

# How the Dutch prepared for certification

Barbara Sierman

KB National Library of the Netherlands  
P.O. Box 90407  
2509 LK, The Hague, The Netherlands  
Barbara.Sierman@kb.nl

Kees Waterman

DANS  
P.O. Box 93067  
2509 AB, The Hague, The Netherlands  
Kees.Waterman@dans.knaw.nl

## ABSTRACT

As part of the national strategy for Cultural Heritage in the Netherlands, under the umbrella of the Network Cultural Heritage (Dutch acronym: NDE), a working group consisting of representative digital preservationists from different large (mainly cultural heritage) organizations worked to contribute to the certification process of their organizations. This paper describes the various activities of the working group that resulted in a well-balanced approach for certification based on (1) a phased approach, (2) a supporting tool for maturity level checking (3) translations of the DSA and DIN/ nestor guidelines into Dutch, (4) lessons learnt based on a survey amongst DSA certificate holders, (5) training materials in Dutch.

## KEYWORDS

Certification, DSA, nestor, trust, trusted digital repositories, cultural heritage

## 1 INTRODUCTION

The growing maturity of digital preservation of the past 20 years is reflected in the need to be able to check whether organizations are the trustworthy custodians of their digital collections. Several tools were developed, from self-assessment tools and risk analysis tools like Drambora [1] and the SPOT model [2], to official certification tools like the Data Seal of Approval (DSA), the DIN 31644 / nestor and the ISO standard 16363-2012. There is a clear need for benchmarking and checklists, not only at libraries and archives as the frontrunners in digital preservation, but also from funding organizations in relation to the growing amount of research data repositories. These standards are used not only for self-assessment and official audits but also for example in European projects like e-ARK to check the maturity of their participants in implementing the e-ARK products [3]. Still, not everyone agrees that international standards like the ISO 16363 are internationally applicable.[4] In the Netherlands many organisations are taking steps in digital preservation. In order to raise the maturity level of these

organizations a programme was started to popularize the concept of audit and certification on a national scale.

## 2 ACTIVITIES OF THE NDE CERTIFICATION WORKING GROUP

### 2.1 The certification working group

Funding by the Ministry of Education, Culture and Science facilitated the founding of the Network Digital Heritage (Dutch acronym: NDE), in which all the major Dutch heritage organizations with digital collections work together in developing a system of common facilities and services for improving the visibility, usability and sustainability of our digital heritage.[5] A special NDE working group was started for Audit and Certification of digital repositories (NDE-AUDIT wg), to continue the work already started under the Dutch Coalition for Digital Preservation (Dutch acronym: NCDD). This working group ran a nationwide campaign to raise awareness around auditing, created a roadmap for audit and certification of repositories and above all propagated the benefits for organizations.

The participating organizations in the NDE-AUDIT working group, consisting of six large cultural heritage organizations with a variety of digital collections had a different “maturity level” in digital preservation. Some already had acquired the DSA and started preparations for the nestor seal, others were still discussing whether they were ready for certification. Apart from these content holders one participant represented the Cultural Heritage Inspectorate of the Ministry of Education, Culture and Science.

Originally it was planned to start at the same moment with the audit and certification processes and to keep each other informed of the various steps taken. But because of the different levels and different time schedules this did not work out. However, the variety in uptake also offered an excellent opportunity for developing a balanced view by combining the insights of the experienced and the less experienced.

To reach a wider audience, knowledge exchange about audit and certification was not restricted to archives, (university) libraries and cultural heritage organizations. We deliberately also contacted

some suppliers of digital archiving software in use by these very organizations. Although it was acknowledged that these suppliers could not become certified themselves, as the certification is only given to the collections holders in combination with the systems they use to achieve this, several of them were very interested in acting together with their customers, either in consultancy or in being part of the certification effort.

The NDE-AUDIT working group planned a range of activities that will be described in more detail in the following paragraphs. These will contain:

- A phased approach of certification
- Translations of two standards into Dutch
- Further development of maturity checking software: the Scoremodel
- Survey to collect experiences with DSA v2
- Training and communication

## 2.2 A phased approach of certification

Although the intention to become a certified organization is often described as a goal in institutional policies [6], if the internal challenges are serious and no external pressure for certification exists, the intention might not be realized. A certification process will require resources. The question “Am I ready for a certification process” becomes important, as it is not wise to invest in a time and effort consuming process if you are uncertain whether you can fulfill the basic standards.

At least in Europe the starting point for certification is the 3 level European Framework [7] in which an organization starts with applying for DSA, followed by a nestor seal and finally applying for an official ISO audit based on ISO 16363.

We decided to use this framework but to add two important steps: the Initial Self-Assessment and the Exploratory Phase.

In the past some organizations have started straight away with ISO 16363, amongst them LOCKSS. Apart from the benefits (more about this later) not seldom the feedback is that this certification process was a hard one, and did cost a lot of time that could have been spent on other activities. In the NDE-AUDIT working group’s opinion, adopting the European Framework model and to go for a more phased approach would be more suitable in our organizations, where not seldom digital preservation was only part of the activities and often an activity in competition with the activities related to physical collections. From bottom to top we distinguished the following 5 phases:

Phase 1. Initial Self-Assessment

Phase 2. Exploratory Phase

Phase 3. DSA

Phase 4. DIN

Phase 5. ISO

In the following paragraphs these phases will be described with the expected outcome of the phase.

### *Phase 1. Initial Self-Assessment*

There are several basic tools for an organization to check its maturity level and to get an initial idea of how mature the organization really is with respect to digital preservation. The NDE-AUDIT working group saw this step as an essential one. In

many organizations digital preservation is still a niche activity and by undertaking an Initial Self-Assessment we expect that the organization will get a more reality based view on their preservation activities.

An extensive overview of tools can be found in one of the deliverables of the European e-ARK project.[8] One of the tools available for the Dutch audience is the Scoremodel, developed by the Dutch organization DEN and the Flemish organization PACKED, described more in detail in paragraph 2.4.

The outcome of this Initial Self-Assessment depends on the tools used, but in case of using the Scoremodel a report is printed in which the strong and the weak areas are shown in a “spider web score”. The next step for the organization can be to improve the identified weak areas before the organization will be ready for even the basic level of certification (phase 3).

### *Phase 2. Exploratory phase*

As the audit and certification process will take time and resources, it is important to start a process in close harmony with the management of an organization. We introduced a step in the process in which enough detailed information is collected that can be used to support a management decision of “go/no go”. Although it might not be possible to create exact figures about the time needed, at least what need to be identified is:

- Which departments will be involved. These are not only the departments that are directly involved in the preservation process, but also for example the legal department, Human Resources department, Finance & Control department etc.
- Which persons and in which role in these departments need to be available during the audit and certification process?
- The availability of documentation of the preservation activities is the main requirement for all levels of certification, as this documentation is necessary evidence to prove that an organization is compliant. An estimated guess need to be made how much documentation is already available and in which areas one might expect extra effort (and resources) is needed (gap analysis).
- How well is the certification method understood in the organization? Can one “translate” the DSA requirements to the situation in their own organization? Are all requirements clear? The NDE-AUDIT working group did an investigation in which they took the DSA version of 2016 and compared the terminology used in DSA with the terminology used in their own organization (library, archive, AV organization). This offered an interesting overview of different jargon used in various domains and strengthen the case for discussing this before starting the audit and certification process. It is very important that an organization is aware of time needed to discuss the interpretation of the requirements, as this is strongly related to the expected effort needed.

Which part of the digital collection will be chosen as a candidate for the audit and certification process? It is important that the

boundaries of what will be part and what not are clear to everyone involved.

The outcome of this exercise will be a management document with a summary of the findings on the basis of which the management can make a decision whether they want to proceed or not. One of the participating organizations made use of this step when organizational changes and change in priorities became a threat for the audit and certification exercise: based on this document it became clear, even before the certification process started, that the resources needed would not be available.

#### *Phase 3. Applying for the Data Seal of Approval (DSA)*

When applying for the Data Seal of Approval, the following steps can be distinguished [9]:

- Applying via the DSA form
- Internal preparations
- Self evaluation via the DSA Tool plus confirmation of the received information from the DSA Administration
- Peer reviewer appointed by the DSA Board starts the review, guided by the DSA tool. The peer review process is supervised by the DSA Board
- Feedback to the DSA applicant, either in asking for more information or awarding the DSA Seal
- Publication of the evidence given on the public DSA website (except for confidential information) including the feedback of the peer reviewer in order to have a transparent process.

The outcome of this process is a Data Seal of Approval that the organization will post on the website related to the collection or repository that was subject of the audit. The Data Seal of Approval is valid for 3 years.

#### *Phase 4. Applying for nestor Seal (DIN 31664) or self-assessment according to the ISO 16363*

One of the participating organizations in the NDE-AUDIT working group, DANS already took steps to apply for the nestor Seal, passed the review and was the first organization to receive this Seal. When applying for the nestor Seal, the following steps can be distinguished:

- Contact nestor and acquire documentation and templates
- Internal preparations and completing necessary documents that will support prove of compliance with the nestor criteria
- Add the self-assessments results to the 34 nestor criteria
- Review of this self-assessment by 2 reviewers, appointed by nestor.
- Feedback of the results from the reviewers
- Publication of the aforementioned documentation and the self-assessment on the website of the organization
- Receiving the nestor seal including the year it was awarded.

The nestor seal is valid indefinitely.

#### *Phase 5. On site audit based on ISO 16363*

As no one of the participating partners in the working group was applying for this audit method, we did not investigate the steps. Currently (may 2017) there are no European certification bodies to perform a ISO 16363 audit, in the US ANAB (standards organization) will take care of certifying auditors in the US.[10]

### 2.3 Translations of two standards into Dutch

Coincidentally, another initiative was started by Regionaal Historisch Centrum Limburg and funded by Archief2020 and NCDD to translate the nestor DIN 31664 standard into Dutch. Archief2020 was a 4-year collaboration (from 2012-2016) between archives with the goal to innovate the Dutch archives on all levels with a focus on digital challenges. Motivation behind the translation of the nestor standard was the need of a set of instruments to qualify an (archival) e-Depot as trustworthy and to have an overview of the main ingredients for a trustworthy designed e-Depot. Apart from that, although most Dutch people understand the English language, a Dutch translation would lower the barrier.

Members of the NDE-AUDIT working group helped to contextualize the first draft translation and supported the translator in domain specific jargon. Along this line it was soon decided to translate the text of the Data Seal of Approval as well.

Since November 2016 a new version of the Data Seal of Approval was published, in which several requirements were changed to reflect the merge of the original DSA standard with the ICSU World Data System requirements under the heading of “Unified Requirements for Core [originally “basic”] Certification of Trustworthy Data Repositories”.

Although the total set of requirements (16, formally called Guidelines) stayed the same, some major changes were introduced. There are new requirements on “Security”, “Confidentiality/ethics” and “Expert guidance”. These headings already show the still present “scientific data center” view of the DSA. Although the changes are not many, some are significant. For example DSA version 2 originally mentioned explicitly OAIS in guideline 13, where it stated “The technical infrastructure explicitly supports the tasks and functions described in internationally accepted archival standards like OAIS”. The new Requirements only mentioned OAIS for repositories “with a preservation remit”. [11] These differences between the versions of the DSA standards were one of the arguments to introduce an investigation of the understandability of the standard in the Exploratory Phase. For example: “Confidentiality/ethics” might be less obvious for national libraries as it might be for archives and social science data centers.

The translation exercise itself required some tough decisions. First it was agreed not to translate the well-known OAIS terminology into Dutch, as we assumed the people that would use the standards, should also be aware of the common digital preservation terminology. In practice however, several requirements in DSA (and less in the DIN/nestor standard) asked for some contextual information to make it understandable for different domains. For example in the DSA standard the phrase “publication repository” is used but it is not clear whether here a “data publication repository” or a repository with articles is meant. In several cases references

are made to “citations”, which refers to a concept from the scientific domain and is less important when certifying national libraries or archives. So some requirements will need additional information to explain the context. The more so because related to each requirement is a set of documentation that the organization need to prepare for the audit. It is not always clear from the text what kind of documentation is required and as yet no repository is certified against this new standard, there is no evidence from other organizations that acquired the DSA according to these new Requirements. We need to wait how this will work out in practice, but it might have helped if an example list had accompanied the standard (like is done in ISO 16363 with a Self-assessment template).[12]

Both translations of the standards into Dutch are published [13]. Especially the DSA one is now in use in two organizations in the Netherlands that are preparing for this certificate, the National Archive and the International Institute of Social History.

## 2.4 The maturity checking: the Scoremodel

The Scoremodel [14] is an online tool in the Dutch language, in which questions related to 7 areas of digital preservation need to be answered, varying from mission and policy to ingest, knowledge and organization, access, planning and quality control and storage maintenance. Each question has an extensive explanation describing how it is related to digital preservation. The outcome of this exercise is a report, including a spider diagram which gives a clear overview of the main strong and weak areas related to the 7 topics. In the report for each question the answer is (automatically) analyzed, describing the risk related to the answer, the context and suggested actions. advise.

In the new version of the Scoremodel (to be published in 2017) the results are linked to DSA criteria. In this way users can estimate the readiness for starting the DSA certification process. The Scoremodel is a very helpful tool to get a first impression of the maturity of the organization with respect to digital preservation, as well as giving the organization practical advise. It will take 2 to 4 hours to add the relevant information in the tool, of course depending on available documentation.

## 2.5 Training and communication

The working group prepared two workshops in which a large group of Dutch and Flemish organisations (50 in total) discussed their preparations for audit and certification according to DSA. Several smaller Dutch organisations were already preparing themselves for DSA certification, some did this in collaboration with their supplier. Apart from that the NDE program started with a virtual learning environment for digital preservation in Dutch with a special chapter on audit and certification. The main training topics are related to having the right arguments to persuade higher management, requirements for documentation, estimating how much time will be involved in the certification process etc.

## 2.6 Survey to collect experience with DSA

One of the major activities of the NDE-AUDIT working group was designing a survey in order to gather practical information from

colleagues who already applied for the DSA Seal. The following chapter will elaborate on this.

## 3 SURVEY FOR DSA CERTIFIED ORGANIZATIONS

In order to have more sound background information for the Exploratory Phase in which management need to be convinced of the usefulness of the audit and certification exercise and to get a better estimation of the investments and benefits of certification, we wanted to get information from organizations that already had applied for the Data Seal of Approval (pre-2016 version). The working group set up a survey to be held amongst these organizations, under the title “DSA-Experiences: help your peers!” The outcome of the survey could offer us a comprehensive overview of the experience with the certification process, especially as we specifically has some questions related to the first application of the seal. This information we thought important to inform our management about the certification process and to implement the lessons learnt into training and advice for the Dutch organizations’ planning to start the process.

### 3.1 Outline of the survey and the results

The DSA Guidelines were first published in 2008, and had an updated version in 2010 and one in 2014-2015. As of March 2016 some 50 repositories had obtained the seal. Some organizations have published their findings in meeting with DSA-requirements. [14] Yet, no comprehensive overview is available on the experiences regarding the process and results of certification of all DSA-certified repositories. In an effort to collect such experiences the NDE Audit working group requested permission from the DSA Board to field a survey among all digital repositories that had achieved DSA-certification by March 2016.

Despite the change from Guidelines to Requirements, the basic tenets of core certification efforts will remain unchanged, however, and the NDE-AUDIT working group is convinced that the outcomes of this survey can be of considerable significance to organizations considering or actually preparing for DSA-certification – also after the introduction of the DSA’s revised requirements in September 2016.

The survey was sent out to the email addresses of 50 DSA repositories, or organizations that operated such repositories. The DSA Secretariat was confident about the correct delivery to 47 recipients. Of these addressees 18 filled out and sent in the survey. The total results and scores per questions can be found in the official report.[16] In this paper we summarize these findings, without repeating the original answers. For convenience sake, we categorized the answers and identified the following areas:

- Repository characteristics [Q1-3]
- Certifications achieved and planned [Q4-10]
- Trigger for certification [Q11]
- Certification efforts [Q12-13, 19-27]
- DSA comprehensibility [Q14-18]
- Benefits of DSA-certification [Q28-33]

### *Repository characteristics*

Motivation to ask these questions: The DSA audit and certification method was initially focused on research data repositories, but the Dutch candidates for DSA certification are a more varied set of organizations, consisting of libraries, archives, digital art collections, data centers, an AV centre etc. To rightly interpret the answers in the survey, an indication of the kind of digital archive would be important, as would be the size of the organizations. All 18 repositories answered this question. The majority of the respondents describe the type of their repository as domain or subject-based, or as institutional, which is representative for the current DSA community; they employ between 1 and 12 fte's, of which 0.2 to 10 fte's work primarily on preservation tasks. It is noteworthy that the average number of fte's that work primarily on preservation stands at 1; available human resources at the repositories are clearly modest in scope, although four repositories [out of 18] report that they employ more than 8 fte's. Apparently, also repositories with limited human resources have been successful in applying for the seal.

### *Certifications achieved and planned*

Motivation to ask these questions: The NDE-AUDIT working group was very much interested in the "certification history" of the DSA repositories. When did they do their first application for DSA? Did they really renew the certification every 3 years? Were they following the "European Framework model" and planning for the next level? And above all, it was essential that all respondents indicated they would report on their experiences during their first application for the seal.

The respondents were asked which version of the DSA the repositories first obtained (2010 version or 2014-2015, between the two versions are small differences).

Out of 18 respondents, the majority of 14 obtained the more recent version, while 4 of them obtained the 2010 version.

The responses are an indication of the larger uptake of this certification instrument in the DSA domains in recent years.

But how many had renewed their seal after having obtained their first DSA-certification? All 18 repositories responded, of which four that had initially obtained the 2010 seal indicated they had indeed renewed their seal; all others had not yet done so. Given the time frame, there was no necessity to do this. Apart from that there is no pressure from DSA to renew, it is expected that the community will draw their own conclusions when an organization has a seal on its website that is very outdated. A further question in which the repositories were asked for their intention to renew their DSA-certificate showed that all (17 yes) but one stated their intention to do so. We could say that, at least among the respondents, the need for continuous maintenance and renewal of the seal is an accepted practice.

But were they also willing to apply for the extended certification by means of DIN/nestor certification? All 18 respondents answered and most of them (16) had not applied at this level and were not in process of doing so, one of them was investigating DIN/nestor.

Asked whether they were contemplating to apply for the highest level: the external audit on the basis of ISO 16363 no one of the 18 respondents indicated that they had applied or that they were in the process of doing so.

### *Trigger for certification*

Motivation to ask this set of questions related to the trigger for certification lied in the fact that the NDE-AUDIT working group consisted of a variety of organizations all with different motivations to get certified. Building trust and showing that an independent organization had recognized them as a trustworthy organization was for some of them important for the suppliers of data to their data repository. In general it was felt that the "big hubs" as they were called, meaning the main content holders in the Netherlands, should get certified to establish trust in general and to be an example for smaller organizations in the Netherlands. Apart from that there was an expectation that in the long run the funding organizations like the Ministry and research funding organizations would require a certification.

From the wide array of the DSA survey respondents' input, some main considerations can be distilled:

One-third of the answers (7 out of 16) indicate that the repositories were motivated by an existing, inherent recognition of the importance of continuous professionalization and quality assurance in their digital preservation remit. Five answers derive from the repositories' recognition of the value of the DSA in showcasing their value as a trusted digital repository to stakeholders. Another group of five answers indicate that the repository was already involved in the DSA's development or acted on an invitation by the DSA leadership. Four additional answers indicate that the repository's interest was triggered by an internal directive (management) or an external obligation (e.g., condition for partnering in a research infrastructure, funding).

To summarize: while the responses are varied, it is evident that the repositories were mostly triggered by a recognition that DSA-certification is a natural and appropriate instrument in (showcasing) their ongoing professionalization as trustworthy partners for long term digital preservation.

### *Certification efforts*

Motivation to ask these set of questions was the fact that one of the goals of the survey was to deliver a rough overview of the effort and time investment that would be useful to plan the Exploratory Phase and the DSA Certification Process, based on real life experience of first time applicants.

One remark should be made here: based on the answers to the explicit question whether they had decided to keep track of the time investment, all answered that they did not do so before applying for the certification, and only a few (4 out of 16) had decided to do this during the certification process. One could assume that part of the answers below are based on time sheets, some on other sources and some on "memory".

The survey explicitly asked about the estimated time investment in getting a first impression of the DSA as a certification instrument.

This is what we would call the Exploratory Phase. The majority (65%) reported an estimated time investment of 10-20 hours; 3 chose the category 0-10 hours and 2 indicated 20-40 hours. A single respondent indicated a larger amount of time, 60 hours or more.

The actual time investments in the first step of the DSA procedure: the internal preparations, took more hours. The majority (60%) reported a time investment of 50-100 or 100-200 hours; 4 chose the category 0-50, while 2 indicated larger investments (1 of 200-300 and 1 of 500 or more).

Followed by the steps of submission and the actual peer review (questions for clarification etc.) 17 repositories responded; 1 skipped this question. The majority (78%) reported a time investment of up to 50 or 50-100 hours; 2 chose the category 100-200, while 2 estimated larger investments (1 of 200-300 and 1 of 500 or more). In a separate question the survey asked the respondents for their biggest challenge in dealing with the peer reviewer's comments. This question was primarily intended to identify (potentially) problematic aspects of the respondents' interaction with the peer reviewers. But most answers (8 out of 13) indicated that the respondents had in fact not encountered "challenges" or "problems."

But did the time investments comply with or perhaps exceeded their expectations? Responses (16 out of 18) were distributed quite evenly through the full range of potential answers. If we leave out the three respondents who reported that they had no preconceived expectations on this issue, the largest subgroup (6) indicate they had underestimated the required investments, a smaller subgroup (4) had correctly estimated this aspect and the smallest group (3) had overestimated the required investments.

To summarize: for developing a first impression of the DSA, most respondents estimated a time investment of 1-20 hours; for preparations for the DSA procedure, most respondents estimated a time investment of 50-100 or 100-200 hours; for the actual certification process, most respondents estimated a time investment of up to 50 or 50-100 hours. None of the respondents had decided beforehand to keep a record of time investments, but four out sixteen decided to do so at a later stage. Some repositories had no preconceived idea of the required investments; the remaining ones varied widely in their evaluation of expected time investments vs. actual investments. The largest group of these (6 out of 13) indicated they had underestimated the required investments. We expected that a potential source for higher time investments than expected might be the interactions with the peer reviewers, but most respondents indicated that they had not experienced problems in this regard.

#### *DSA comprehensibility*

Motivation to ask these questions was the fact that at the time of the DSA Survey, the new version of the DSA-WDS was not yet officially approved by the DSA Board. But the NDE working group made a comparison between the DSA Guidelines 2014-2015 and the new version as published on the RDA website, as the development of the latest version was an activity of the RDA Repository Audit and Certification DSA-WDS Partnership Working Group.[17]

The latest DSA version took a similar approach as ISO 16363 in choosing the main topics, which are now Organizational Infrastructure, Digital Object Management and Technology. Although the total amount of the original guidelines (as it was called in version 2014-2015) are the same amount as the current Requirements, 3 new Requirements appeared, covering "organizational infrastructure," "expert guidance" and "security". It is not possible to make a one to one comparison as there is no background information about the motivation behind the changes, but the influence of the already existing WDS Criteria is visible. Based on this comparison it became clear that some terminology used was rather domain specific and not always compatible in other domains. This was the reason to explicitly ask whether DSA was comprehensible to the variety of organizations: how clear and straightforward were the DSA guidelines?

The majority of the respondents (65%; 17 out of 18 responded) rated these aspects of the Guidelines as "adequate-excellent." A considerably smaller subgroup (4) rated these as "adequate," and the smallest group of respondents (2) opted for "poor-adequate." No respondent chose "poor" or "excellent."

When asked to identify DSA Guidelines they found most difficult to comply with, respondents listed every guideline in separate comments – but most guidelines appeared in those comments only once. The main reason was that they could "not yet" comply with a given guideline because no preservation plan, no written workflow or no policy for acceptance of file formats was in place at that moment. Apparently they improved the required documentation during the certification process.

#### *Benefits of DSA certification*

The participants in the NDE-AUDIT working group made an earlier attempt to convince Dutch organizations of the benefits of getting certified, and published a leaflet [18], inspired by the benefits mentioned on the DSA website, although they are no longer mentioned on the DSA website :

- stakeholder confidence
- improvements in communication
- improvement in processes
- transparency
- differentiation from others
- awareness raising about digital preservation.

But how did the DSA certified repositories experience this? 17 respondents out of 18 responded. Clearly the benefit of enhanced "transparency" was rated with the highest significance (8 times as "essential" and 8 times as "considerable"). An *internal* benefit received the highest number of ratings as "considerable" (12): "awareness raising about digital preservation." Two other benefits that were highly rated are of a more *external* nature: "stakeholder confidence" received 9 ratings as "considerable," and seven respondents rated "differentiation from others" as a "considerable" benefit.

It is noteworthy that one respondent rated the beneficial effects on "stakeholder confidence" as negligible. In a more detailed question we asked for some more details about the impact of the DSA certification on various aspects of their own organization and

repository. Four aspects scored high on “considerable” in 16 out of 18 respondents: “management’s recognition of the value of long-term preservation and sustained availability of digital assets”, “digital preservation policies” and “technical digital preservation practices” and “the capacity to attract data producers”. Also, the impact on the organization’s professional reputation was rated as “considerable” and “essential.” These ratings confirm the areas where DSA-certification intends to have its strongest impact: by imposing structured, professional and community-driven expectations (guidelines or requirements) on the applicants’ policies and work processes, DSA-certification guides and encourages organizations to describe, document, improve and monitor their essential preservation tasks.

Reportedly, the impact was much smaller in the area of “financial planning” and “allocation of financial resources.” Still, the impact on “allocation of staff” was predominantly rated as “satisfactory.” Given these benefits, would the repository also recommend this type of certification to others within their domain?

The vast majority of the respondents (17 responded, 1 skipped the question: 88%) answered affirmatively; they were either 'certainly' (9) or 'very likely' (6) willing to do so.

When queried about their willingness to recommend DSA-certification to their peers, the vast majority of the respondents answered affirmatively, and when asked why they would be willing to do so, most comments characterized the DSA as an instrument to buttress quality assurance efforts. Another strand of motivations related to the quality of the seal as a sign of professional maturity to be showcased to stakeholders and colleagues. The majority of the respondents rated the ratio between investments and benefits as “adequate-rewarding” to “rewarding-excellent”. The final question was related to “lessons learned” or other relevant experiences to pass on to future DSA-applicants. To this question the respondents’ input showed a high level of community sentiment. Most provided a balanced review of their overall experience, placing the required levels of investment on at least an equal footing with the perceived and reported benefits. Key words in respondents’ final remarks hovered around the need for thorough documentation and preparation, significant contributions to professional accomplishment and a tangible boost to quality assurance in the respondents’ work.

### 3.9 Lessons learnt for the NDE Working Group

The Survey offered enough information to propagate this basic certification to most of the organizations if they reserved some time to get acquainted with DSA. In our opinion the Exploratory Phase is a good description of this.

The outcomes of the DSA survey gave a significant insight in the DSA certification process. On all aspects we were investigating, the answers either confirmed our view – like the internal benefit of getting more management attention for digital preservation – as well it gave us more insight in the required effort. There were also some lessons to take with us, as for example to register the time investment. We only need to wait now for some experience of organizations applying for the DSA 2016 version as there is no experience with that yet. One of the requirements that worried the

partners in the NDE-AUDIT working group most was the level of required documentation, that seemed to be more than in the DSA 2014-2015 version.

Based on the information of the DSA survey and an educated guess of using the Scoremodel, the following time table was created:

Expected effort according to Dutch model			
1	Initial Self-Assessment based on Scoremodel		2 hrs adding information in model (educated guess) and X hours internal discussion (up to organization)
2	Exploratory Phase		1-20 hrs based on outcome survey
3	DSA	internal preparations	50-200 hrs based on outcome survey
	DSA	submission activity and peer review discussions	50-100 hrs based on outcome survey

## 4 CONCLUSIONS

Over the course of 3 years a group of Dutch preservationists collaborating in the NCDD and the NDE worked on popularizing audit and certification in an attempt to professionalize digital preservation in the Netherlands. Several large organizations prepared themselves for certification, resulting in 2 partners receiving the DSA pre-2016 Seal, one partner renewed this seal, 1 partner acquired the DIN/nesor seal as the first in the world currently 2 partners are preparing for the 2017 DSA version. Apart from these partners in the NDE-AUDIT group several smaller organizations and their suppliers in the Netherlands are preparing themselves, supported by the practical support of the outcomes of the NDE-AUDIT group and meeting each other in regular training sessions organized by the same working group, all traveling along the originally designed Roadmap for Audit and Certification.

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