DELIVERABLE SUBMISSION SHEET

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DG CONNECT G.2
Creativity Unit
EUFO 01/162 - European Commission
L-2557 Luxembourg

From: Support Action Centre of Competence in Digitisation

Project acronym: Succeed Project Number: 600555

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Project Coordinator: Universidad de Alicante

The following deliverable:

Deliverable title: Report on competitions, awards and their visibility

Deliverable number: D5.2

Deliverable date: M22

Partners responible: USAL

Status: [X] Public [ ] Restricted [ ] Confidential

is now complete

[X] It is available for your inspection

[X] Relevant descriptive documents are attached

The deliverable is:

[X] A document

[ ] A website Url:

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D5.2 Report on competitions, awards and their visibility

SUCCEED

16/12/2014

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Document information

Deliverable number	D5.2	Start: M10	Due: M22	Actual:
Deliverable name	Report on competitions, awards and their visibility			
Internal/External	External			
Activity type	SUPP			
Participant	USAL			
Estimated person for this deliverable	17.00			
Dissemination level[1]	Public			

Document history

Revisions

Version	Status	Author	Date	Changes
0.1	Draft	Christos Papadopoulos	07/11/2014	
0.3	Draft	Christos Papadopoulos	03/12/2014	Executive summary, awards winner
1.0	Final	Christos Papadopoulos	09/12/2014	Incorporated feedback from WP leader
1.1	Final	Christos Papadopoulos	10/12/2014	Incorporated feedback from internal reviewer and technical project manager
1.2	Final	Christos Papadopoulos	16/12/2014	Incorporated feedback from project coordinator

Approvals

Version	Date of approval	Name	Role in project	Signature
0.3	08/12/2014	Apostolos Antonacopoulos	WP5 Leader	
1.0	10/12/2014	Jesse de Does	Internal Supervisor	
1.2	16/12/2014	Rafael Carrasco	Project Coordinator	

Distribution

This document was sent to:

Version	Date of sending	Name	Role in project
0.1	25/11/2014	Apostolos Antonacopoulos	WP5 Leader
0.3	03/12/2014	Apostolos Antonacopoulos	WP5 Leader
1.0	09/12/2014	Jesse de Does	D5.2 internal reviewer

[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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		Isabel Martinez	Technical Project Manager
1.1	10/12/2014	Isabel Martinez	Technical Project Manager
1.2	16/12/2014	Isabel Martinez	Technical Project Manager
1.2	16/12/2014	Cristina Maier	Project Officer

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EXECUTIVE SUMMARY

This report summarises the work carried out on two tasks of the SUCCEED Work Package 5: Evaluation, awards and competitions.

The objective for the first task, **T5.3 Contests** was to organise competitions exploiting the tools and evaluation services maintained by this work package. More specifically, at least two competitions had to be organised at well established venues. The Pattern Recognition and Image Analysis (PRImA) research lab at the University of Salford organised two competitions —both of them as part of a long standing successful series of competitions— during the 12th International Conference on Document Analysis and Recognition in Washington D.C. (ICDAR2013). Work towards planning further competitions to be organised as part of the next ICDAR conference in 2015 is also under way.

The first competition was on **Historical Book Recognition (HBR2013)**. A realistic dataset was selected from the IMPACT CoC repository, representing books from major European libraries (in English, French, German and Spanish) and was made available to participants. All participating systems –3 submitted and 2 state of the art– were then evaluated in various workflow stages, based on a number of different scenarios. The results of the competition were also published in the proceedings of the ICDAR2013 conference, where the winner was also announced.

The second competition was on **Historical Newspaper Layout Analysis (HNLA2013)**. For this competition, a newspaper dataset was selected combining images from both the IMPACT CoC repository maintained by the SUCCCEED project and other European Newspaper digitisation projects the organisers were involved in at the time. Participating systems –5 submitted and 2 state of the art– were evaluated by performing a geometric comparison between detected regions and ground-truth regions in order to identify erroneous mergers between regions, or split, missed, partially missed or misclassified regions. Each type of error detected was then weighted according to a number of different evaluation scenarios. The results of the competition were also published in the ICDAR2013 conference proceedings, where the winner was announced.

Finally, a platform supporting a **continuous evaluation challenge**, showing the ranking of methods participated so far has been established. This continuous competition will be launched along with the competitions that will be organised for ICDAR 2015, in order to achieve maximum visibility in the research community and the potential participants. The continuous competition allows users to submit their results and have their methods evaluated either according the latest possible evaluation methods and scenarios, or by using the exact same criteria and dataset as any of the previous fixed competitions (for comparative purposes).

The second task, **T5.4 Awards** required the organisation of at least one award per year to acknowledge the take up of digitisation technologies. Two editions of awards were organised during the SUCCEED project.

The **first edition of awards** was organised as part of the Digitisation Days event that was held at the Spanish National Library in May 2014. These awards were designed to recognise the successful implementation of a digitisation programme. Following the well-established Stanford Prize for Innovation in Research Libraries (SPIRL) model, out of 18 candidate institutions, two prizes and two commendations of merit were awarded. All winners were invited to the Digitisation Days event, along with distinguished personalities and leading institutions in the digitisation domain.

The **second edition of awards** was organised as part of the final SUCCEED Conference that took place in November 2014 at the National Library of France. The objective of these awards was to recognise the (external to the project) institution that made the best contribution in evaluating digitisation tools. Out of 9 candidate institutions, one winner was selected and two honourable mentions were made.

INTERACTION WITH OTHER WORK PACKAGES

In order to achieve the tasks describes in this report, interaction with the following work packages was essential:

- **WP3 — Validation and take-up of tools**: The second edition of the awards was based on the take-up and evaluation of tools by libraries carried out as part of the work of WP3.
- **WP6 — Dissemination and community building**: This work package contributed towards the dissemination of the announcement and results of both competitions and awards.

It is worth noticing that part of the outcomes described in the report (competitions), would have been impossible to achieve without synchronising the efforts made in T5.1 Evaluation Infrastructure and T5.2 Evaluation Datasets. The outcomes of both those tasks were also essential to the development of the platform for the continuous contest.

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1 CONTESTS

This section first introduces the general background of the two contest organised followed by more specific accounts for each individual competition.

1.1 Rationale and Objectives

Vast numbers of historical documents are currently being digitised or planned to be digitised in the near future. The ultimate target of most digitisation initiatives is to apply OCR in order to digitise the text content of documents. Currently OCR of historical documents however provides relatively low results in terms of word accuracy.

The quality of the OCR depends not only on the choice of OCR system but also on a number of prerequisite steps. One of the most crucial steps in the document recognition workflow that affects OCR quality drastically, is **Layout Analysis**.

Layout Analysis is responsible for two of the most important steps in the document digitisation workflow:

- **Page Segmentation:** Correct segmentation of the page into regions,
- **Region Classification:** Successful identification of the type of content in each of those regions.

The PRImA Research Lab has a long standing tradition (since 2001) in running international contents that are aimed at providing an objective evaluation of Layout Analysis methods, both from research and commercial developers.

As part of the SUCCEED initiative, two contests were organised and hosted as part of the IAPR sponsored International Conference on Document Analysis and Recognition:

- **HBR2013:** ICDAR2013 Competition on Historical Book Recognition
- **HNLA2013:** ICDAR2013 Competition on Historical Newspaper Layout Analysis

The contests provided an objective comparative evaluation of layout analysis and recognition methods for scanned historical books and newspapers. They shared a common set of objectives, however they each focused on different types of documents (Books and Newspapers). The objectives of the two events were [1], [3]:

- Comparative evaluation of the participating methods on a *representative dataset* (i.e. one that reflects the issues and their distribution across library collections that are likely to be scanned),
- Detailed analysis of the performance of each method in *different scenarios*, from the simple ability to correctly identify and label regions to a text recognition scenario where the reading order needs to be preserved. This analysis facilitates a better understanding of the behaviour of methods in different digitisation scenarios across the variety of documents in the dataset,

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- Placement of the participating methods into context by *comparing them to leading commercial and open-source systems* currently used in industry and academia.

1.2 Modus operandi

The competitions proceeded as follows. The authors of candidate methods registered their interest in the competition and downloaded the example dataset (document images and associated ground truth). The Aletheia [4] ground-truthing system (which can also be used as a viewer for results) and code for outputting results in the required PAGE format [9] were also available for download. Three weeks before the competition closing date, registered authors of candidate methods were able to download the document images of the evaluation dataset. At the closing date, the organisers received both the executables and the results of the candidate methods on the evaluation dataset, submitted by their authors in the PAGE format. The organisers then verified the submitted results and evaluated them.

1.3 Dataset

Both contests used subsets of the comprehensive dataset of historical document images that was created as part of the IMPACT project [8] and is now (partly) available through the IMPACT Centre of Competence in Digitisation [7]. The original dataset contained approximately 700,000 page images (with associated metadata) from 15 different content holders, including most national and major libraries in Europe. This dataset had been collected to not only reflect the conditions and artefacts of historical documents that affect document analysis, but also the needs and priorities of the libraries, in terms of what types of documents (representative of their holdings) dominate their digitisation plans. The complete dataset consists of printed documents of various types, such as books (approximately 355,000 pages), newspapers (approximately 147,000 pages), journals and legal documents, in 25 different languages and 11 scripts, from the 17th to the early 20th century.

The unique value of this dataset though is significantly enhanced by the availability of a considerable volume of detailed ground truth. In total, 52,000 images have been ground truthed at the level of regions (equivalent to paragraphs, illustrations, separators etc.). In addition to the accurate description of region outlines, the text contained in each (textual) region has been re-keyed under strict rules, preserving typographic conventions, including abbreviations, ligatures etc.

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1.4 Evaluation Methodology

Both contests started by evaluating the results of the Layout Analysis part of the participating systems. For the HBR2013 contest (focusing on Historical Books), an extra evaluation was performed, focusing on the final OCR results (where available) produced by the participating methods.

1.4.1 Layout Analysis

The performance analysis method used takes three main steps:

- All regions (polygonal representations of ground truth and method results for a given image) are transformed into an interval representation [4], which allows efficient comparison and calculation of overlapping/missed parts.
- Correspondences between ground truth and segmentation result regions are determined.
- Errors are identified, quantified and qualified in the context of one or more application scenarios.

The region correspondence determination step identifies geometric overlaps between ground truth and segmentation result regions. In terms of Page Segmentation, the following situations can be determined:

- **Merger:** A segmentation result region overlaps more than one ground truth region.
- **Split:** A ground truth region is overlapped by more than one segmentation result region.
- **Miss (or partial miss):** A ground truth region is not (or not completely) overlapped by a segmentation result region.
- **False detection:** A segmentation result region does not overlap any ground truth region.

In terms of Region Classification, considering also the type of a region, an additional situation can be determined:

- **Misclassification:** A ground truth region is overlapped by a result region of another type.

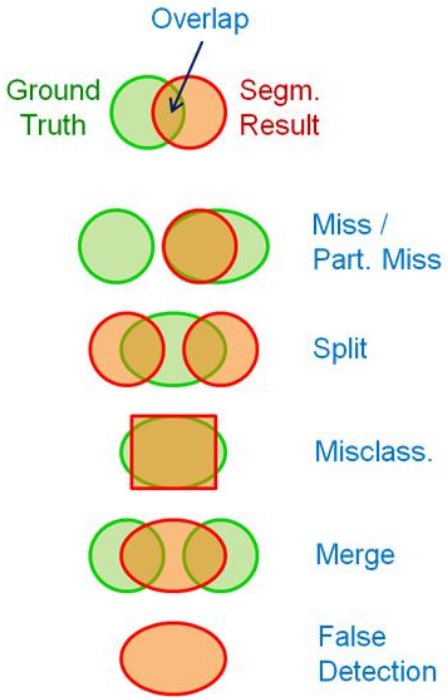

Figure 1 — Types of possible region overlap

Based on the above, the segmentation and classification errors are **quantified**. This step can also be described as the collection of raw evaluation data. The amount (based on overlap area) of each single error is recorded.

Having this raw data, the errors are then **qualified** by their significance. There are two levels of error significance:

- The first is **the implicit context-dependent significance**. It represents the logical and geometric relation between regions. Examples are allowable and non-allowable mergers. A merger of two vertically adjacent paragraphs in a given column of text can be regarded as allowable, as the result of applying OCR on the merged region will not violate the reading order. On the contrary, a merger between two paragraphs across two different columns of text is regarded as non-allowable, because the reading order will be violated in the OCR result. To determine the allowable/non-allowable situations accurately, the reading order, the relative position of regions, and the reading direction and orientation are taken into account.
- The second level of error significance reflects **the additional importance of particular errors according to the application scenario** for which the evaluation is intended. For instance, to build the table of contents for a print-on demand facsimile edition of a book, the correct segmentation and classification of page numbers and headings is very important (e.g. a merger between those regions and other text should be penalised more heavily).

Both levels of error significance are expressed by a set of weights, referred to as an **evaluation profile** [4]. For each application scenario to be evaluated there will be a corresponding evaluation profile.

Appropriately, the errors are also weighted by the size of the area affected (excluding background pixels). In this way, a missed region corresponding to a few characters will have less influence on the overall result than a miss of a whole paragraph, for instance.

For comparative evaluation, the weighted errors are combined to calculate **overall error and success rates**. A non-linear function is used in this calculation in order to better highlight contrast between methods and to allow an open scale (due to the nature of the errors and weighting).

1.4.2 Text Recognition

For the evaluation of OCR results a word-based method from the Evaluation Infrastructure (T5.1) was used. The order of the words was not considered (Bag of Words approach used) since the reading order of the submitted results was not known and a manual serialization of the text was too cumbersome.

Words for both ground truth and OCR result were extracted separately in two steps. First, the text content of each region was separated into words using white spaces and punctuations. Second, the text was integrated into a look-up table with "Word" and "Count" as columns.

The two resulting tables were then compared by identifying missed words and falsely detected words. The Success Rate measure defined takes into account the correct count of words (i.e. how many of the instances of each word on a page have been correctly recognised).

1.5 HBR2013 — Historical Books Recognition Contest

1.5.1 Dataset

For the purpose of this competition, 100 book page images were selected from the IMPACT dataset as a representative sample from different ages ensuring the presence of different issues affecting Layout Analysis and OCR. Such issues include dense printing (minimal spacing), irregular spacing, varying text column widths, presence of separators, marginal notes and a variety of languages (English, French, German and Spanish) in both Latin and Fraktur scripts. Sample pages can be seen in Figure 2.

It is worth noting that the images for this competition were selected to be as realistic as possible, in some cases suffering from moderate bleed-through, page curl, containing image borders etc.

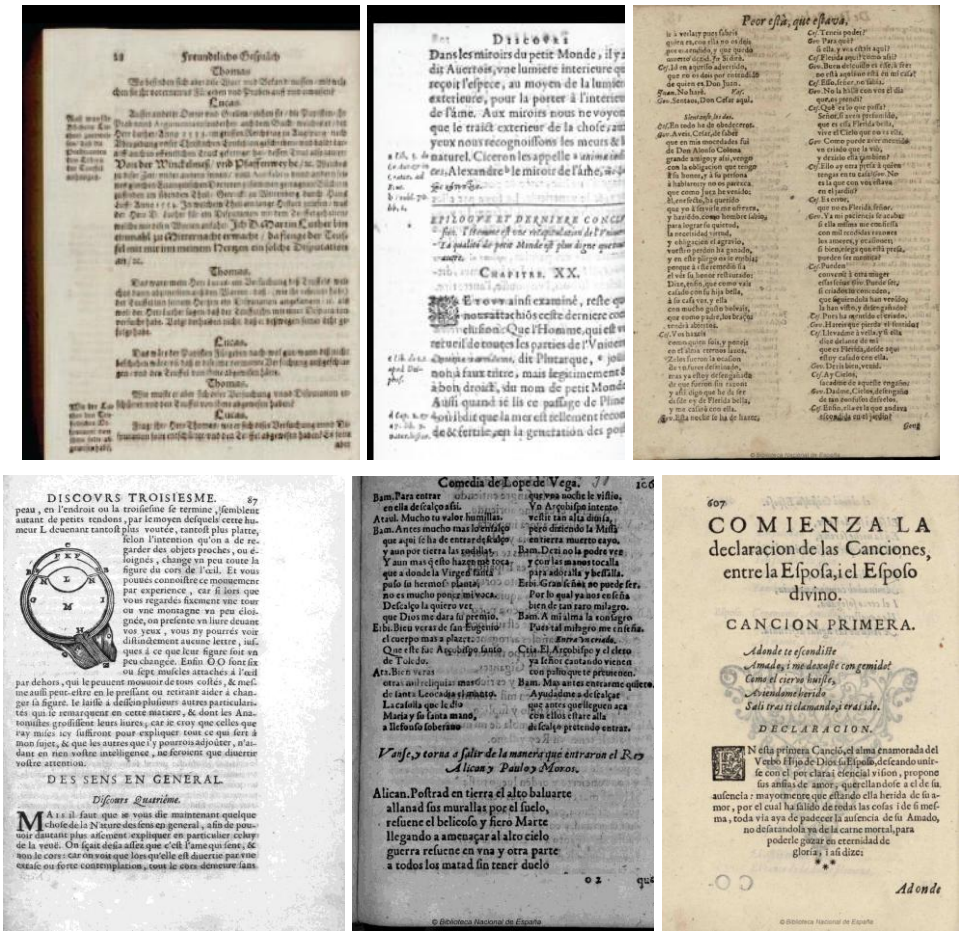

Figure 2 — Sample HBR2013 images

1.5.2 Participating methods

Two of state of the art systems were compared alongside the methods submitted for the competition [1]. The methods that participated were:

State of the art

- **Tesseract 3.02**
- **ABBYY FineReader Engine 10**

Submitted methods

- **The EPITA method:** This method was submitted by Guillaume Lazzara, Roland Levillain, Thierry Géraud, Yann Jacquelet, and Julien Marquegnies of EPITA, France. It is a bottom-up approach based on connected-component aggregation. This is the same method as submitted to the ICDAR2011 competition [1]. It is developed using the SCRIBO module [6] and the source code is freely available.

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- **The Jouve method:** This method was submitted by Michaël Fontaine and Mohamed Zayed of JOUVE, France, a commercial organisation specializing in digitisation services. The Layout Analysis subsystem is essentially the same as the winning submission to the 2011 Historical Document Layout Analysis competition [1]. The main principle of the method is to identify and extract regions of text by analysing connected components constrained by black and white (background) separators – the rest is filtered out as non-text.
- **The PAL method:** This bottom-up approach focuses on extracting the regions of text from the image, ignoring non-text regions. It was submitted by Kai Chen, Fei Yin and Cheng-Lin Liu of the National Laboratory of Pattern Recognition (NLPR) at the Institute of Automation of the Chinese Academy of Sciences.

1.5.3 Results

Three scenarios have been defined for this competition, two layout evaluation profiles plus performance of OCR:

- **Segmentation performance:** This profile is used to measure the pure segmentation performance. Therefore, misclassification errors are ignored completely. Miss and partial miss errors are considered worst and have the highest weights. The weights for merge and split errors are set to 50%, whereas false detection, as the least important error type, has a weight of only 10%. Results for this profile are shown in Figure 3.
- **OCR-centric evaluation profile:** This profile is basically similar to the first one except that it includes misclassification. As the main focus lies on text, misclassification of text and other region types is penalized most severely. All other misclassification weights are set to 10%. Results for this profile are shown in Figure 4. A breakdown of the layout analysis errors made by each method is given in Figure 5.
- **OCR performance:** The OCR performance of the only submitted method (JOUVE) that includes recognition was compared with the state-of-the-art systems. Results can be views in Figure 6.

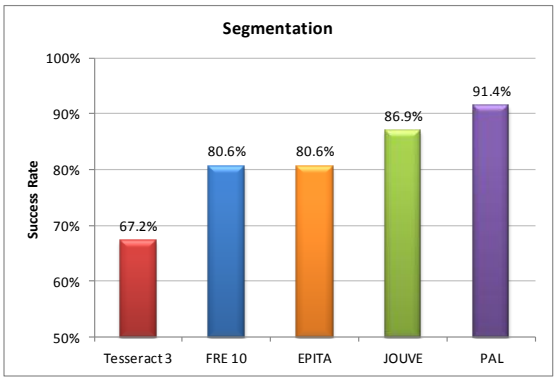

Figure 3 — HBR2013 results using the segmentation evaluation profile

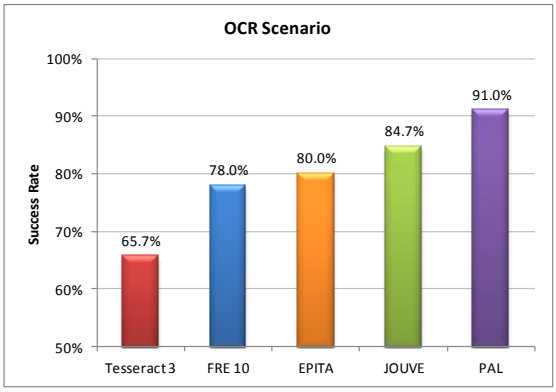

Figure 4 — HBR2013 results using the OCR-centric evaluation profile

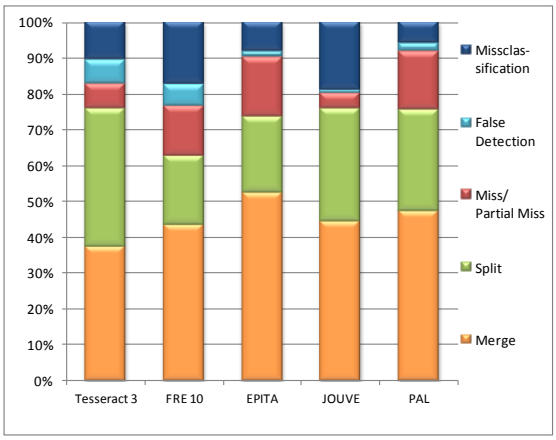

Figure 5 — HBR2013 breakdown of errors made by each method

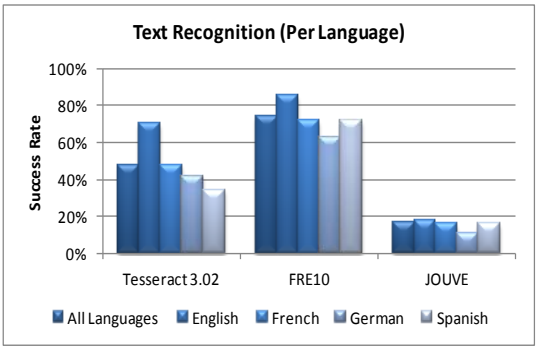

Figure 6 — HBR2013 recognition performance per language

The three systems follow a similar bottom-up layout analysis approach but their performance varies on book images. In terms of recognition, JOUVE may achieve better performance if trained and applied on specific books but the state-of-the-art systems seem more flexible. The lower relative performance of Tesseract is mostly due to worse image enhancement and overlapping region descriptions.

1.5.4 Winner

The **PAL** method has an overall advantage, especially in the OCR scenario.

It is clear that there is still a considerable need to develop robust methods that deal with the idiosyncrasies of historical books.

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1.6 HNLA2013 — Historical Newspaper Layout Analysis Contest

1.6.1 Dataset

For the purpose of this competition, 50 newspaper images were selected from the IMPACT dataset as a representative sample from different ages ensuring the presence of different issues affecting layout analysis. Such issues include dense printing (minimal spacing), irregular spacing, varying text column widths, presence of separators, interspersed graphics/adverts, presence of black borders, text printed in different orientations (horizontal and vertical) and different numbers of columns (from 2 to 6). Sample pages can be seen in Figure 7.

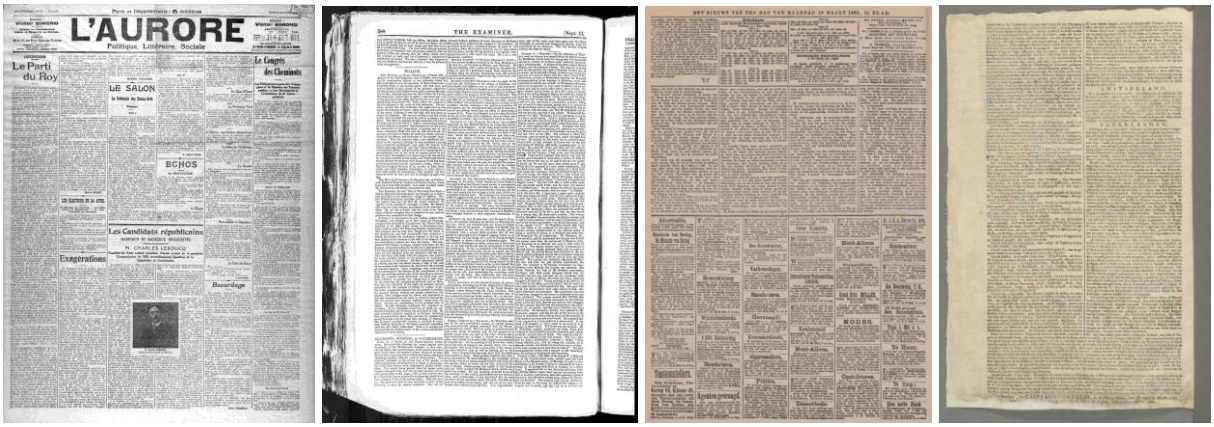

Figure 7 — Sample HNLA2013 images

It is worth noting that the images for this competition were selected so as not to suffer from significant artefacts (e.g. severe page curl or arbitrary warping) that would require a separate geometric correction step (considered out of scope here) before layout analysis.

1.6.2 Participating methods

Two state of the art systems were compared alongside the methods submitted for the competition [3]. The methods that participated were:

State of the art

- **Tesseract 3.02**
- **ABBYY FineReader Engine 10**

Submitted methods

- **The EPITA method:** This method was submitted by Guillaume Lazzara, Roland Levillain, Thierry Géraud, Yann Jacquelet, and Julien Marquegnies of EPITA, France. It is a bottom-up approach based on connected-component aggregation. This is the same method as submitted to the ICDAR2011 competition [1]. It is developed using the SCRIBO module and the source code is freely available.

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- **The Jouve method:** This method was submitted by Michaël Fontaine of JOUVE, France, a commercial organisation specializing in digitisation services.
- **The PAL method:** This bottom-up approach focuses on extracting the regions of text from the image, ignoring non-text regions. It was submitted by Kai Chen, Fei Yin and Cheng-Lin Liu of the National Laboratory of Pattern Recognition (NLPR) at the Institute of Automation of the Chinese Academy of Sciences.
- **The Fraunhofer method (Historical Archive Edition 2011):** This version of the Fraunhofer Newspaper segmenter was submitted by Iuliu Konya, Stefan Eickeler and Christoph Seibert, of the Fraunhofer Institute for Intelligent Analysis and Information Systems at Sankt Augustin, Germany. This method was also submitted to the ICDAR2011 competition [1].
- **The Fraunhofer method (Historical Newspaper Edition 2013):** This version of the Fraunhofer Newspaper segmenter was submitted by Iuliu Konya and Stefan Eickeler, of the Fraunhofer Institute for Intelligent Analysis and Information Systems at Sankt Augustin, Germany. This method improves on their previous version of the Newspaper segmenter, by introducing a new image pre-processing step which removes the need for adaptive binarisation, and extending its region building algorithm to support regions with differing slant on the same page.

1.6.3 Results

Two profiles have been defined for this competition:

- **Segmentation performance:** This profile is used to measure the pure segmentation performance. Therefore, misclassification errors are ignored completely. Miss and partial miss errors are considered worst and have the highest weights. The weights for merge and split errors are set to 50%, whereas false detection, as the least important error type, has a weight of only 10%. Results for this profile are shown in Figure 8.
- **Segmentation performance with misclassification:** This profile is basically equal to the first one except that it also includes misclassification. As the main focus lies on text, misclassification of text is weighted highest. All other misclassification weights are set to 10%. Results for this profile are shown in Figure 9. A breakdown of the layout analysis errors made by each method is given in Figure 10.

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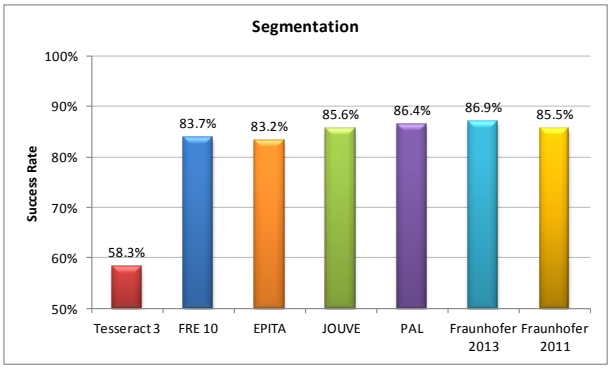

Figure 8 — HNLA2013 Results using the segmentation evaluation profile

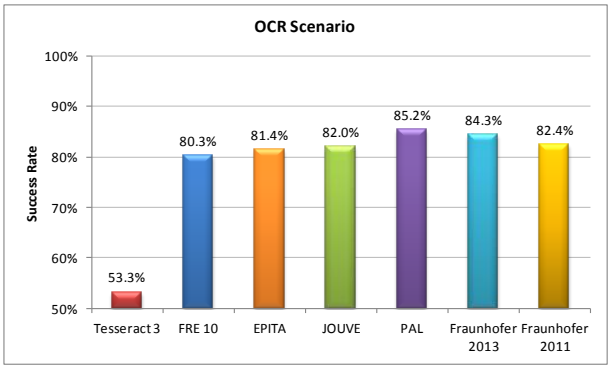

Figure 9 — HNLA2013 Results using the OCR-scenario evaluation profile

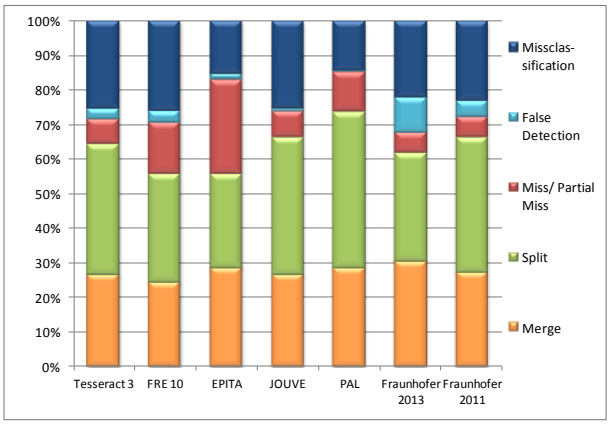

Figure 10 — HNLA2013 Breakdown of errors made by each method

Two scenarios are reported in this competition, one evaluating the ability of methods to accurately segment regions and the other evaluating the whole pipeline of segmentation and region classification (with a text extraction goal). The five systems follow a similar bottom-up approach and this is reflected on their similar performance, which compares well to the leading commercial system. The lower relative performance of Tesseract is mostly due to worse image enhancement and overlapping regions descriptions.

1.6.4 Winner

The results show that the **PAL** method has small overall advantage in the complete pipeline (OCR scenario). It is followed closely by the 2013 Fraunhofer method which actually produces slightly better results in the intermediate segmentation step. There is still, however, a considerable need to develop robust methods that deal with the idiosyncrasies of historical newspapers.

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1.7 Continuous Evaluation Challenge

The continuous challenge is powered by the Evaluation Infrastructure and Platform that was developed as part of this work package (T5.1 Evaluation Infrastructure) and described in detail in deliverable D5.1.

The continuous competition platform will be used alongside and in support of the competitions planned by PRImA in the context of ICDAR2015. It will then remain open for researchers to use.

This online evaluation platform incorporates algorithms for:

- Running the evaluation for multiple files in parallel.
- Evaluating the Region Segmentation for different scenarios.
- Evaluating the Text Results (OCR) for different scenarios.
- Comparing the results and producing the evaluation summary (reports and graphs).

All of the algorithms used in the evaluation platform were developed over the years and adjusted for online use during the SUCCEED initiative.

The two snapshot competitions (HBR2013 and HNLA2013) described earlier this report were powered by the same tools and workflows that have now been incorporated into this online evaluation service.

There are three distinctively different use scenarios for the continuous competition and evaluation platform.

Organising specific snapshot competitions

Using the platform, specific competition tasks can be organised. This allows researchers to submit results that will be made publicly available. It can also aid in the production of scientific publications describing the most current snapshot of performance for both state-of-the art and commercially available methods.

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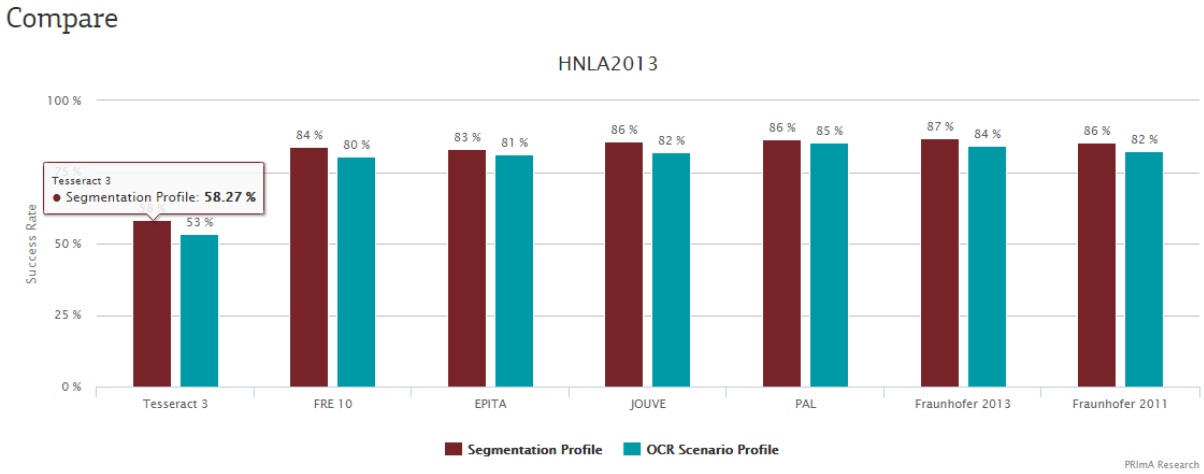


Figure 11 — Comparison chart for a snapshot competition

Comparison with a previous event

Researchers can upload results for all the images used in a past competition and have their method/results evaluated using the exact same scenarios and profiles as used in that event. They will then be presented with statistics and graphs comparing their method to the methods that had participated in the specific competition.

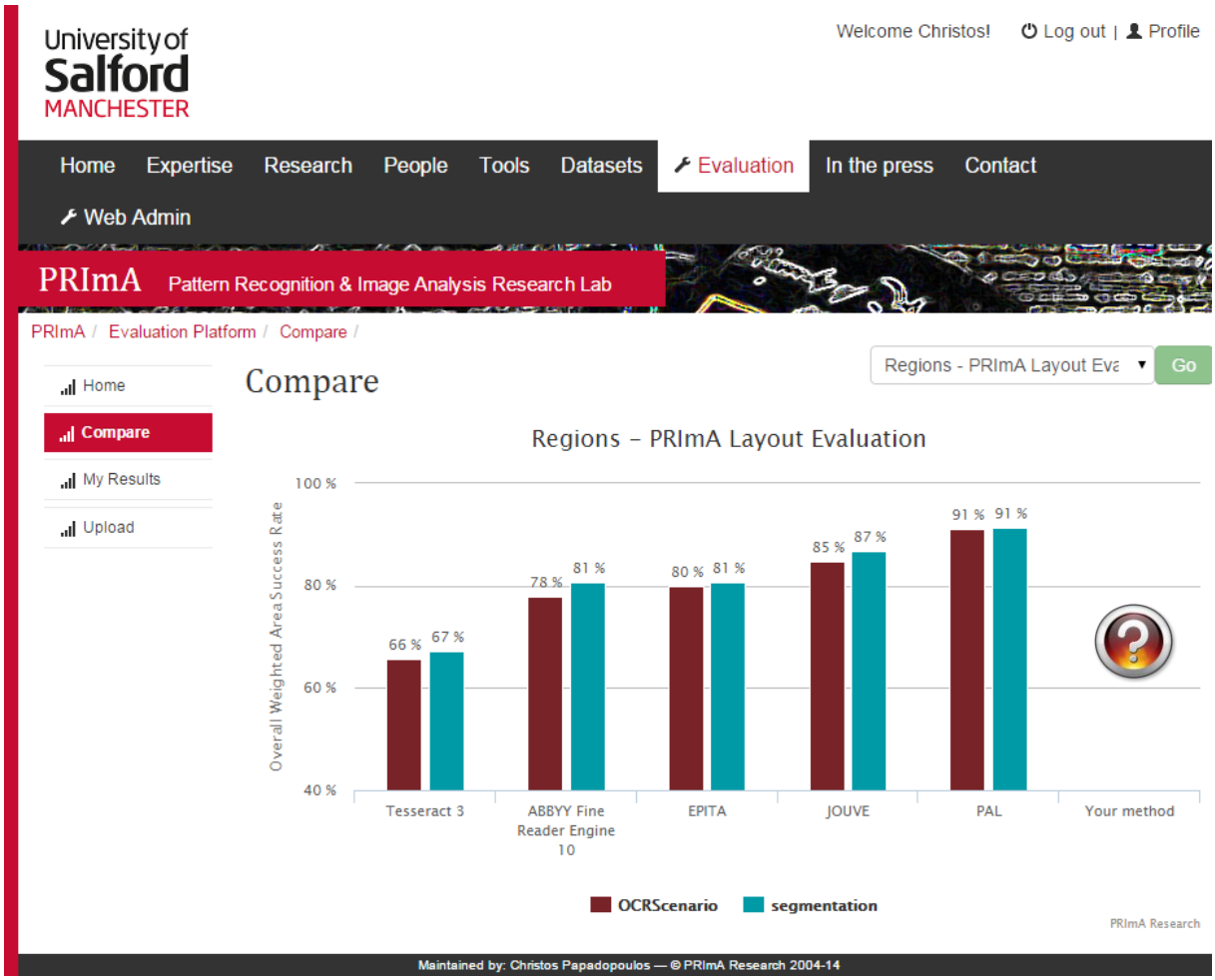


Figure 12 — Your method compared against a previous event

Experimental Use

Researchers are also given the opportunity to upload result files from their methods and have them evaluated using any of the available methods and scenarios.

In all cases, researchers are allowed to select any of the available evaluation methods and scenarios (Figure 13) and inspect the progress of the evaluation services they have requested (Figure 14).

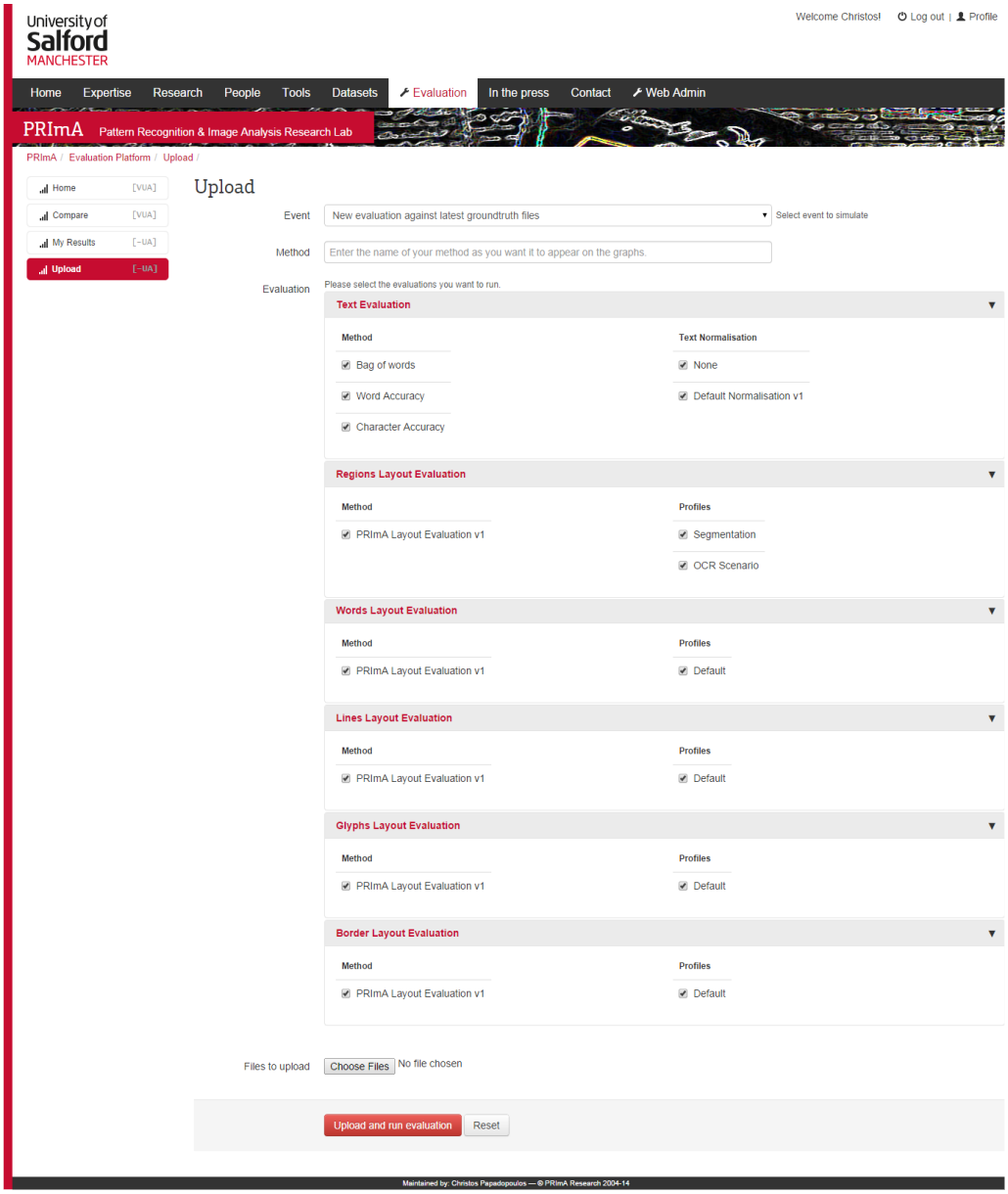
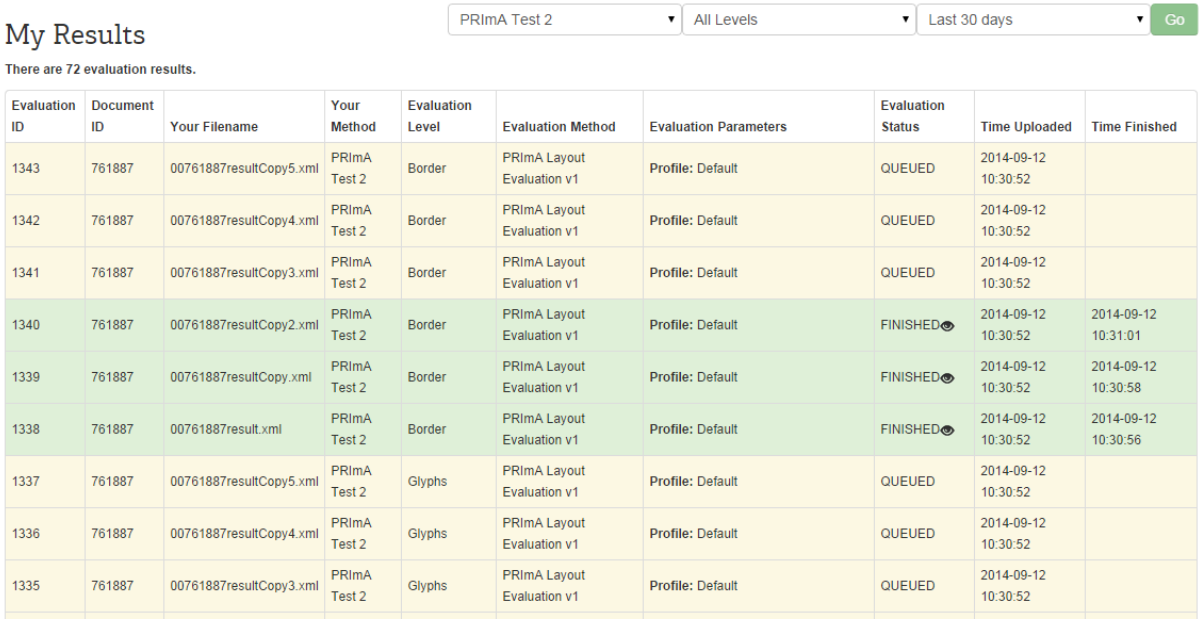


Figure 13 — File upload and evaluation method selection interface



My Results

PRImA Test 2 | All Levels | Last 30 days | Go

There are 72 evaluation results.

Evaluation ID	Document ID	Your Filename	Your Method	Evaluation Level	Evaluation Method	Evaluation Parameters	Evaluation Status	Time Uploaded	Time Finished
1343	761887	00761887resultCopy5.xml	PRImA Test 2	Border	PRImA Layout Evaluation v1	**Profile:** Default	QUEUED	2014-09-12 10:30:52	
1342	761887	00761887resultCopy4.xml	PRImA Test 2	Border	PRImA Layout Evaluation v1	**Profile:** Default	QUEUED	2014-09-12 10:30:52	
1341	761887	00761887resultCopy3.xml	PRImA Test 2	Border	PRImA Layout Evaluation v1	**Profile:** Default	QUEUED	2014-09-12 10:30:52	
1340	761887	00761887resultCopy2.xml	PRImA Test 2	Border	PRImA Layout Evaluation v1	**Profile:** Default	FINISHED	2014-09-12 10:30:52	2014-09-12 10:31:01
1339	761887	00761887resultCopy.xml	PRImA Test 2	Border	PRImA Layout Evaluation v1	**Profile:** Default	FINISHED	2014-09-12 10:30:52	2014-09-12 10:30:58
1338	761887	00761887result.xml	PRImA Test 2	Border	PRImA Layout Evaluation v1	**Profile:** Default	FINISHED	2014-09-12 10:30:52	2014-09-12 10:30:56
1337	761887	00761887resultCopy5.xml	PRImA Test 2	Glyphs	PRImA Layout Evaluation v1	**Profile:** Default	QUEUED	2014-09-12 10:30:52	
1336	761887	00761887resultCopy4.xml	PRImA Test 2	Glyphs	PRImA Layout Evaluation v1	**Profile:** Default	QUEUED	2014-09-12 10:30:52	
1335	761887	00761887resultCopy3.xml	PRImA Test 2	Glyphs	PRImA Layout Evaluation v1	**Profile:** Default	QUEUED	2014-09-12 10:30:52	

Figure 14 — Queued evaluation requests

1.8 Impact of Competitions

The two competitions that have been organised by PRImA during SUCCEED have attracted significant attention from the research community. This is evident by the interest of researchers in downloading the competition papers (published in the proceedings of ICDAR2013) and to download the evaluation datasets (for comparative evaluation with methods in development).

During the competition organisation period, we have had 24 registrations in total (both competitions), which considering the amount of groups that are focusing on Layout Analysis is quite an achievement.

Following the conclusion of the competitions, we have had 15 enquiries from researchers asking for access to the resources used to organise the competition, in order to evaluate their own methods.

In the longer term, the scientific community benefits from the successful and continuous running of these competitions. They provide a useful resource for researchers, allowing them to track progress of their methods in comparison to other systems. Libraries and service providers also benefit by gaining access to an objective evaluation of scientific and commercially available methods as well as state of the art systems. The continuous competition aims at expanding this benefit even further, by allowing submission of new Layout Analysis methods as they are developed, instead of restricting the evaluation to its current two-year cycle.

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Judging by the number of request for the evaluation tools and datasets, once the continuous competition is launched we expect a very high interest both by the research community and commercial developers.

1.9 Future Plans

As already mentioned, the PRImA Lab is planning to continue its long standing tradition and organise more competitions in the context the ICDAR conference series, with the next one being in 2015.

Along the ICDAR2015 competitions, the continuous competition will also be launched, giving researchers the opportunity to evaluate their methods at any time (after the conference) using a commonly accepted set of tools and images. Future competitions will be either snapshots of the continuous evaluation challenge or will focus on specific themes.

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2 AWARDS

During SUCCEED, two editions of awards were organised. The first one was an open call to recognise the successful implementation of a digitisation programme. The second edition recognised the achievements in the evaluation and take-up of tools for digitisation.

2.1 SUCCEED Awards – First edition

After careful consideration of existing award schemes, it was decided to follow the model of the well-established Stanford Prize for Innovation in Research Libraries (SPIRL). The model has a proven record of working well, being familiar to Libraries and not too cumbersome to apply for and administer. Accordingly, a Selection Committee has been constituted and comprised of a subset of the SUCCEED Advisory Board and additional well-known authorities in the related fields. The Call for Nominations has been created and disseminated widely.

It was decided that the most appropriate venue to confer the first awards would be the Digitisation Days event organised by SUCCEED in Madrid in May 19-20, 2014.

2.1.1 Visibility

The call for nominations was distributed using both the SUCCEED and the IMPACT Centre of Competence dissemination channels (Twitter, Facebook, Newsletter, Blog, etc.), and different mailing lists such as IFLA and DIGLIB, and other LinkedIn groups, CORDIS wire, etc.

As a result of this dissemination, almost 20 institutions presented their candidatures to the awards.

The Digitisation Days event were the awards were conferred attracted 182 participants. The ceremony of the awards was also recorded and distributed through YouTube and Vimeo and disseminated in the Blog (www.digitisation.eu/blog).

A number of posts have been made online referring to these awards. Some of them are listed below:

- Succeed Awards
  http://succeed-project.eu/succeed-awards
- Rescuing the handwritten heritage of humankind project of the Hill Museum and Manuscript Library (5 June 2014)
  http://www.digitisation.eu/blog/vimeo-video/rescuing-handwritten-heritage-humankind-project-hill-museum-manuscript-library/
- The Hill Museum & Manuscript Library and the Centre Centre d'Études Supérieurs de la Renaissance win the Succeed Awards (16 April 2014)

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http://www.digitisation.eu/blog/the-hill-museum-manuscript-library-and-the-centre-centre-detudes-superieurs-de-la-renaissance-win-the-succeed-awards/

- Succeed Awards-2014 DDays (11 June 2014)
  http://www.digitisation.eu/blog/vimeo-video/succeed-awards-2014-ddays/
- Succeed Awards-Video (11 June 2014)
  http://www.digitisation.eu/blog/succeed-awards-videos/
- Nearly 20 institutions around the world nominated for Succeed Awards (28 February 2014)
  http://www.digitisation.eu/blog/nearly-20-institutions-around-the-world-nominated-for-succeed-awards/

2.1.2 Objective

The SUCCEED awards were designed to recognise the **successful implementation of a digitisation programme**, especially those exploiting the latest technology and the output of research for the digitisation of historical text.

The winners were invited to the awards ceremony during the Digitisation Days, where distinguished personalities and leading institutions in the digitisation domain participated.

The awards did not convey an additional cash prize, the stress being on the recognition of leading initiatives and the world-wide dissemination of these achievements. The SUCCEED project looks for the widest impact of this recognition.

2.1.3 Eligibility

Institutions with active digitisation programmes were eligible for the awards. Consortia were also eligible if represented for this purpose by a single institution. Members of the SUCCEED consortium could not apply for the awards.

2.1.4 Criteria

The committee took into account:

- Evidence of the results (efficiency, quality) produced by integration of technology in the digitisation workflow,
- Extensibility (potential replication/adaptation) of the experience to other institutions,
- Impact on the preservation of cultural heritage,
- Sustainability, coordination with other initiatives, collaborative character.

2.1.5 Deadlines & Submissions

The candidatures were to be received before February 15, 2014 (23:59, CET) and the results to be announced before April 15, 2014.

Nominations were signed by a representative of the candidate institution and submitted online using the succeed platform.

2.1.6 Selection Committee

The committee members for this first edition of awards were:

- **Milagros del Corral**, UNESCO
- **Jill Cousins**, Europeana
- **Frank Frischmuth**, German Digital Library
- **Michael Keller**, Stanford University Library
- **Steven Krauwer**, Utrecht University
- **Andrew Prescott**, King's College London

2.1.7 Candidates

In total, 18 institutions were nominated (in alphabetical order):

- Austrian State Archives
- Biodiversity Heritage Library
- Centre d'Étude Superieures de la Renaissance
- Digital Library for Dutch literature
- Hill Museum and Manuscript Library
- London Metropolitan Archives
- Ministry of Culture Croatia
- Museum and Institute of Zoology of the Polish Academy of Sciences
- National Library Board Singapore
- National Library of Finland
- National University of Ireland, Galway
- Netherlands Institute for Sound and Vision
- Tecnilogica
- Trier Center for Digital Humanities
- UC Riverside Center for Bibliographical Studies and Research
- University of Granada
- University of Innsbruck
- Vinfra

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2.1.8 Winners

Two ex aequo prizes and two commendations of merit were awarded during the SUCCEED Digitisation Days event. These were:

Prizes

- **Hill Museum and Manuscript Library**: The Hill Museum and Manuscript Library is a remarkable, distributed and cooperative effort aiming to preserve endangered content, as well as to provide online services supporting rich access to facsimilar documents.
- **Centre d'Études Supérieures de la Renaissance**: The CESR is committed to produce both high-quality digital editions (in XML-TEI) and facsimile with reliable transcriptions, and this activity has led to the development of new open-source tools for layout analysis and for transcription.

Commendations of Merit

- **Tecnilógica:** Tecnilógica maintains a constant innovative spirit, creating, for example, new technology for the digitisation of perforated hard cardboard disks and their conversion into MIDI files.
- **London Metropolitan Archives - University College London**: The Great Parchment Book project aimed to publish both the images and transcript online of this of fire-damaged book (165 parchment pages). As a result, new technology (planned to be open-sourced) has been created, specifically, algorithms to flatten pages from images obtained with multiple photographs

2.2 SUCCEED Awards – Second edition

The second edition of awards was aimed at associated (with SUCCEED) libraries and institutions. They recognised the achievements in the evaluation and take-up of tools for digitisation and promoted by the SUCCEED project.

It was decided that the best venue to confer these awards was the final SUCCEED conference, which took place in November 2014 at the French National Library.

2.2.1 Visibility

For this edition of awards, the candidates were the nine libraries external to the project that participated in WP3, so no wider call was announced.

These awards were delivered during the SUCCEED Final Conference, which was attended by 70 people. The announcement of the delivery was published in the SUCCEED and IMPACT dissemination channels and the ceremony was recorded and, at the moment of writing, the video is being edited in order to be published through YouTube and Vimeo channels.

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A number of posts have been made online referring to these awards. Some of them are listed below:

- Succeed Awards 2nd Edition
  http://succeed-project.eu/succeed-awards/2nd-edition
- 2nd edition Succeed Awards (16 December 2014)
  http://www.digitisation.eu/blog/2nd-edition-succeed-awards/
- Succeed in digitisation. Spreading excellence. Take-up of tools: the libraries' experience. (15 December 2014)
  http://www.digitisation.eu/blog/succeed-digitisation-spreading-excellence-take-tools-libraries-experience/

2.2.2 Objective

The objective of the second round of awards is to recognise the institution that contributed the most in the evaluation of the tools.

2.2.3 Eligibility

Libraries and institutions that were associated to SUCCEED in the evaluation of tools, but not members of the consortium were considered for an award.

2.2.4 Criteria

The main criteria for the award winner was the take-up of tools for digitisation and the quality and extent of the evaluation they performed and report produced.

2.2.5 Submissions

Detailed evaluation reports were submitted by the Libraries taking part in Work Package 3. SUCCEED partners summarised the evaluation reports and elements of the process in a comprehensive document. The SUCCEED Awards Committee examined the content of the documents and individual members ranked independently their top 5 choices for award recipients. After discussion of the reasoning behind those choices, the top 3 candidates were chosen and recommended to the IMPACT CoC Executive Board for final decision.

2.2.6 Committee

The SUCCEED Executive Board formed the committee that decided the winner for this edition of the SUCCEED awards.

2.2.7 Candidates

In total, 9 institutions were considered as candidates (in alphabetical order):

- The National Library of Finland

- The University Library of Wrocław
- The Library of KU Leuven
- The Library of Universidad de Granada
- The Library of Universidad de Salamanca
- Wielkopolska Biblioteka Cyfrowa
- Slovak Chemical Library
- University Library of Antwerp
- University Library of Darmstadt

2.2.8 Winners

One winner was announced and two honourable mentions were made during the SUCCEED final conference.

Winner

- **The Library of KU Leuven:** The Library of KU Leuven fits the complete profile. They did not only deliver good quality work. They were brave enough to tackle very complex tools like the ABBYY SDK: they used the external dictionary interface adding a historical lexicon, they tried pattern training and image enhancement and they gave results as to the influence of that on the OCR, evaluated with GT they created themselves. They also took on Named Entity recognition. they produced a Golden Standard for training and evaluation, and worked with NER-tools. This is far from trivial work. Their previous experience was producing and storing images. All the rest was completely new to them. As of next year digitisation workflow will be in place for OCR and NE recognition.

Honourable Mentions

- **The National Library of Finland:** The National Library of Finland worked with the Fraunhofer IAIS tools: Newspaper Segmentation, Korrektor and Document Deskewer. They deserve an honourable mentioning for their high quality evaluation and their useful input for future use of tools and evaluation.
- **The University Library of Wrocław:** The University Library of Wroclaw worked with Scan Tailor, Tesseract OCR and the ocrevalUAtion. They deserve an honourable mentioning for producing their own ground truth, for modifying the workflow to fit in the tools and for having already digitised and publised online several hundreds of digital objects using the tools evaluated.

Succeed is supported by the European Union under FP7-ICT and coordinated by Universidad de Alicante.

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