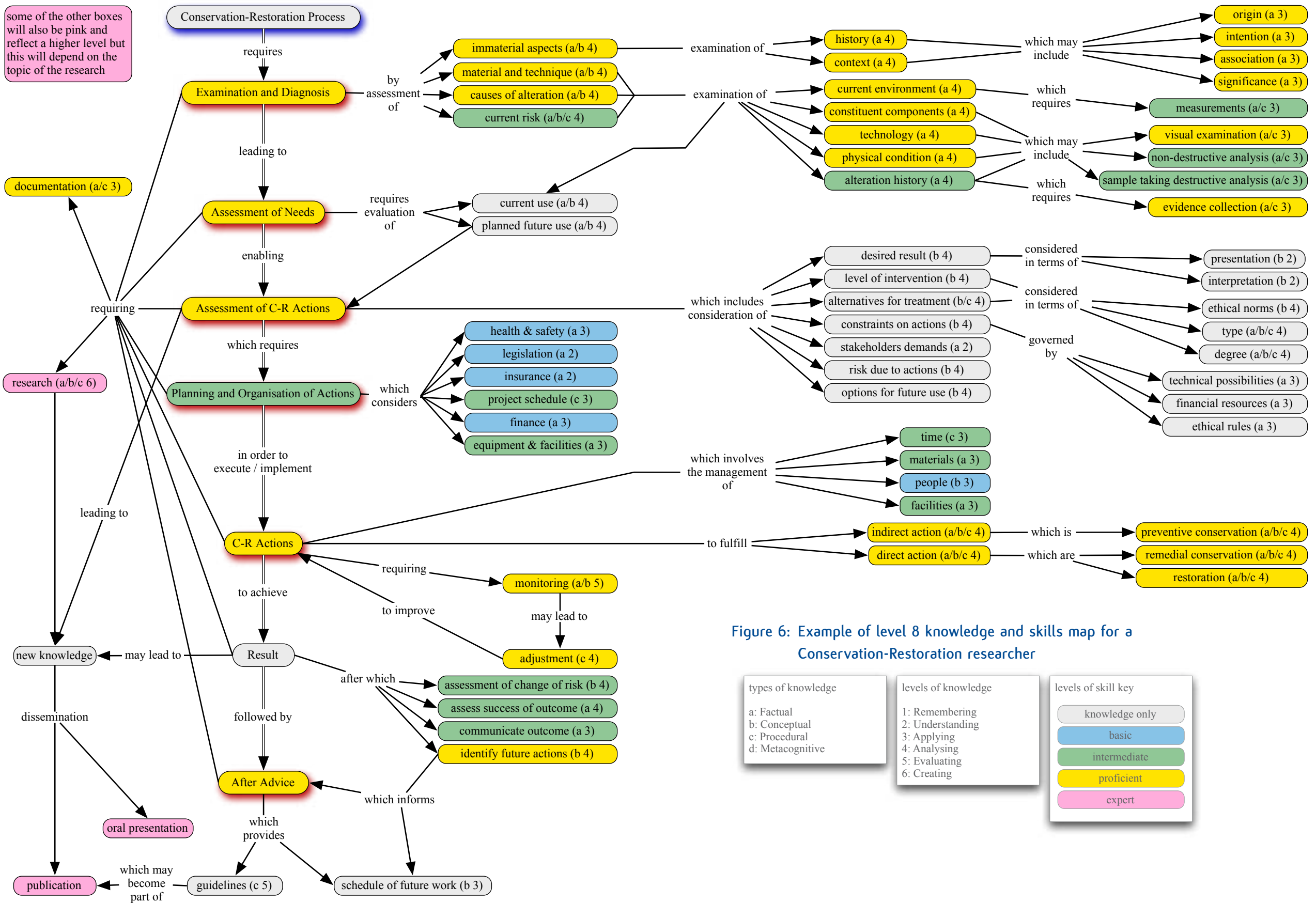


Figure 5: Example of level 8 knowledge and skills map for an experienced Conservator-Restorer

types of knowledge	levels of knowledge	levels of skill key
a: Factual b: Conceptual c: Procedural d: Metacognitive	1: Remembering 2: Understanding 3: Applying 4: Analysing 5: Evaluating 6: Creating	knowledge only basic intermediate proficient expert



It must however be recognised that the practitioner may have specialised further, becoming the leading expert in a particular area but not increasing their expertise in other areas. This argument suggests that levels of knowledge and skill do not necessarily increase evenly across their original field of expertise. Some of their knowledge and skill will remain at level 7.

When EQF level 8 is achieved through a PhD research programme it can also have the effect of narrowing the field of specialism. Whilst the broad knowledge remains similar or expands across a wider area at the same competence as level 7, the level of competence in the research field will, by definition, increase markedly making the person more specialised. This is demonstrated in the example of a Conservator-Restorer carrying out research, figure 6, where the knowledge and skill in the area of examination and diagnosis increases whilst the other areas remain similar to level 7.

Descriptors EQF level 8

E.C.C.O. proposes the following interpretation for descriptor level 8:

Knowledge at the most advanced frontier of a field of work or study and at the interface between fields. (European Communities, 2008:12)

E.C.C.O. specifies this as: Knowledge at the most advanced frontier of Conservation-Restoration and at its interface with other fields.

The most advanced and specialised skills and techniques, including synthesis and evaluation, required to solve critical problems in research and/or innovation and to extend and redefine existing knowledge or professional practice. (European Communities, 2008:13)

E.C.C.O. specifies this as: The most advanced and specialised skills and techniques within the field of Conservation-Restoration, including synthesis and evaluation, required to solve critical problems in research and/or innovation and to extend and redefine existing knowledge or professional practice.

Demonstrate substantial authority, innovation, autonomy, scholarly and professional integrity and sustained commitment to the development of new ideas or processes at the forefront of work or study contexts including research. (European Communities, 2008:13)

E.C.C.O. specifies this as: Demonstrate substantial authority, innovation, autonomy, scholarly and professional integrity within the field of Conservation-Restoration, including sustained commitment to the development of new ideas or processes at the forefront of work or study contexts including research.

CONCLUDING COMMENTS

In conclusion, the competences and knowledge expressed at EQF levels 7 and 8 represent the specialism of the Conservator-Restorer only, not the broad field of Conservation-Restoration. It is recognised that people graduating from Conservation-Restoration education at Master's level may choose to go on to Doctorate research specialising in pure research within the Conservation-Restoration field. Whether they can use the title of Conservator-Restorer will depend on their position with respect to the level 7 framework. They will need to define themselves in relation to it.

The E.C.C.O. working group recognises that the level of skill and knowledge required by a Conservator-Restorer may vary for different aspects of their role. There are many factors which combine to signify expertise and indeed the maps may prove a useful tool for the Conservator-Restorer to assess his/her strengths and where further professional development may be beneficial. The working group proposes, however, that it is the combination of all these areas of competence, practiced at the correct level, which defines the nature of our work and confers its professional status. We feel that the articulation of these competences may assist in identifying the allied skills of other professions as they relate to Conservation-Restoration. We hope they aid in the delivery of educational outcomes and that they help to further strengthen the development of educational routes available.

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PICTURES

The pictures in this booklet were chosen just as an example to illustrate what Conservator-Restorers do. Therefore only the page number, the photographer and the site where the photograph was taken are listed.

- 2 Sebastian Dobrusskin: Helicon CS, Alphen a/d Rijn (NL)
- 5 Sebastian Dobrusskin: museum franz gertsch, Burgdorf (CH)
- 7 Sebastian Dobrusskin: Bern University of the Arts (CH)
- 9 Sebastian Dobrusskin: Bern University of the Arts (CH)
- 10 Sebastian Dobrusskin: Bern University of the Arts (CH)
- 11 Lea Dauwalder: remains of the City Archive, Cologne (D)
- 12 Mogens S. Koch: State Archive Dresden (D)
- 17 Christel Meyer-Wilmes: working site at the grave yard Friesenberg (CH)
- 18 Sebastian Dobrusskin: museum franz gertsch, Burgdorf (CH)
- 23 Elke Mentzel: Bern University of the Arts (CH)
- 24 Ueli Fritz: rue Pommier, Neuchâtel (CH)
- 28 Sebastian Dobrusskin: Bern University of the Arts (CH)
- 29 Andreas Buder: Bern University of the Arts (CH)
- 30 Andreas Buder: Bern University of the Arts (CH)
- 32 Owen Stephenson: Conservation-Restoration Studio Corr, Galway (IRL)
- 33 Sebastian Dobrusskin: Bern University of the Arts (CH)
- 35 Sebastian Dobrusskin: Bern University of the Arts (CH)
- 39 Sebastian Dobrusskin: Bern University of the Arts (CH)
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