Examining Barriers for Establishing a National Data Service

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Abstract

A system for monitoring the current situation of Data Archive Services (DAS) maturity in European countries was developed during the CESSDA Strengthening and Widening in (SaW 2016 and 2017) and further adapted in CESSDA Widening Activities 2018 (WA 2018) projects for continuous monitoring. An assessment of the existing national data sharing culture, the development of the social science sector and its production of high-quality research data, the funders’ research data policy requirements, and the capacity and skills of national grassroots initiatives, provide a framework for understanding the current situation in different countries. Methods used in the projects, included desk research of existing documents and a survey, combined with extensive interviews focused on the area of expertise of the informants (individuals from data services, research and decision makers’ representatives from each country). The focus of the paper is the situation in 20 non-member CESSDA European countries with emerging and immature DAS initiatives. Results show that countries are slowly but persistently removing the key obstacles in establishing a DAS initiative in their respective countries. The remaining obstacles reside mainly outside the control of the data professional community – namely research funders slowly adopt data sharing policies and incentives for data sharing, including the provision of a sustainable DAS infrastructure, capable of supporting researchers with publishing and accessing research data. The results show that the lack of expertise and skills of DAS initiatives, their understanding of tools and services or organizational settings are not such an issue, as more mature DAS are organising training and mentorship activities. Detailed guidance in the DAS advocacy and planning was prepared in the framework of the above-mentioned pan-European and some past regional projects. The tools and framework of those activities will be referred to in the discussions as a resource that can be used in other countries and continents.

Keywords

strategies for setting up data services, international partnership, data policies, CESSDA ERIC

Introduction

Establishing and running a national Data Archive Services (DAS) can bring many benefits to the scientific community. The CESSDA ERIC, as a distributed pan-European social science data infrastructure, strives for a whole European Research Area (ERA) coverage, thus enabling equal opportunities for access to research data, regardless of researchers’ origin. CESSDA ERIC membership is country-based, and a signature from the responsible Ministry needs to be obtained. Each country nominates a country Service Provider, which is usually an individual institution/organization that is actively engaged in the national DAS provision.

In order to document and support activities among the CESSDA Partners non-member countries, a system for monitoring individual country situations was developed during the SaW (2015 – 2017) project. The effort was continued within the WA 2018 project, which established a system of continuous monitoring in order to capture and reflect the most current progress. The monitoring aims to address the problems of less mature DAS, and offers to search for solutions for the common
problems and support for improvement. The aim is also to increase the visibility of individual country initiatives and organisations that many have already gone over long periods of trying to establish a professional data service for their research community.

In this paper, we will examine mainly the results of the most recent WA 2018 project, where one of the tasks was to continue the monitoring of the status of data archive services, led by the ADP⁴. Both projects contained a number of other activities, which we will refer to when discussing the results of the monitoring.

**Problem setup**

The SaW and WA 2018 projects developed an unique monitoring approach that examines a range of conditions of establishing and running a DAS in each of the countries by addressing the wider context of the data-sharing ecosystem. The approach starts with estimating the overall financial position of social sciences in a country, and considers the differences among countries regarding the demand for data sharing services. Continues national studies that produce high-quality data are important in this respect. Next, the data sharing culture among the scientific community was estimated, both regarding the readiness to share one’s own data, and the widespread habit to use existing data whenever possible.

A broad area of enablers and constraints influence a data sharing culture in the social sciences community. In particular, the research funders add yet another dimension to the ecosystem, by providing the policy framework with requirements for all regarding opening data, by stimulating the data management planning in order to maximize access to high-quality reusable data, and by providing incentives and a support environment that gives incentives to those that prepare and openly share data. Finally, a mature ecosystem and an established culture of data sharing enable sustainable operation of DAS, which in turn can support its parts to function well. It is the funders and the community of users and data depositors that influence the orientation of the DAS initiatives in individual countries and who can profit from its efficient functioning. In this respect, it is important that initiatives and small pilot DAS that arise based on well-developed professional grounds, actively engage with the user's community, and demonstrate and advocate with the decision makers about the justification of their activities. Developed DAS can have a multiplying effect to support further development of social sciences, in particular with providing access to relevant high-quality data that tackles important societal issues.

Evidence was collected and the situation in each above-mentioned aspects was examined for the range of European countries. Each of the aspects had a few pre-set questions, that were adapted during the in-depth interviews with selected national informants, and finally, a country report was written, emphasizing the main, either the positive factors or barriers and weaknesses in the system. The main focus was the DAS vitality and sustainability, both regarding internal organization and external conditions.

Stakeholders in individual countries or regions need to determine internal goals while comparing the current gaps in their countries with others and act correspondingly. The group of countries, identified to be at the similar level may consider following best practice examples to achieve a more mature and supportive open scientific data ecosystem. The results presented here can motivate in
finding sustainable arrangements for a particular national situations, matching the interests of both the scientific community and the policy makers.

**Previous studies**

As a baseline, some past studies were taken into account. The CESSDA widening projects were built upon the continuous experiences, arising already from the UNESCO Workshop on Social Science Data Archives in Eastern Europe in 2002. A group of more than 10 countries’ initiatives to establish the national DAS were engaged in informal cooperation under the EDAN - the East European Data Archives Network and coordinated by the GESIS Leibniz-Institute for Social Sciences at that time. SERSCIDA project (2012-14) was the first in a series of projects that provided full-fledged support and activities workflow for establishing a national DAS from scratch. Four well-established CESSDA European DAS partnered in the project with the DAS initiatives from Bosnia and Herzegovina, Croatia and Serbia. Results of the surveys by the SERSCIDA project in Bosnia-Herzegovina, Croatia and Serbia show that in the absence of a data infrastructure and support services, in practice, research data are mostly shared with colleagues and peers within the research group/institution, or not shared at all, despite the fact that researchers may be very willing to share their research data with the wider scientific or civil community. Within the SERSCIDA project, several country’s working visits of well-established partners were organised, training modules were delivered for archiving professionals, draft archive policies and business plan documents were developed and prototype webpages were established.

In the following years, a series of projects followed with similar aims and approach to SERSCIDA, including those mentioned in the introduction, which produced the manuals and guides and knowledge sharing materials that have the potential of wider relevance for the archiving community. All the projects and initiatives mentioned provided some overview of the conditions and capacities of different organisations, residing in the national contexts.

A comprehensive overview of the national open social science data policies was firstly provided in the IFDO Report from 2014 (Kvalheim and Kvamme, 2014). Chuck Humphrey’s analysis of the profiles and organisational settings that collected information of DAS worldwide, aiming at the proposal of how to establish a national DAS in Canada, started with a similar assumption as we do in the country reports: a comprehensive set of conditions needs to be explored in each national setting, which will in turn help to shape further development steps. That is, there is no development model that fits all.

As an inspiration about how to approach in describing the complex situation regarding DAS in the variety of European countries, some of them in the initial stage of considering how to start activities, a metaphor of the data sharing ecosystem was used: ‘It is a complex system involving data collectors, stewards, and users as well as sponsors and stakeholders; emergent and historical transparent technologies; and ever-growing data along with their myriad associated artefacts. The system must be understood in totality in order to optimize the whole and not just the individual components.’ (Parsons et al., 2011, p. 557).

Data sharing culture is a key systemic component that determines the efficiency and sustainability of a data ecosystem. Much research has been done in the last decade across disciplines and at international level on research data sharing culture, data sharing and management practices, on barriers and enablers. This published literature provides us with much information on this topic, which is most likely applicable across countries. Both detailed qualitative or mixed studies (Borgman,
2012, EAGDA 2014, Van den Eynden 2016) and comprehensive surveys (Sveinsdottir et al. 2013, Van den Eynden 2016) assessing data sharing practices, barriers and enablers amongst researchers at a local, European or international level - some of which focus on specific research disciplines, others look across a range of disciplines – identify numerous perceived or real barriers to data sharing, such as the lack of standards and data infrastructure, the fear of competition, the costs and the absence of rewards to prepare data and documentation, amongst others. Among enablers of data sharing generally reported in the literature, we could stress the data sharing expectations of funders, institutions and journals (Tsoukala et al. 2016), the established habits in the research community, and the areas where DAS support is visible, like professional training on data management skills, and enabling data publication for citation.

Method

Results and reports from the previous Widening activities (SERSCIDA, SEEDS) and in particular, the most recent documents, such as the SaW Country reports and National Development Plan documents were taken into account while assessing the national situation in 2018, with an emphasis on change and progress being made nationally.

The mapping contains a review of the elements identified in the introduction of the wider data-sharing ecosystem: the interplay of the structural conditions of social science development, the funders open data policies and strategies, and the data sharing culture and the incentives that increase the data sharing habits of researchers. External stakeholders, in particular funders, can play an important role in improving the national data service sustainability. Research funders are the key stakeholders that can help to provide incentives and remove some of the barriers to data sharing. Advanced policy recommendations, appropriate funding mechanisms and strong DAS can lead to a sustainable data-sharing ecosystem.

Finally, the countries where no formal DAS exist were analysed regarding the potentials of integration of initial RDM support infrastructure. By identifying proto-activities and open access support activities, we detected actors and institutions that could play a key role in the elaboration of a new national DAS. The list might be of help to funders and CESSDA Main Office on a national and an international level when planning further development.

A monitoring system has been established consisting of the following steps: Step 1: Desk research to consult the existing sources of information; Step 2: Selection of contact(s); Step 3: Tailoring semi-structured interview (country and stakeholder-specific); Step 4: Contact and carry on the interview, either orally or written.

Monitoring has been based on regular short interviews of CESSDA Partners and other contacts established in non-member countries. The country reports on recent developments summed up information from the previous reports, and the monitoring interview.

The project group decided to approach 22 countries among all ERA CESSDA non-member countries to monitor in 2018. Those that had at least one possible productive contact identified in previous rounds of activities among the relevant stakeholders (policy makers, research data expert or similar).

A list of countries was determined and distributed between 5 partners in this task in June 2018. Contact Info table from CESSDA SAW project was updated with recent contacts. Reporting on the contacts made during the interviewing period was filled in by partners.
Based on the Protocol for selection of interviewees and communication, including the initial contact e-mail template, the majority of the requests for interviews were sent between October and November 2018 and realised soon after. The last interviews were conducted in January 2019.

Map 1: CESSDA Member and Partner countries, as of mid-2018

The most recent reports sum up past and existing information gathered on different occasions for each individual country, and add up to what is new from the fresh interviews.

Results

Most of the interviewees were social science data researchers or data librarians, involved in the organisation of the national data archives services.

Some of the services have a longer time span, being already members of the old CESSDA (pre-ERIC era). Some went through an institutional change, like in Ireland and Italy, where the seat of the DAS had moved compared to old CESSDA. Some sustain in a low level of activity for a longer period of time, such as Estonia, Poland, Slovakia and Romania, without being able to make a breakthrough to
achieve the status of a national Service Provider for CESSDA. The reason for the latter is not having a ministry ready to sign the agreement to join CESSDA and to support sustainably the national DAS.

From the recent era, the notable progress of the DAS initiatives in many countries results from their participation in the various widening projects mentioned before. These projects were important for engaging with stakeholders in countries (funders, researchers, etc.) and for acquiring the professional competences of the people and organisations involved. Out of those projects, strong and well-elaborated plans for DAS in Serbia, Croatia, and Macedonia arise that are recently becoming new CESSDA member states.

Development of the social sciences sector in the country
The focus of the first part of the interviews was on funding capacities, human resources and infrastructure, international collaboration and national studies as a driver of DAS demand in the country.

Most reports that came from economically less developed countries share an impression of low status of social sciences research, which has consequences for the generally low supply of high-quality key research data resources and for the weak policy and funding support of data service activities.

Yet the inference of data archiving service may influence in the direction of higher quality data produced in the future, by raising awareness of the importance of data sharing and by pooling the resources around fewer new data-collecting projects as the benefit arising from wider reuse of existing data, which were among the justifications given in the national reports in favour of establishing the DAS in less developed countries like Albania and Kosovo.

Other benefits include the fact that important national data can be preserved and used for longitudinal studies, in particular for example evidence from ex-ante policy evaluations. Secondary data can bring value for teaching and training. Such and similar arguments have been part of the reports and national development plans in some of the countries like Croatia and Ireland.

RDM policy and support setting
One of the key elements of data sharing ecosystem is national funders’ policies for data documentation and management facilitating data sharing and ethical and legal framework. A clear research data policy in a country prepares a space for existing and emerging DAS to function more efficiently. A mature policy is exemplified by interview questions about the requirement to prepare a Data Management Plan (DMP), a recommendation about appropriate place of deposit, selection of data based on quality and reuse potential for long-term curation, the importance of legal and ethical guidelines to attain clarity on the legal conditions framing the envisaged re-use of research data.

The EU commission has been active in setting of the Open Science agenda to its members. The Open science policy platform contains references to European Open Science Cloud (EOSC), FAIR data and other initiatives. With the launch of the Open Research Data Pilot in Horizon 2020 projects, the EOSC and the adoption of the Digital Single Markets strategy and the new Directive on Open Data and Public Sector Information, the RDM strategies and implementations are becoming an important factor in the research infrastructure development in countries where no formal data archive service (DAS) exists or where the RDM support infrastructure is not integrated. The success of the
implementation of the EU recommendations is seen from the EU Commission report about current national open science policy activities (DGRI, 2018).

In the interviews, the topic was addressed from two angles. Following from the top-down requirements of the national research data policy aligned with the EU recommendations, the question was about how to support the bottom-up implementation. A notable example arises from Croatia, where Croatian Initiative for the establishment of the Social Science Data Archive referred to a positive acceptance of the RDM training activities offered by them in different regions of the country. They have further speculated that the Croatian Science Foundation may extend the existing requirements for keeping research data from humanities to social sciences as well and that the future CESSDA SP from the country can help to fulfil the requirements by offering a full range of data support services. Similarly, in Iceland, parallel to the three-year funding to build the DAS planned in 2019 at the Social Science Research Institute, the country is in a process of articulating the first Icelandic Research Infrastructure roadmap and a national policy for open access to data.

To conclude, we can observe the discrepancy between the sometimes-isolated policy plans in the countries, as visible in the EU reports about the national settings, and the reality of the low level of data sharing practices. The national DAS, that follows the CESSDA overall mission, can fill in that gap, including supporting data citation, and other incentives to the science community.

Data sharing culture

A data sharing culture is hard to assess objectively just by interviewing one or few informants from a country. Behaviour/practices, attitudes and perceived barriers and incentives for data sharing, the RDM support and practices was a topic of that chapter, with informed country experts estimating for example the willingness of researchers to share data and the channels they use, and the experiences of researchers of how likely they obtain data if needed. Some of the questions addressed the rewards and career progression that someone could anticipate if active in open data sharing practices.

The answers reflect a generally low level of systemic data sharing and little or no awareness about best practices in managing and documenting data for reuse. In one of the interviews, an informant from Macedonia stated that currently ‘(...)this is done on an individual basis by the involved researchers.’

Countries with active initiatives for establishing the DAS can already show their visibility in their national setting, with researchers starting to think about data sharing from the projects beginning, and seeking collaboration with the DAS initiative. As reported in Croatia, the collaboration agreement with one of the projects ‘will consist of preparation of the DMP, and final version of data for submission to the DAS service, with the purpose to further distribute data and promote its usage.’

Data infrastructure

The assessment of data archive proto-activities in countries where no formal CESSDA ERIC membership exists was the main part of the recent CESSDA Widening 2018 reports. The focus of the description of the situation for the countries that do not have national DAS was put on exploring the conditions for establishing a data service that could in the future obtain the role of a CESSDA national service provider, labelled as DAS proto-activities.
Some of the European countries have a long tradition of research data management (RDM) and data archiving in social sciences, while others are at the very beginning.

The overview of the profile and the organisational infrastructure shows that most organisations provide a publically available mission that clearly declares that it carries out the main required functions of a typical data archive. While the ambitions and potentials for delivering a fully flagged DAS service are common to all types of organisations, the analysis also shows a substantial variation on some of the aspects of maturity self-assessments among the ‘aspiring’ members. Countries should provide long-term funds for the establishment and functioning of the DAS, in order to be able to fulfil the mission clearly stated in the documents. Sustainability of the DAS or the DAS initiative is the main problem in most of the countries considered in the reports. The main factor in sustainability is the lack of resources and the related absence of political support.

There are groups of countries that follow a similar path and have similar problems.

The first group are countries that are only at the beginning of their activities, and no firm decision has been taken about how to organise the DAS. Some institutions from those countries participated in some of the past CESSDA projects and were identified as potential partners, yet they do not show any recent activity on the institutional level, little or no advocacy or involvement in projects, and little or no political support. For some of those no contacts could be established or no productive interview obtained in 2019, even though some of them participated in previous rounds of country reporting activities. The potential for future activities in existing human resources, technological infrastructures and support services (libraries, research institutes, and research information services) were areas addressed in the DAS proto-activities part of the assessments of the countries with no existing data infrastructure. This is countries like Cyprus, where the country report concludes with an observation: ‘Currently, there is no institutional and technical infrastructure for data deposit in SSH in Cyprus. Also, official steps or public initiatives towards establishing a DAS for the social sciences were not identified.’ The Kosovo DAS initiative representatives participated already in the SEEDS project and continued their participation in the SaW, where areas of activities were strategically planned. Yet, upon requesting an update, the representatives explained, that currently, they ‘do not have any further comment to the state of the art that they hope to find the support to boost the archive in Kosovo in the future’. A similar situation has been found in Montenegro and Albania, both collaborating in writing the National development plans in previous rounds. A subgroup of the countries with currently no active initiative for establishing a DAS identified are Spain and Luxemburg, both having active social science data archives in the previous decades.

The next group consists of countries with long established but a very basic level of DAS service. The DAS have been running already for some time on minimal financial and human resources. Usually, they are represented by a single person and with little or no institutional support, seeking to reach the funder and decision-makers to help establish a more robust framework for a functioning DAS. Typical is the situation in Poland. Poland has the Polish Social Data Archive, ADS, led by Marcin Zieleński for more than 20 years, sadly observing that despite a long tradition of making social research in Poland, ‘most of the data have been already lost because of the lack of financial sources to preserve them and structural possibilities of long time preservation.’ Estonia, Romania, Latvia, all have been already long established but unable to reach sufficient funding for a continuously mature DAS running, and lacking political support for the CESSDA ERIC country membership.

For those countries, the expertise has already been acquired in the past years, by keeping contacts with the CESSDA Experts’ community and participating in some of the projects. One of the most important ones was the SaW project, that in addition to the country’s overall monitoring and planning, as already referred, offered also an introductory Core Trust Seal (CTS) training that experts from those countries attended. Voluntary self-assessment regarding the criteria of the CTS and organisational maturity self-assessment aimed for the country report was useful, as it actually demonstrated the lack of a sustainability component in its core. As observed, the DAS in those
countries run without regular staff members, mainly on a voluntary basis of the involved individuals or as an in-kind contribution of host institutions.

Finally, there is a group of countries that are reaching the support from the Ministries and funders, while also showing a range of activities in improving the DAS. Among them are countries, that were involved in all CESSDA Widening projects, like Croatia and Serbia. Serbia became a CESSDA member this year, and there is a good prospect for Croatia as well. Those two countries started from scratch with the individuals, that were involved in the series of Widening projects, there acquiring the necessary skills and competences, and following the suggested advocacy and planning strategies. It took more than five years since the beginning of the SERSCIDA project to reach success, and this is one of the biggest lessons learned - persistence eventually pays off. Macedonia, Bosnia and Herzegovina, and Bulgaria, among the Balkan countries with no legacy of a DAS, are on a good prospect to gain support both nationally and institutionally.

Organisations in Italy, Ireland, Iceland, and Slovakia are active in extending their already established institutional services to nationwide services or consortia and are trying to gain the Ministry’s support for the CESSDA membership. Belgium is unique within this group, as the country already obtained the CESSDA membership status, parallel to the on-going SODA project (Social Sciences Data Archive) which aims to set up a data archive in Belgium once again, as there was one in the past. Common to all actively establishing organisations is detailed investigation about the technical and legal issues, in particular about the types of licenses and agreements with users, and the business model of the future.

Russia is a special case regarding the CESSDA Membership, since it is a non-EU member country and therefore its inclusion probably demands a specifically developed legal framework. The Joint Economic and Social Data Archive (JESDA) is running already since the year 2000, and with ambitions to actively contribute to a data sharing culture in the country by providing an extended training programme. The Ukrainian National Data Bank of Sociological Data “Kyiv Archive” as the national service provider for SSH data is in a similar position. The staff from both organisations attend events organised by the CESSDA lead projects, and actively contribute to the activities, including providing reports about the current situation regarding the DAS service and its environment.

**Discussion**

**Visibility**

Proto SPs gain their visibility in the national setting by being included in one or more CESSDA Widening project activities. The CESSDA Widening projects, following from the state-of-the-art national reports, provide a framework for ‘proof of concept’ of the prototype DAS. National development plans and Media packs are being produced in consecutive projects, with the guidance from the projects on the general structure and actively adapted to specific national settings. Partners from institutions that collaborated in the Widening projects that are either working for some time already on the project of establishing a DAS, or are just starting, through the involvement in the projects catalyse the national discussion and help generate the network among different stakeholders. Thus, one important side product of the widening activities, both while preparing national reports and development plans, has been an update of the contact list of the people in a country that were consulted in various phases of the project activities. Most importantly, when the decision makers and funders’ representatives were involved in the National Development Plans, they add to the realistic planning and confirmation of the key aspects, including the expectations regarding financial and political decisions about joining CESSDA and fulfilling their membership obligations.

The most effective way to gain a momentum of visibility was the opportunity for the new partners to host some of the planned conferences, meetings and workshops of the Widening projects in their respective countries with the financial support from the CESSDA projects. This was usually seen as an
opportunity for the candidate National CESSDA Service Providers to demonstrate to the national stakeholders their involvement in the professional community. The first day of a typical Widening workshop was composed of an introductory session, where both national decision makers and institutions leadership representatives were present, together with similar invited stakeholders from other countries. The aim was to present and exchange experiences both nationally and in European space.

National development plans (NDP)

NDP addressed the series of challenges that a new DAS has to deal with. It starts with a mission and designate community statements. It covers the preservation policy, collection plan and organizational setting, including its board role, the staff composition and financial resources. The tools and services are described, either as a decision already taken or as a topic that needs to be dealt with in the next steps. The last round of the national reports considered the NDP fulfilment. What it showed is that the more detailed and specific to the circumstances of the organisation they are, the more effective they have been in their actual fulfilment. From the SaW project NDP drafts the Kosovo, Montenegro and Albania follow-up reports are missing, however, all other countries are showing substantial progress.

Some of the partners were actively involved in the parallel CTS training and provisional self-assessments that were organized as the activity of the dedicated CESSDA Trust projects and continues to provide support for both members and non-members regarding gaining the CTS. Both NDP and CTS evaluation and planning processes follow the approach where guidance contains the range of options, and the organisations themselves realistically decide to choose the processing level and data complexity that feels capable to control, reflecting also on the national traditions of supply and demand for data. Thus the policy and organizational framework planning is structured around the decision to deal with anonymized data only, or to cover more complex services of secure access to sensitive personal data as well, including for example qualitative data. Most of the partners are engaged with different stakeholders to reach a more stable position, as seen from different projects and activities reported on a country level. CESSDA MO has an active role in those countries, providing support letters or visits to the ministries representatives. There is always an opportunity for experts from those institutions to collaborate in the CESSDA ERIC lead projects, and to participate in some of the workshops and training, which helps to sustain the professional contacts and to keep some minimal human resources involved.

Experts and services from different countries are seeking support in different areas that are covered in the resource directory, in particular looking for new shared tools for running services. One of the areas identified during the SaW project is the customisation of DataVerse to the European setting with a simple docker installation, available for new or aspiring partners.

The CESSDA SaW and the WA 2018 projects prepared support packs for partners that address some of the problems identified. The WA 2018 project offered a Resource Directory, that contains references to documents, training, tools and support services from the past CESSDA projects and from the SP’s, addressing and analysing the needs of the partners that are expected to utilise the resources. The resources can help new partners to build a data archiving professional basis. The original resources from different SPs can help also the existing partners to upgrade their services, as a reference for drafting the forms and agreements used in the DAS in relation to data deposit and

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access. Besides those, the resources that partners demand the most arise from the areas of the technical infrastructure, and the funding and advocating of the DAS\textsuperscript{16}, including references to the EU Open Science initiatives, and more clearly described criteria that the CESSDA members SP needs to fulfil.\textsuperscript{17}

In the new WA 2019 project the support extends to a mentorship programme, within which interested organisations with an ambition to improve on certain areas may apply to. The mentorship is delivered by the participating CESSDA SPs. Experts that are new to the CESSDA community and participate in the WA 2018 workshops and activities, expressed some concerns that the support information and resources are dispersed. The Expert guide about the data archiving can fill that gap, customised to reflect the European DAS\textsuperscript{18}.

**Conclusions**

Parts of the conditions that affect the research data infrastructure concern the financial and institutional statuses of social sciences in each country. In some of the current CESSDA membership countries, we can find excellence in the development of social science that is supported with a robust and multifaceted research data service. What we often encounter at the other end is a syndrome of underdevelopment, where lack of funds affects every other aspect of the science system, including the infrastructure. Where social sciences have a low budget in general, there are usually also poor conditions for a data infrastructure. The impact of gradually establishing a robust data infrastructure in that case can have an even greater impact on building a data sharing culture and improving the excellence and the efficiency of research in general. If data is shared widely, such immediate effect can be provided by improved quality control and transparency of the research.

Focus for the countries that do not have a national Data Archive Service (DAS) was put on exploring the conditions for establishing a data service that could in the future obtain the role of a CESSDA national service provider. These conditions are to a large extent contained in the areas of wider data sharing ecosystem addressed, such as the financial and structural conditions of the social sciences sectors, the scientific policy requirements and norms established in the scientific community. These external stakeholders play their role in influencing the existence of DAS and constitute a data sharing cultural environment.

There are internal stakeholders that are capable and willing to play a role in the establishment of new future services, and which can bring current services to a higher maturity level. For the countries that do not have a running DAS, it is essential to ground the establishment of its services primarily on internal resources, which means to find the potential for future activities in existing human resources and organisational settings. The key factor in the slow but persistent growth of the CESSDA Membership are enthusiastic and eager individuals that internalize as their mission the formation of a national service. Such individuals, at the beginning mainly supported by their home institutions (usually universities or research institutes), communicate and help to articulate the needs of their scientific and academic communities, by demonstrating the advantage of establishing a DAS compared of none. The lobbying activity with funders and decision makers eventually brings a change. The last part is probably the toughest, as evidenced by the many failed missions reported. The ministry staff is prone to fluctuations (frequently in some of the countries with a less stable political situation), therefore it may happen that due to this the already obtained agreements fail.
The aims of the various Widening projects are not fully accomplished yet, since the full European coverage has not been obtained yet. New countries are joining or are about to join, which shows that the CESSDA widening projects add to catalysing the establishment of data services. The CESSDA ERIC, its national Service Providers and partners seek to continue their widening activities in some of the current and future projects, such as WA 2019 and GUIDE.

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End-notes
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2 Strengthening and widening the European infrastructure for social science data archives project funded by the EU Horizon 2020 Research and Innovation Programme under the agreement No.674939. http://cessdasaw.eu/about/

3 CESSDA Widening Activities 2018, project under the call CESSDA Work Plan Tasks 2018 https://www.cessda.eu/About/Projects/Work-Plans/Work-Plan-2018#wide

4 Arhiv Družboslovnih Podatkov [Social Science Data Archives, University of Ljubljana, Slovenia]. FORS – Swiss Foundation for Research in Social Sciences, ČSDA – Czech Social Science Data Archive, SND – Swedish National Data Service and TARKI – Foundation as project partners in WA 2018 contributed to the task.

5 See SERSCIDA project deliverables: Country mapping reports for Bosnia and Herzegovina, Croatia and Serbia. Project web: http://www.serscida.eu/en/; Deliverables: http://www.serscida.eu/en/deliverables

6 E.g. see https://www.adp.fdv.uni-lj.si/serscida_wp4_lj2013_working_visit/

7 SEEDS (South-Eastern European Data Services 2015-17; http://seedsproject.ch) project supported by Swiss National Fonds; SaW and WA 2018.

8 International Models of Data Archiving Services: http://slideplayer.com/slide/5039424/

9 SaW Deliverable 3.2 Country report on development potentials: http://cessdasaw.eu/content/uploads/2017/11/D3.2_CESSDA_SaW_v1.3.pdf

10 SaW Deliverable 3.4 National development plans for data services in non-CESSDA member countries in the ERA http://cessdasaw.eu/content/uploads/2017/11/D3.4_CESSDA_SaW_v1.0.pdf

11 National Development Plans For Data Services In The Era & Media Packs https://www.cessda.eu/Tools-Services/For-Service-Providers/National-development-plans-for-data-services-in-the-ERA-media-packs

12 Polish Social Data Archive, ADS: http://www.ads.org.pl

13 See for example Strengthening And Widening Of The European Infrastructure Of Social Science Data Archives WA 2018 Workshop in Milano, Italy: https://www.cessda.eu/widening2018/, and Belgrade, Serbia: https://www.cessda.eu/belgrade2018/

14 See Footnote 11.

15 WA 2018. Deliverable 1 – Resource Directory, 2019.

16 WA 2018. Deliverable 5 – gap Analysis of CESSDA Resources, 2019

17 CESSDA Workplan Trust 2019 project will work on Annex 2 obligations of the CESSDA Statutes; Compare: https://www.cessda.eu/content/download/733/6532/file/Wittenberg.pdf

18 Authors opinion is that Curating Research Data, Volume Two: A Handbook of Current Practice could serve as approximation for that purpose.

19 GUIDE - Growing the European Infrastructure of Data Archives for Raising the Bar in Distributed Research project submitted by CESSDA MO as lead partner to H2020-INFRADIVE-2018-2020.