

NSD DMP – Enabling long-term preservation and sharing of Research Data



Norwegian Centre for Research Data adopts RDA DMP Common Standard for Machine-actionable Data Management Plans Recommendation



NSDs Data Management Plan (NSD DMP) is a tool for enabling long-term preservation and sharing of research data. Its purpose is to enable researchers to manage their data in a lawful, well-structured and secure manner, and for the data to be stored, reused and understood in the future. The goal of NSD DMP is to enable researchers to share their data with as few legal, financial and practical barriers as possible, and to

free up resources and capacity for practicing research. Also, the aim is that NSD DMP will contribute to a cultural change with respect to data sharing - it is an initiative towards a broader national FAIR ecosystem for keeping research data as open as possible and as closed as necessary.

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The challenge

At NSD - Norwegian Centre for Research Data we aimed to build a DMP tool that served two main purposes: we wanted it to be a platform where the users could compile and collect information about project data, and also to serve as a platform where researchers could find helpful information about relevant guidelines and services, on both a national and an institutional level. Initially we started out by building our DMP tool based on the templates that were coming out of the EU's Horizon 2020 framework and the suggested requirements that were proposed by Science Europe (Practical Guide to the International Alignment of Research Data Management). But these were designed as prescriptive templates or questionnaires. We needed smarter and more dynamic ways to serve our users. We wanted to make a DMP tool that provides more than the static guidance that is common in predefined DMP templates. Our ambition was to provide personalised guidance, specific to each user, and to make it actionable by triggering actions in other systems. We also wanted to accommodate for integration with other national (and international) services by allowing for information exchange of the content in registered DMPs.

The RDA outputs adopted

NSD DMP adopts parts of the application profile in the RDA DMP Common Standard for Machine-actionable Data Management Plans Recommendation. We specifically looked at new ways of distinguishing between project information and dataset information when creating a DMP. We also considered ways of integrating security and privacy issues with information on relevant data hosting options. We found much valuable input and inspiration in the set of semi-automated workflows that were designed in the RDA DMP Common Standards Working Group. These processes show how data management planning can be supported by means of automation and system integration in an institutional context. The mockups that came out of the Working Group helped us to better imagine the totality of such a system and provided us with valuable suggestions as on how to develop our own DMP tool with machine-actionable elements. Actionability: Provide an API /machine actionable landing page to access metadata and data via query re-execution.

The adoption process

NSD DMP introduces new machine-actionable functionality with a built-in module that classifies data in terms of confidentiality and level of data security. The classification module provides policy recommendations for collecting, storing and archiving data based on the classification of data into either open (green), restricted/internal (yellow), confidential (red), or strictly confidential (black) categories.

The DMP tool also introduces a new archive/repository guide, which helps users identify national archives and repositories that are relevant for their data. The archive guide uses APIs from re3data.org, with the list of suggested

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archives and repositories for a dataset based on research discipline, and whether the archive provides support for persistent identifiers, quality management, embargo settings and different levels of openness.

The DMP tool is integrated with a Data Policy Manager, which allows institutions to design interactive and machine-readable policies that can be linked to internal and external systems as needed. The tool enables institutions to define their own policies for a wide variety of general and institution-specific storage services, data transfer applications and data collection tools. The institutionally defined policies are integrated into the data classification module in the DMP tool.

The impact of the adoption

Sharing and reusing data is high on the research policy agenda, both nationally and internationally. New requirements and guidelines have emerged with regard to FAIR-principles, Open Science and the GDPR. Many Norwegian research institutions are currently investigating how requirements for access and sharing, set by the Ministry of Education and Research, can be met effectively - and what tools, suppliers and infrastructures can contribute to this. The Government's Digital Agenda stipulates that each business and institution must have an overview of the data it manages: what the data means, what it is used for, what processes it is part of, and who can use it. This also involves deciding which data can be

made available for reuse and further use. The agenda also states that businesses and institutions should make appropriate information available in machine-readable formats, preferably in standardized formats and via APIs. NSD DMP will guide researchers throughout the research cycle, and provide an overview of services for providing access to data and sharing data - both during and at the end of the project. The DMP service will support researchers and institutions in their efforts to share data and make their data accessible, in line with FAIR principles and recommendations and guidelines from the Ministry of Education and Research and research funding agencies.

Lessons learned

We found that using the application profile of **DMP Common Standard for Machine-actionable Data Management Plan** - in combination with BPMN use case process and the maDMP mock-ups - as a platform for the development of NSD DMP was instructive and fruitful. An important lesson learned was to focus on specific parts of the application profile and the BPMN process. We started out by focusing on several parts of the DMP workflow, but narrowed our scope by focusing on the "Specify Size and Type" (specifically 'Specify Output Data' and 'Classify/Tag Data') and the "Get Repository" ('Recommend Repository' and 'Repository Selection') processes. Ready-to-use APIs from re3data made the implementation of the "Get Repository" functionality a 'low-hanging fruit'.

About NSD

NSD – Norwegian Centre for Research Data - is a national archive and research data centre. Its mission is to ensure free and open access to research data, and improve the basis for empirical research through a broad range of data and support services. Access to data is at the heart of modern research infrastructure. NSD's prime focus is that research data is a common good to be shared. The principle of open access, equitable treatment and sharing of research data has governed the centre's activities since its foundation in 1971. NSD cooperates with many national and international institutions to provide the best possible services to research and education communities. This enables us to contribute to the expansion and development of Nordic, European and international research infrastructure, focusing especially on the social sciences, humanities and health subjects.

NSD

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