



D7.3 Map of the European digitisation landscape

Future needs and quality requirements

Succeed

9/12/2014

Abstract

The work for this deliverable aimed at producing a *report on emergent usages for digitised content, associated quality requirements and business opportunities*. It constitutes the second part of task T7.2 and its corresponding deliverable D7.2 (Map of the European digitisation landscape: active projects and networks), which collected many different initiatives in the field. In order to explore emergent uses for digitised content, the partners involved worked on a questionnaire, which was widely disseminated for gathering stakeholders' opinions. This deliverable reflects the emergent usages, related quality requirements and business opportunities so identified, supplemented with an example drawn from the Succeed consortium, that is the experience of the Fundación Biblioteca Virtual Miguel de Cervantes, task leader, and the views of the Succeed Executive Advisory Board.



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¹ PU Public; RP Restricted to other programme participants (including Commission Services); RE Restricted to a group specified by the consortium (including Commission Services); CO Confidential, only for members of the consortium (including the Commission Services)

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1. INTRODUCTION

The objective of this deliverable as stated in the Description of Work (DoW) is *creating a report on emergent usages for digitised content, the associated quality requirements and business opportunities*. This deliverable constitutes the continuation of task T7.2 and deliverable D7.2 (Map of the European digitisation landscape: active projects and networks), which collected and described many digitisation initiatives of different nature. D7.2 helped Succeed partners identify relevant stakeholders to later explore emergent possibilities and needs for the exploitation of digitised content.

Task T7.3 and its corresponding deliverable were assigned in the DoW to Fundación Biblioteca Virtual Miguel de Cervantes (BVC) as sole partner in charge. However, after the Project Review Meeting which took place on 25 February 2014 in Alicante, and following a reallocation of effort, two more partners were involved, namely, Bibliothèque nationale de France (BnF) and The British Library (BL).

The work under this deliverable D7.3 had strong links and interdependencies with other WPs, in particular WP1 (deliverable D1.1) and WP4 (deliverable D4.2), as further detailed in Sections 2 and 3.

2. METHODOLOGY FOR IMPLEMENTING THE WORK

2.1 Working document, March–April 2014

The methodology indicated in the DoW for carrying out T7.3 focused on interviewing digitisation stakeholders (cultural institutions, content distributors, publishing agencies and business agents) to collect relevant information on new ways and requirements for the exploitation of digitised content.

This was the path to be followed in the first place, and as such was indicated by the WP coordinator and task leader (BVC) in a preliminary guiding document sent to the WP7 partners on 26 March 2014. This document aimed at clarifying all the tasks (partners' roles, suggested work plans & deadlines) to be carried out up to the end of the project, taking into account the activities for the second project year as planned in the DoW and the outcomes of the Succeed Review Meeting mentioned above. Further discussed with the partners, a final version was ready in mid-April. For further details on the guiding document concerning T7.3, please see the work plan outlined in Section 2.3 below.



2.2 Interrelations with WP4, T4.2 – Common survey

The work for T7.3, foreseen in the DoW between M17 and M22, started in April 2014 (M16) that is before scheduled. When making the first steps, and following early conversations amongst the Project Manager, WP7 and WP4 coordinators, it became clear that T4.2 – Licensing and T7.3 had several points in common, like the purpose of gathering stakeholders' views. To optimise the work under both tasks and not to ask stakeholders twice, it was decided that a *common survey* be designed with a set of questions for each task. It was also agreed that this online survey would replace the interviews foreseen under T7.3 in the DoW on a general basis, while keeping the experience of the task leader with stakeholders such as publishers and users. A face-to-face discussion was also organised for the members of the Succeed Expert Advisory Board (EAB). This live discussion took place during the Digitisation Days and the DATeCH Conference held on 19-20 May 2014 in Madrid, as further detailed in Section 3.

Concerning the survey, to minimise the obvious risk of inadequate/unfocused questions, it was decided to be preliminary prepared by WP4 and WP7 coordinators but reviewed and completed by the partners involved in T4.2 and T7.3. This would facilitate taking into account different opinions as to the scope and sense of the questions. There was also a clear risk of getting an incomplete scenario if the survey did not reach a critical mass. To address this as much as possible, the questionnaire was widely disseminated using several channels, as detailed in Section 2.4.2.

2.3 Work plan

According to the guiding document, the work plan was mainly scheduled as follows:

- By April 25: PSNC & BVC have the questionnaire ready (10-15 questions), using Google forms.
- By the end of the first fortnight of May: The partners involved in WP4 and WP7 make comments on/modify questions.
- At the same time, the partners identify and send the WP coordinators a list of entities which could fill in the questionnaire. Stakeholders were to be sent the link to the questionnaire, and the latter be filled in online.
- By the end of June: The surveys should be completed by the stakeholders.
- July-September: Compilation and analysis of answers by the WP coordinators. Addition of any supplementary information (such as EAB's views).
- October - November: WP coordinators prepare the reports to be sent to the EC.



2.4 The survey

2.4.1 Purpose and scope concerning task T7.3

The purpose of the survey in relation to WP7 was to get the views of different digitisation stakeholders on emergent usages of digitised content as well as on the quality requirements necessary to put them into practice, giving adequate responses to the needs of the market and users. Taking this into account, the questionnaire was composed of three main parts:

- General information & contact details of the respondent, in case further discussion would be necessary;
- Licensing – questions under T4.2 (D4.2);
- Emergent usages and future needs – questions about the respondent institution's opinion on any new usages of digitised content it could envisage/perform, related quality requirements, hampering or blocking issues, and business opportunities.

2.4.2 Methodology

The work plan indicated in Section 2.3 above was closely followed with just small adjustments. The survey had the form of an online questionnaire, and differently from the approach taken for WP4 questions (two types of questions: option questions and open questions), all questions under T7.3 were open ones, i.e., questions consisting of an input field where respondents could answer with free text. It was decided like that because emergent usages and future needs seemed to us more appropriately addressed giving absolute freedom to the respondents for stating any views and experiences than setting pre-determined options, what may cause missing interesting suggestions and practices.

As regards dissemination, the creation of an online questionnaire responded to reach a wide community and simplify the procedure for answering it. For efficient and successful dissemination of the survey different and combined dissemination channels were considered:

- Database of institutions from the Digitisation Map (D7.2) – It currently gathers more than 300 initiatives including networks, projects, private companies and institutions active in digitisation and related fields.
- List of institutions to be directly asked to fill in the survey – It included 31 institutions which Succeed partners have direct contacts with and could, with high probability, get answers to the survey.
- Other dissemination channels, such as mailing lists, blogs, etc. – A list of 15 channels to distribute the survey.



The survey was open in June to all contact persons of the Digitisation Map and to the partners' additional contacts. Dissemination activities were done in two rounds, each of them lasting for approximately one week. In each round all partners were asked to disseminate information about the survey to the channels they were assigned.

The compilation of responses took a bit longer than originally foreseen. By the end of June, 20 responses were received and the deadline was extended up to mid-July. Finally, 37 answers were obtained and this is the sample we use. It has to be underlined that the relatively modest rate in response could respond to the fact that the survey was a demanding one (a good number of questions that required free text input) and also to the summer period.

The questionnaire is attached as Annex 1, while the online version is available at: <https://docs.google.com/forms/d/1LXEjvbgd6hzpY8blv1PWofGgWTm5HscN12oLhRTHPUA/viewform>

2.4.3 Participation by type of institution

As mentioned above, 37 entities, including commercial companies, research centres, data centres, libraries, archives, museums as well as institutions dealing with sound and vision gave their opinions through the questionnaire. **¡Error! No se encuentra el origen de la referencia.** provides an overview of the nature of the entities which participated. It appears that cultural heritage institutions (20 respondents) were most willing to share their opinions. Also research institutions (including research centres, data centres and universities – 14 respondents) were eager to discuss their approach concerning the different questions. The lowest response rate comes from the commercial sector. However, this does not mean ignoring business-oriented approaches. On the contrary, concerning the question on business opportunities, commercial applications are clearly identified by a significant part of the respondents, followed by open access practices, as shown in Figure 5 below. This suggests a sort of a balance between private and public visions and interests.



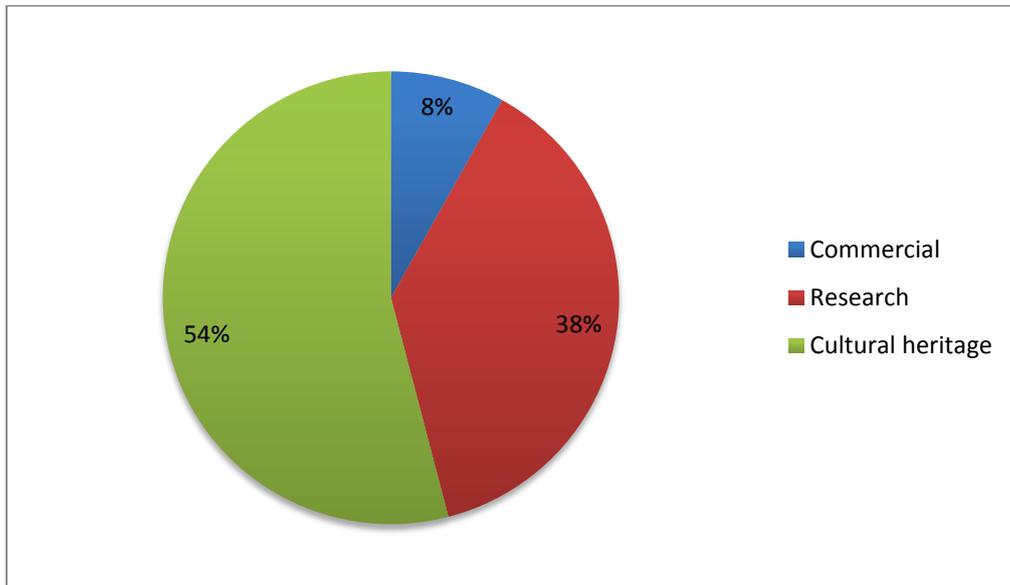


Figure 1 Percentage of respondents by institution type

3. FUTURE NEEDS AND REQUIREMENTS FOR EXPLOITATION

Although, as already mentioned, all questions were open questions, certain responses coincided in every question, and these are shown in the figures below.

3.1 New or emergent usages

Regarding new or emergent usages that the institutions of the respondents could be considering, most of the participants (48%) indicated uses related to *open, public or improved access* (such as making own digital collections more easily accessible, applying open access policies to digitised works and data, and working with public formats like ePub). The following category (19%) is *text data mining* (e.g., data dumps, dynamic displays, geo-referencing scanned maps and displaying content on current maps, or providing answers to specific requests on art history and book history). *Crowdsourcing* is also an emergent use for 10% of the respondents, while other 10% are considering uses which do not fall under any category. These uses relate, e.g., to historic and linguistic research and integration into tools like philology. Finally there is also room for respondents who are not considering any remarkable new use or do not know what to answer.

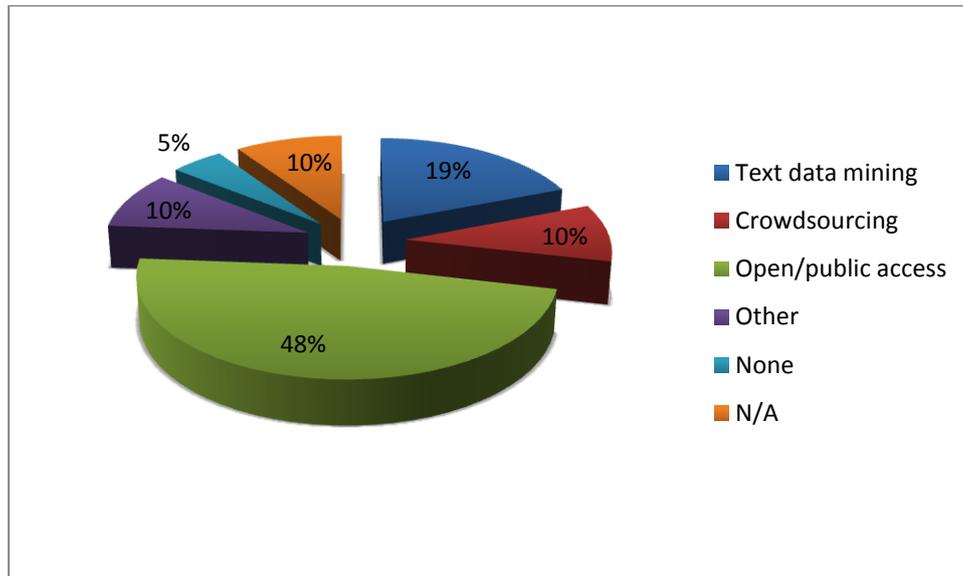


Figure 2 Percentage of responses concerning new or emergent usages

3.2 Issues which may difficult putting content in new use

As also shown in the licensing part of the survey (D4.2) *intellectual property (IP) related issues*, in particular copyright issues, licensing and clearance of rights, constitute a major concern/obstacle for most respondents. Indeed, 50% of them consider these issues as the most important ones in terms of impeding putting digitised content into the new usages envisaged in the previous question. 17% of respondents consider *costs* and *other* issues as the most relevant ones. Amongst the latter, creation of workflows, and tasks necessary to develop and maintain quality OCRs could be highlighted. Finally, 11% of the respondents estimate that gathering necessary *skills and expertise* is the most significant obstacle, while a further 6% does not point out to any particular issue.

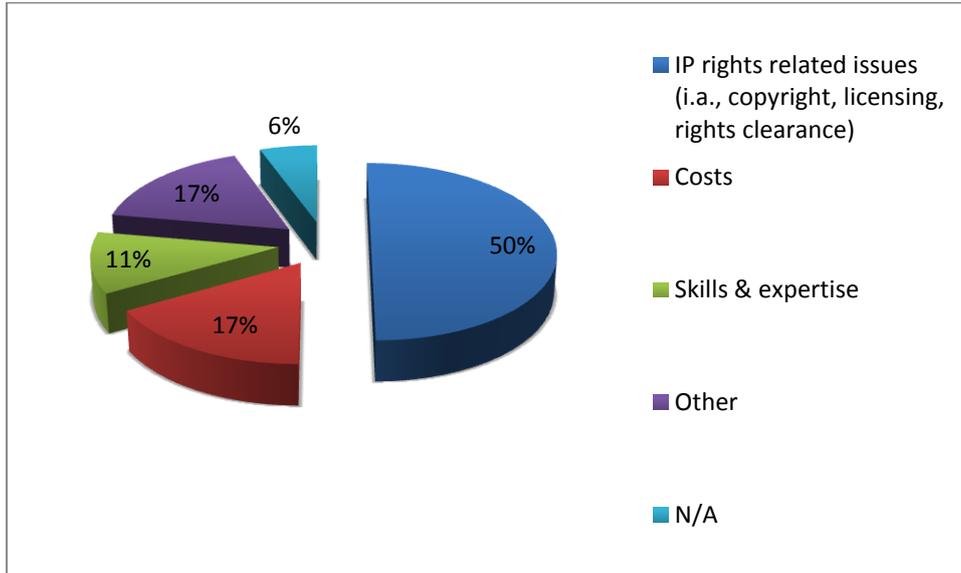


Figure 3 Percentage of responses about obstacles for the new usages

3.3 Quality requirements associated to the new ways of exploitation

33% of respondents consider *improved OCRs* as the most relevant quality requirement linked to the new ways of exploitation of digitised content. The same percentage of participants understands that requirements *depend on the concrete case*. 22% of respondents indicate *other* type of quality requirements, like integrity, completeness and interest of the source, as the most important ones. Finally, 11% of respondents are not sure of the requirements which may be associated to the emergent usages identified.

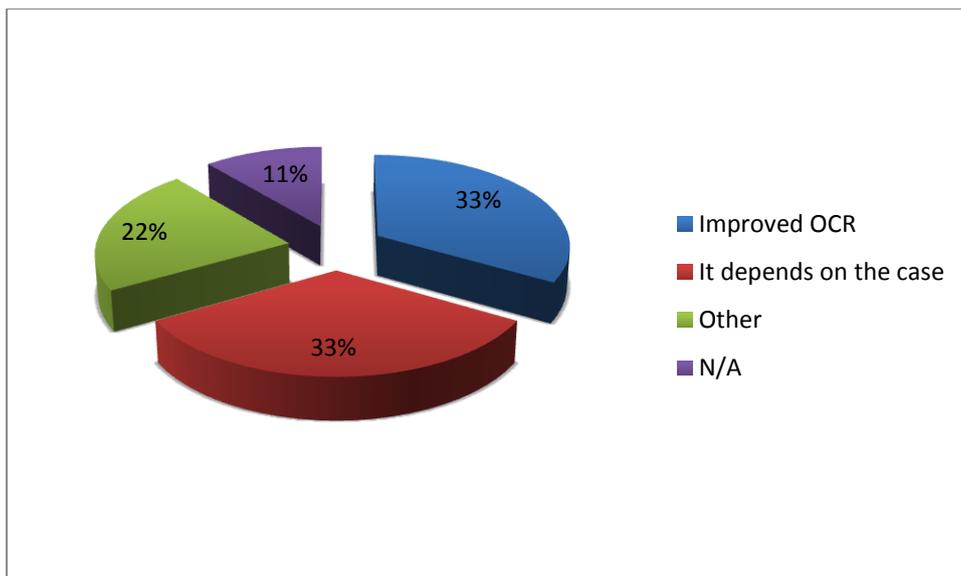


Figure 4 Percentage of responses on related quality requirements

3.4 Possible business opportunities connected to new usages

Commercial usages (such as mobile applications, smart TV, games development, pay per view services for the public and print on demand) are considered by 33% of the respondents as the most interesting business opportunities connected to the new usages. 25% of respondents identify opportunities in *activities derived from open access*. These activities could include those not necessarily linked to new sources of revenue, such as improving access to materials for researchers and students. *Training* activities (such as those related to improving knowledge on text translation engines) are cited by 17% of the institutions, together with other initiatives like public-private partnerships. In the meantime, other 17% of respondents do not identify any particular business opportunities, and 8% does not provide any definite answer.

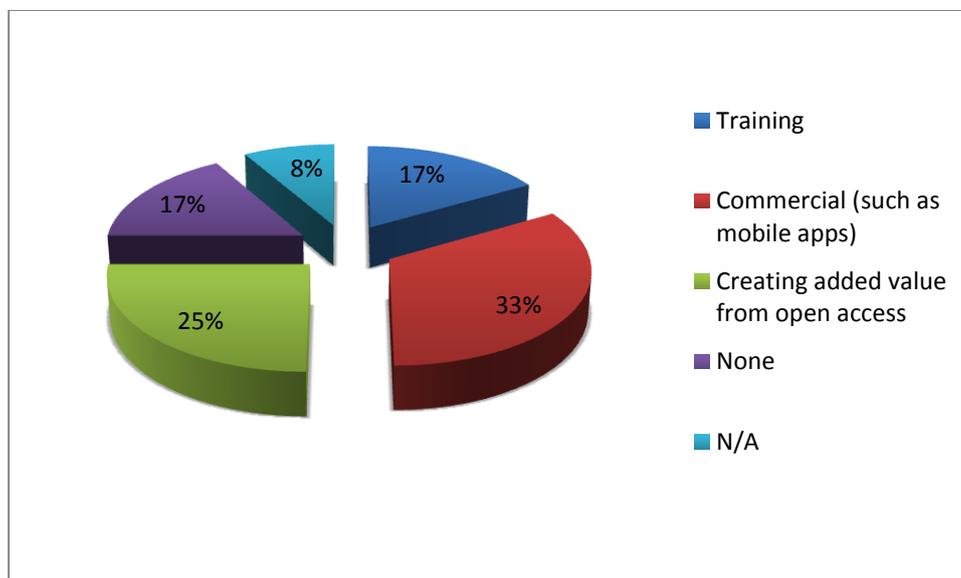


Figure 5 Percentage of responses on possible business opportunities

3.5 Respondents' additional remarks

Some respondents (around 24%) provided additional comments or general remarks. It was underlined, i.a., that research is not business; that collaboration is not always the case in the field, being cooperation with other leading content providers in Europe highly appreciated; and that institutions try to be as open as possible in their approaches but respecting the choices of individual creators.

3.6 Experiences from Succeed – The case of the Fundación Biblioteca Virtual Miguel de Cervantes & the views of the Executive Advisory Board

To supplement the general stakeholders' views stated above, the concrete experience of the task leader, Fundación Biblioteca Virtual Miguel de Cervantes (BVC) is included in this section to illustrate new usages of digitised content and quality aspects derived from users' needs and publishers' requirements. The views of the members of the Succeed Executive Advisory Board, as gathered in a panel session during the Digitisation Days and the DATeCH conference held in May 2014, are also included to shed further light on these relevant issues.

3.6.1 The experience of BVC

The particular experience of BVC concerning emergent usages of digitised content is very much related to e-books and mobile platforms on the one hand, and to semantic and social web on the other hand.

3.6.1.1 E-books and mobile platforms – Thinking of the user

According to BVC's experience, there is a growing demand for digital books, especially for e-readers and mobile devices. To address users' needs and achieve wide dissemination of works, prices and a good policy for digital rights management (DRM) have to be considered and balanced. Indeed, digitised classical works can provide content at affordable prices and with simpler DRM. For example, BVC distributes about 400 e-books in ePub format through a large number of platforms: 24 Symbols, Librosmundi, Amabook, Amazon, Apple-iTunes, Bubok, Nubico, Dawsonera, Google, Itsbook, Kobo, Skoobe, Leer-e, Nuvem de Livros and Obrapropia. The retail price ranges from 1 to 5 Euros plus VAT, and works are not DRM protected in most cases. In particular, the pricing policy is designed to attract customers to these platforms based on the added-value services and the certified content they provide.

Some of these companies working in the context of content creation and publication were contacted to gauge their preferences and requirements for digitised text. There was general agreement amongst those consulted on the following *principles and features*:

- Full text is preferred to scanned images; that is, graphical formats (such as JPG or even PDF) are not flexible enough.
- Text must contain formatting information, since adding it manually is an expensive process; in particular, the layout of the text should be rendered as it is in printed text.
- High quality editions are more attractive for publication; for example, those with good fidelity to original (since revision by experts is costly) or with added-value elements such as critical notes.
- Including descriptive metadata is recommendable, especially those which simplify cataloguing and the discovery and retrieval of the work by users. Metadata

formats often used in the publishing sector include ONIX (XML-based interchange format), the BISAC subject headings (Book Industry Subject and Category, promoted by the Book Industry Study Group, BISG) and BIC Standard Subject Categories (Book Industry Communication).

As additional remarks on the publication in ePub format, it could be highlighted the following:

- Markup of headings will not only provide basic structural information but also valuable information to create indices and tables of contents.
- Footnotes pose a challenge for ePub viewers, since the traditional approach in HTML (forward/backward links) are not the most adequate for e-book readers.
- Structural metadata are necessary for optimal visualisation.
- Embedded descriptive metadata will foster positioning of the content, for example, in search engines.
- Mobile platforms are varied (laptops, tablets, smart phones) and the content must be prepared for a correct visualisation in all of them. Even if XML-based formats such as ePub are designed for this purpose, the rich variety of contents poses a challenge to current e-book readers. For example, some verses can be longer than the maximal length supported by the screen (with a legible font size). Some other problems which emerge during text composition are unwanted doubled white spaces (difficult to read) and widow and orphan lines.

3.6.1.2 Semantic and social web

The semantic web movement aims at enhancing the interoperability of data on the World Wide Web, in particular, by promoting common standards for the data formats. This compatibility should foster the reusing and sharing of content, especially through automatised procedures. Ideally, the semantic web will help machines understand the meaning of content and the relations between data from different sources. In the field of cultural heritage, the semantic web can support a more effective digitisation, preservation and dissemination of the content. Some technologies have been proposed as cornerstones to achieve this goal, including RDF (Resource Description Framework), WOL (Web Ontology Language), and XML (Extensible Markup Language).

The advance of the semantic web requires the creation and publication of semantic descriptions, for example, in RDF/XML format. In the case of digitised content, the semantic annotations can involve at least two different levels:

1- Descriptive metadata

The author of a book can be, e.g., linked to the correct entry in the VIAF (Virtual International Authority File), providing effective

disambiguation for the author name; or its content can be described using the subject headings by the Library of Congress, assisting the cross-lingual discovery and retrieval of content.

2- Source content

Tagging chapter and section headings in the digitised content or the named entities therein (persons, organisations, locations, dates, events, etc.) allows, e.g., for their publication and later interconnection with other information sources (for example, DBpedia or geo-localisation services).

In summary, open descriptive and structural metadata will enhance the interoperability of the digitised text and the publication of such metadata will provide easier interpretation and search of content.

Full text provides more accessible content (also for people with disabilities): for instance, it is amenable to the automatic creation of content summaries or translations into multiple languages.

Finally, social elements are services which support the interaction between users. Some components are software services (user registration and profile, group creation and definition of roles, and shared communication channels, amongst others) while others require some features for the content to be usable for social purposes. For example, collaborative tagging benefits from fine-grain structural markup, since users may want to mark a full book, but in some cases only a paragraph, a sentence or a quotation therein.

3.6.2 The views of the Succeed EAB

During the Digitisation Days and the DATeCH conference held on 19-20 May 2014 in Madrid, one of the panel sessions was devoted to discussing hot topics on digitisation by members of the Succeed Expert Advisory Board (EAB). The panel, entitled ‘The digitisation of cultural heritage: modern utopia?’ was chaired by Milagros del Corral (International Organisations Advisor and Chair of the EAB), and involved other members of the EAB (Jill Cousins (Europeana), Steven Krawer (Utrecht University) and Michael Keller (Stanford University Library)), as well as Giuseppe Abbamonte, Director of Media and Data at DG CONNECT (European Commission).

The activities carried out by the EAB (including a brief summary of the panel session) are detailed in deliverable D1.1. Mention is made here only to the part of the discussion relevant to the T7.3 topics, that is the comments made to the question ‘*New usages: requirements and needs*’.

The Chair started stressing the importance of evaluating new usages of digitised content to avoid wasting current funds and efforts. Including technology into new services and defining the rights for the respective users are aspects she identified as relevant ones in this regard.



Steven Krauwer indicated that there is a big divide in the research community between linguistics (accustomed to use digitised content and methods) and historians and social scientists. He finds the latter unaware of any need regarding the usage of digital content, noting that an effort should be made in their education as regards the potential usages of digital content in order to make them aware of the related benefits. For him, the issue would be translating their research questions to questions which can be answered using digital methods.

Michael Keller mentioned they have dozens of research projects in Digital Humanities at Stanford, stating how easy it is using text and databases. He mentioned, i.a., projects related to the differences between Brazilian Portuguese and European Portuguese, or digitisation of maps. He highlighted that it is not possible to predict what is going to be done, being necessary to ensure enough quality with a limited approach given that fact. He also stated that there are numerous exploitation opportunities not just in terms of money but in terms of other kinds of returns on investment. He mentioned, e.g., education, creation of new knowledge and more and better image and text bases to address this.

Milagros del Corral and Jill Cousins finished the individual comments reminding of the fact that it is advisable to consider new usages and needs with an open mind, as nobody knows all the answers.

Then the Chair let the audience have the floor to collect new points of view on the issues discussed. Some attendees raised questions such as the need to provide open access to data, the fact that the EU is moving the target from creating content to reusing content and the need for a central policy establishing the documents which have priority in the digitisation of the 90% of cultural heritage that is still to be digitised.

The session was closed by Giuseppe Abbamonte, who presented the EC's point of view about the situation of the digitisation of the cultural heritage in Europe. He stated that there is no reason for not providing high quality content since the hardware needed is available at low prices. He also remarked that the EU provides member countries with regional funds which can be used in digitisation initiatives.

The full video of this session is available at <http://vimeo.com/97923641>.

4. CONCLUDING COMMENTS

The answers received to the survey as well as the opinions expressed by the EAB show that entities active in digitisation do consider the capitalisation of digitised content in several ways, not necessarily linked to new sources of revenue.

Uses and practices derived from the application of open/improved access policies are considered by a good number of institutions, above all from the public sector. Yet



commercial usages and applications are envisaged by many entities as well. For all these to be put into practice, it is generally requested more user-friendly IP related frameworks, either in respect of copyrighted materials, licensing models and options or clearance of rights in general terms. Many institutions and companies find it difficult reconciling digitisation activities with current IP law and practice, and any support from the EU institutions (such as the regulatory work carried out with regard to the so-called ‘orphan works’) is always and continuously welcome. Costs related issues as well as the necessary skills and expertise to move forward in exploiting digitised content constitute issues to be taken into account as well when it comes to designing supporting policies and programmes. Less level of reflection or variety of answers was found in relation to the quality requirements associated to the new usages envisaged. Here, the only clear statements referred to better OCRs, which is almost an obvious necessity to advance in digitisation practices and applications. That said, it seems also reasonable to point out to the specific case for identifying any quality requirements linked to any new usages.

Taking into consideration BVC’s experience, it could also be underlined as some conclusions that the effective exploitation of digitised content in novel platforms and services advise for high quality transcriptions, with structural markup with, at least, precise layout descriptions. Rich metadata (including syntactic and semantic tags) are also deemed to foster innovative usage, especially in social networks and applications based, for example, on machine translations or data mining services.

Putting together the outcomes of this deliverable, in particular, the answers received to the survey and the EAB’s views, it is our opinion that there is still a significant amount of work to be done. Many entities and groups are still unaware of the possibilities of digitisation for improving their work and finding interesting exploitation opportunities. Exercises like the one carried out under T7.3 could be repeated from time to time either centralised by the EC or a flagship initiative like Europeana, for instance, or decentralised, by e.g., regional innovation agencies. This could help policy-makers, digitisation actors and stakeholders reflect on and identify options concerning new ways of exploiting digitised materials and data and find workable solutions for major blocking issues.



ANNEX 1 – SURVEY ON CONTENT/TOOLS LICENSING AND INNOVATIVE USAGES

Succeed survey on content/tools licensing and innovative usages

This survey is composed of 5 sections (13 questions). Our aim is to collect your thoughts on licensing issues and innovative usages of content and tools. This survey was created as part of the Succeed project (<http://succeed-project.eu>).

General questions

1. What is the name of your institution? Please also provide a link to your institution's home page if possible.
2. Please enter the details of a contact person in case we have additional questions (please include email address).

Content licensing

3. Please name the licenses you use when publishing your digital content and describe the rationale for using them.
4. If you have any content that you do not currently give access to please state why, and what are the issues you are facing.
5. If you were considering a new licensing scheme for your content, what features would most influence your choice?
 - possibility to distinguish between commercial and non-commercial usage
 - possibility to restrict non-commercial use to research/academic contexts vs. public
 - possibility to require attribution
 - possibility to require the information on how the licensed content is used
 - possibility to forbid modifications of the content
 - possibility to forbid further distribution of the content, so that only you can distribute it

Tools licensing

6. Please name the licenses you use when publishing your tools and describe the rationale for using them.



7. If you have tools, but do not provide them yet, please state why and what are the most important barriers.

8. If you were considering a new licensing scheme for your tool, what features would most influence your choice?

- possibility to distinguish between commercial and non-commercial usage
- possibility to restrict non-commercial use to research/academic contexts vs. public
- possibility to require attribution
- possibility to require the information on how the licensed tool is used
- possibility to forbid modifications of the tool
- possibility to forbid further distribution of the tool

New usages

9. Please indicate any new or emergent usages for digitised content which your institution/company may be considering.

10. Please describe what are the issues, if any, that you need to overcome in order to put your content to new use.

11. Please describe the quality requirements associated to these new ways of exploiting your content.

12. Please indicate possible business opportunities connected to the new usage of your data.

Additional comments

13. Please indicate any additional comments/remarks which you may have.





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