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Norway

Executive Summary

In the 2000s, Norway made several strides with the use of OSS. In 2010, it became mandatory for public sector bodies to make their documents and forms available in Open Document Format (ODF). By 2010, all 19 county administrations in Norway use OSS in some form, compared to 76% in 2005¹. Uses of OSS were found to vary from server operating systems, content management systems to OpenOffice. At present, a wide variety of Norwegian public authorities maintain a GitHub presence, including the National Museum (*Nasjonalmuseet*)^{2,3}, the Directorate for Civil Protection and Emergency (*Direktoratet for samfunnssikkerhet og beredskap*)^{4,5}, the Norwegian Mapping Authority (*Kartverket*)^{6,7}, and the Norwegian Meteorological Institute (*Meteorologisk institutt*)^{8,9}, among others¹⁰.

Historically speaking, Norway had a rich variety of strategic players working to raise awareness on and increase the use of open source software (OSS) throughout the country. The Norwegian Free Software Association for Municipalities, *Friprogforeningen*¹¹, and *Friprogsenteret (Friprog)*¹² were both prominent independent actors working to increase the use of OSS in the public sector. Over time these strategic players ceased their operations. Furthermore, it remains unclear as to who the main body in charge of drafting OSS policies or strategies is, however, it is thought that responsibility for this domain lies with the Department of ICT Policy and Public Sector Reform¹³, located within the Ministry of Local Government & Modernisation¹⁴.

Although OSS appears to be lower on the list of governmental priorities in recent years, there are a wide variety of dynamic OSS initiatives in Norway from the last few decades, such as FiksGataMi¹⁵, a Norwegian iteration of FixMyStreet and Altinn¹⁶, an eGovernment platform offering services to ease regulatory reporting processes.

¹ https://joinup.ec.europa.eu/sites/default/files/document/2014-06/eGov%20in%20NO%20-%20March%202014%20-%20v.11.0_0.pdf

² <https://www.nasjonalmuseet.no/>

³ <https://github.com/nasjonalmuseet>

⁴ <https://www.dsb.no/>

⁵ <https://github.com/dsb-norge>

⁶ <https://www.kartverket.no/en>

⁷ <https://github.com/kartverket>

⁸ <https://www.met.no/>

⁹ <https://github.com/metno>

¹⁰ <https://government.github.com/community/>

¹¹ <https://joinup.ec.europa.eu/collection/open-source-observatory-osor/document/frikomport-sharing-code-costs-and-benefits-0>

¹² <https://www.friprog.no/>

¹³ <https://www.regjeringen.no/en/dep/kmd/organisation/departments/departments-of-national-it-policy-and-public-governance/id1589/>

¹⁴ <https://www.regjeringen.no/en/dep/kmd/id504/>

¹⁵ <http://www.fiksgatami.no/>

¹⁶ <https://www.altinn.no/en/>

Actors

This section presents the policy makers who are active in digitalisation efforts and influence the status of open source in public sector, as well as the main strategic players that work together with the government at all levels to raise awareness on OSS. In Norway, there is no governmental body that is specifically responsible for OSS policies.

Policy makers

- The Department of ICT Policy and Public Sector Reform¹⁷, located within the Ministry of Local Government & Modernisation¹⁸, is responsible for the coordination of public sector reform; formulating the strategy and policy for the use of ICT in society; the government's public administration policy; and finally providing socio-economic and other fact-based analyses of the use of resources in public administrations. Furthermore, the Ministry uses the Department of ICT Policy and Public Sector Reform to coordinate all eGovernment activities, namely public sector development and ICT policy¹⁹.
- The Norwegian Digitalisation Agency (Digdir, formally known as Difi)²⁰ was born from the merging of the Norwegian Agency for Public Management and eGovernment, and Altinn, the data management section of the Brønnøysund Register Centre. The Agency is the Norwegian government's foremost tool for faster and more coordinated digitalisation of the Norwegian public sector. It is subordinate to the Ministry of Local Government and Modernisation. The Norwegian Digitalisation Agency also works with several advisory bodies related to digitalisation. The Agency is responsible for Altinn^{21,22} – an open source eGovernment platform – and other open source solutions^{23,24}, including the national data catalogue, data.norge.no.²⁵
- The Norwegian Labour and Welfare Administration (NAV) is the public welfare agency of Norway. As a key player in the IT landscape, they advocate the use open source in many of their projects and maintain an active presence on GitHub.²⁶ The logic behind their use of open source is to foster a relationship of trust and openness between NAV and their users. Most of the source code and documentation that they create is available as open source, in line with the belief that the outputs of public funds should be publicly available. NAV has also published their rationale and guidelines on how to work with open source software on GitHub.²⁷

¹⁷ <https://www.regjeringen.no/en/dep/kmd/organisation/departments/department-of-national-it-policy-and-public-governance/id1589/>

¹⁸ <https://www.regjeringen.no/en/dep/kmd/id504/>

¹⁹ https://joinup.ec.europa.eu/sites/default/files/inline-files/Digital_Public_Administration_Factsheets_Norway_vFINAL.pdf

²⁰ <https://www.digdir.no/>

²¹ <https://www.altinn.no/en/>

²² <https://github.com/altinn>

²³ <https://www.difi.no/>

²⁴ <https://github.com/difi>

²⁵ <https://github.com/Informasjonsforvaltning>

²⁶ <https://github.com/navikt>

²⁷ <https://github.com/navikt/offentlig>

Strategic players

- The Norwegian UNIX User Group (NUUG)²⁸ is a non-profit association that works to increase the use of UNIX systems, free and open source software software and open standards in Norway. The association was formed in June 1984, with the original purpose of stimulating increased interest and use of UNIX, as well as creating good conditions for the exchange of information and experience between users. Nowadays, NUUG also acts as a liaison body with other international groups and organizations with similar areas of interest. In addition to other solutions, NUUG is responsible for managing FiksGataMi, the highly popular Norwegian iteration of FixMyStreet²⁹.
- *Friprogsenteret (Friprog)*³⁰ was an independent centre for free and open source software which aims to increase knowledge of and confidence in open source software in both the public and the private sector. Active between 2007 and 2014, the centre worked with various actors such as businesses, public institutions, universities, colleges and R&D organisations³¹. Although fully funded by the government via the Ministry of Government Administration and Reform, Friprog was designed in such a way as to deliver completely independent advice and services in the public as well as in the private sector. Friprog's website, friprog.no, is still accessible and it contains an online catalogue that gives users access to applications and software solutions, each of which is complemented by a user manual. However, given the closure of the centre in 2014, the website has been inactive for some years.
- The Norwegian Free Software Association for Municipalities, *Friprogforeningen*, was founded in 2011 with the specific aim of safeguarding the development of an open source course management tool FriKomPort³². This software project was started by seven municipalities in Norway's Kongsberg region, who together wrote the first version of Frikomport in 2006. The municipalities made the code freely available under the GPL public licence. Over time, the aims of the association expanded to include developing and managing free and open source software for use in public administrations and offering solutions via an open source cloud system.^{33,34} The current status of *Friprogforeningen* remains unclear, as the original website domain no longer functions. Furthermore, it appears as though the solutions of *Friprogforeningen* are now hosted on KS Læring³⁵, via Moodle learning management system³⁶.

²⁸ <http://www.nuug.no/info.shtml>

²⁹ <https://joinup.ec.europa.eu/collection/open-source-observatory-osor/news/fiksgatami-2020-open-source-based-fixmystreet>

³⁰ <https://www.friprog.no/>

³¹ <https://joinup.ec.europa.eu/collection/open-source-observatory-osor/document/independent-advice-norways-friprog-competence-centre-0>

³² <https://joinup.ec.europa.eu/collection/open-source-observatory-osor/document/frikomport-sharing-code-costs-and-benefits-0>

³³ <https://joinup.ec.europa.eu/collection/open-source-observatory-osor/news/hosting-makes-open-source-ea>

³⁴ <https://joinup.ec.europa.eu/collection/open-source-observatory-osor/news/norways-municipalities-run-o>

³⁵ <https://www.kslaring.no/local/catalogue/index.php?all=1>

³⁶ https://joinup.ec.europa.eu/sites/default/files/inline-files/eGovernment%20in%20Norway%20-%20February%202016%20-%202013_0_v1_00.pdf

Policy and legal framework

This section summarises the main open source software related policies and legal acts of the last ten years, including the first known milestone in this domain. The list is presented in a chronological order, starting from the most recent milestone.

- In 2007, the Norwegian Ministry of Modernization recommended the use of Open Document Format (ODF) and open standard PDF for all official documents³⁷, based on initial recommendations that were given by the Norwegian Standards Council³⁸. The recommendation was accepted and since 1 January 2010, it is mandatory to ensure that all documents and forms emanating from public sector bodies that are to be filled out by users are made available in ODF. This regulation enhances the equal accessibility of users and suppliers to the information available on the websites of both central and local government. Under the new regulations, all public websites are required to use HTML as the primary format for publishing content on their websites³⁹.
- In 2002, the Norwegian Association of Local Authorities and the Agency for Public Administration *Forvaltningsnettsamarbeidet* of the Department of Employment and Administration decided against renewing a core agreement with Microsoft in order to allow for increased competition from OSS and other software competitors⁴⁰. This decision was taken at a time when the Ministry of Employment increased its focus on the use of ICT in the public sector and evaluating the possibilities of increasing the use of OSS⁴¹.
- In 2001, the Department of Employment and Administration's *Statskonsult* agency published a report⁴² recommending the use of OSS in the public sector and in education⁴³. The report highlights the advantages of OSS in terms of cost savings. It encourages the use of Linux and OSS more generally in schools to help students become more acquainted with OSS and help schools save money on licensing costs. Furthermore, it will help contribute to reduced dependency on individual vendors, thus preventing vendor lock-in⁴⁴. The report also examines the possibility of schools developing software in-house and publishing the code as OSS.

³⁷ <https://www.csis.org/analysis/government-open-source-policies>

³⁸ <https://joinup.ec.europa.eu/collection/open-source-observatory-osor/news/norway-it-ministry-recommend>

³⁹ https://joinup.ec.europa.eu/sites/default/files/document/2014-06/eGov%20in%20NO%20-%20March%202014%20-%20v.11.0_0.pdf

⁴⁰ <https://www.csis.org/analysis/government-open-source-policies>

⁴¹ <https://www.statskontoret.se/globalassets/publikationer/2000-2005-english/200308a.pdf>

⁴² <http://developer.skolelinux.no/rapporter/r2001-07.pdf>

⁴³ <https://www.csis.org/analysis/government-open-source-policies>

⁴⁴ <https://www.statskontoret.se/globalassets/publikationer/2000-2005-english/200308a.pdf>

Open source software initiatives

This section presents an overview of the main open source software related initiatives in Norway. The list is presented in a chronological order, starting with the most recent initiative.

- CityLoops, 2019⁴⁵: Launched in 2019, the EU-funded CityLoops project aims to tackle the issue of excessive construction and organic waste, which are two of the most significant urban material flows. Using the principles of circular economy, CityLoops project will develop a series of innovative procedures, approaches and open source tools to recycle waste. The project involves six European cities: Høje-Taastrup and Roskilde (Denmark), Mikkeli (Finland), Apeldoorn (the Netherlands), Bodø (Norway), Porto (Portugal) and Sevilla (Spain)⁴⁶.
- Norwegian Health Archives, 2019⁴⁷: The National Health Archive (NHA)⁴⁸ of Norway is being built using OSS solutions, including Linux, MariaDB, Elasticsearch and Archivematica. The archive, a specialised part of the National Archives of Norway, is to become a digital repository for patient archive material from hospitals, intended for research purposes⁴⁹. All historical, current and future medical records from deceased patients must by law be remitted to the Norwegian National Health Archives. Paper-based records will be digitised, indexed and archived together with new digital ones. It is hoped that the data will show the development of the population's health over time, thus providing potential new avenues for research.
- Directorate for Building Quality, 2018⁵⁰: Located within the Ministry of Local Government and Modernisation, the Directorate for Building Quality (DiBK) is a national competence centre for building quality and served as the Norwegian building authority. Since 2018, the Directorate has maintained a presence on GitHub and uploaded several open source solutions currently in use in the Directorate⁵¹.
- Nordic Smart Government Project, 2018⁵²: The Nordic Smart Government project aims to create value for public administrations, businesses and citizens by facilitating data sharing in an automatic and secure manner. The programme was launched by the Nordic Ministers of Business in May 2018, and three Norwegian public sector bodies contribute to the project; the Brønnøysund Register Centre (*Brønnøysundregistrene*), the Norwegian Statistical Agency and the Norwegian Tax Authority. The project's source code is available on GitHub.⁵³

⁴⁵ <https://metabolismofcities.org/community/research/projects/107>

⁴⁶ <https://joinup.ec.europa.eu/collection/open-source-observatory-osor/news/open-source-recycling-tools>

⁴⁷ <https://www.pigl.com/norwegians-digital-health-data-to-be-preserved-for-future-generations/>

⁴⁸ <https://www.arkivverket.no/om-oss/norsk-helsearkiv>

⁴⁹ <https://joinup.ec.europa.eu/collection/open-source-observatory-osor/news/being-open-builds-trust>

⁵⁰ <https://dibk.no/>

⁵¹ <https://github.com/DirektoratetForByggkvalitet>

⁵² <https://nordicsmartgovernment.org/>

⁵³ <https://github.com/nordicsmartgovernment>

- Norwegian Broadcasting Corporation, 2016⁵⁴: The Norwegian Broadcasting Corporation (*Norsk rikskringkasting* (NRK)) is the Norwegian government-owned radio and television public broadcasting company, and the largest media organisation in Norway. Since 2016, they have been using open source in many of their products and services, and the source code is freely available on GitHub⁵⁵. In order to further the potential reach of the code beyond Norway, all software contributors communicate in English.
- Open source training, 2016⁵⁶: In 2016, third-level education institutions in Norway, Sweden and Germany collaborated with ICT training organisations and public administrations in Spain and the United Kingdom to develop courses to students to help SMEs select and use open source cloud services⁵⁷. Upon completion, students will be equipped with the skills to identify the ICT needs of SMEs, select the OSS solutions to meet these needs, and implement and configure them.
- Altinn portal, 2016⁵⁸: The Altinn portal is an eGovernment platform offering services to ease regulatory reporting processes from users to government agencies. It is a solution to develop and maintain forms and work processes, together with a reporting solution to facilitate the information flow from business to government. Businesses file their reporting information to Altinn either through an Internet portal website, or by using their own internal information systems or software packages. Individuals can also file their personal income tax electronically through Altinn⁵⁹. Since 2016, the source code for Altinn has been made available on GitHub⁶⁰.
- FixMyStreet, 2015⁶¹: In 2015, the Norwegian Unix User Group developed an update of the localised version of the FixMyStreet website, FiksGataMi. The updated version is tailored for mobile devices, and there also is a custom app for Android devices. The service is in use in approximately 67 municipalities; however, it covers all 428. Citizens can use the service to report potholes, graffiti, broken streetlights and other issues to municipal administrations. As of 2020, FiksGataMi has been in operation in Norway for 10 years, with over 66,000 active cases in the system⁶². A new release was made available in March 2020 with additional security features.
- Emergency response system, 2015⁶³: Norway's Akerhus county adopted an open source system for early warning and crisis management. The alert system can be used to warn students, teachers, school personnel and the emergency services about crisis and security situations. The

⁵⁴ <https://nrkno.github.io/>

⁵⁵ <https://github.com/nrkno?page=3>

⁵⁶ <https://drive.google.com/file/d/0B0XxolhBXpbmU09Xb2dZZm5PS3M/view?pref=2&pli=1>

⁵⁷ <https://joinup.ec.europa.eu/collection/open-source-observatory-osor/news/european-colleges-share-smes>

⁵⁸ <https://www.altinn.no/en/>

⁵⁹ https://joinup.ec.europa.eu/sites/default/files/inline-files/Digital_Public_Administration_Factsheets_Norway_vFINAL.pdf

⁶⁰ <https://github.com/altinn?page=2>

⁶¹ <http://www.fiksgatami.no/>

⁶² <https://joinup.ec.europa.eu/collection/open-source-observatory-osor/news/fiksgatami-2020-open-source-based-fixmystreet>

⁶³ <https://www.cw.no/artikkel/skole-utdanning/skolene-akershus-far-eget-varselsystem>

solution was manufactured in Denmark and programmed in Lithuania, and the source code is freely available on GitHub⁶⁴. The solution uses CentOS Linux, Apache and Postgresql components and provides features such as two-way communication, video, and - for the crisis response team - maps of buildings displaying the real-time location of users of mobile devices connected to the system.

- Electronic Public Records, 2015⁶⁵: In 2015, the Norwegian government launched a collaborative tool based on OSS to help central government agencies upload their public records online. Public record data is stored in a searchable database. Users can search this database to locate case documents relevant to their field of interest and request access to the documents. In 2018, the system was upgraded and renamed eInnsyn⁶⁶, however, it is not clear whether it is still based on OSS⁶⁷.
- KOHA, 2014⁶⁸: KOHA is a fully featured, scalable library management system. In January 2014, the Oslo Public Library announced that it will use KOHA for the core of the new library building that was opened in 2017. KOHA was selected after considering proprietary alternatives and in-house development. KOHA was chosen based on the fact that it can be customised to the needs of the Oslo Public Library without limitations. Oslo Public Library's iteration of KOHA, along with other open source solutions currently in use there, are freely available on the Library's GitHub page⁶⁹.
- GeoNorge, 2014⁷⁰: Launched in 2014, the GeoNorge portal is the national portal for Norway's geospatial infrastructure, owned by the Norwegian Mapping Authority. It is the largest open, standards-based eGovernment component in daily use in Norway. It constitutes the umbrella for a large number of geospatial eServices, making basic geographic information and a variety of thematic information readily available. The information provided by the portal enables geospatial information to be used by different communities, including public administration and environmental management bodies⁷¹. Furthermore, the source code of GeoNorge is freely available on GitHub⁷².
- Subversion, 2011⁷³: In 2011, the Norwegian Ministry of Local Government and Regional Development used an OSS version control system to publish the government's eVoting system as OSS. The version control system, Subversion⁷⁴, is distributed under an Apache licence. The

⁶⁴ <https://github.com/magenta-aps>

⁶⁵ <https://joinup.ec.europa.eu/collection/open-source-observatory-osor/news/electronic-public-records>

⁶⁶ <https://einnsyn.no/>

⁶⁷ <https://www.regjeringen.no/no/aktuelt/einnsyn/id604997/>

⁶⁸ <https://koha-community.org/>

⁶⁹ <https://github.com/digibib>

⁷⁰ <https://www.geonorge.no/>

⁷¹ https://joinup.ec.europa.eu/sites/default/files/inline-files/eGovernment_in_Norway_March_2017_v2_00.pdf

⁷² <https://github.com/kartverket>

⁷³ <https://joinup.ec.europa.eu/collection/open-source-observatory-osor/news/no-ministry-uses-open-source>

⁷⁴ <http://subversion.apache.org/>

source code was continuously updated prior to local elections that were held on 12 September 2011. Detailed documentation was also made available in order to simplify the code's understanding. The publication of the code contributes to more transparency and better control of the system.

- Nordic Open Source Initiative Network, 2010⁷⁵: Since 2010, land survey organisations in Denmark, Finland, Iceland, Norway and Sweden have worked together as part of a collaborative network to share national spatial information catalogues, using open source as the basis of this collaborative work⁷⁶. Nowadays, the land surveys test joint projects, share services and work on OpenSearch. The group members also exchange ideas on solutions for authentication and authorisation and discuss potential new open source tools that could be helpful for their work.
- GoOpen, 2009⁷⁷: The GoOpen conference on the use and sharing of open source solutions was a two-day event held in April 2009 in Oslo for decision makers from the public sector in Norway, IT-professionals and students⁷⁸. The aim of the conference was to increase the use of open source in the public sector, to help Norwegian and international vendors of open source and open standards software in gaining a market for their products and to encourage developers and investors to business opportunities.
- Norwegian Mapping Authority, 2008⁷⁹: The Norwegian Mapping Authority (*Kartverket*) uses an IT infrastructure based on OSS solutions. OSS was chosen because there were no licensing costs and ultimately, they proved to be better in terms of performance. In the process of introducing the new IT infrastructure, the team had to build up own expertise in order to maintain a functioning system. With the help of online communities, this has been a great success for the Mapping Authority⁸⁰. The solutions are based on Linux RedHat, PostgreSQL, PostGIS and Mapserver. Other OSS solutions owned by the Norwegian Mapping Authority are available on their GitHub page⁸¹.
- District Health Information Software 2 (DHIS2), 2008⁸²: DHIS2 is an open source, web-based health management information system (HMIS) platform for collecting, analysing, visualising and sharing data. Today, DHIS2 is the world's largest HMIS platform and the software development is managed by the Health Information Systems Program (HISP) at the University of Oslo (UiO). The solution is developed in Java and freely available under a BSD licence⁸³.

⁷⁵ <https://joinup.ec.europa.eu/collection/open-source-observatory-osor/news/open-source-helps-nordic-land>

⁷⁶ https://inspire.ec.europa.eu/events/conferences/inspire_2014/pdfs/18.06_1_14.00_Jari_Reini_Jani_Kylm%C3%A4aho.pdf

⁷⁷ <https://joinup.ec.europa.eu/collection/open-source-observatory-osor/event/goopen-2009>

⁷⁸ <https://www.flickr.com/groups/goopen2009/>

⁷⁹ <https://www.kartverket.no/en>

⁸⁰ <https://joinup.ec.europa.eu/collection/open-source-observatory-osor/document/norwegian-mapping-authority-norwegianmapping>

⁸¹ <https://github.com/kartverket>

⁸² <https://www.dhis2.org/about>

⁸³ <https://www.dhis2.org/overview>

DHIS2 is a continuation of DHIS 1, which was first developed in 1998, however, at this time it was not managed by the University of Oslo.

- FriKomPort, 2006⁸⁴: In 2006, the seven municipalities of the Kongsberg region launched a portal to coordinate and administrate courses and trainings for municipality staff, developed entirely with Java and PHP. Once the project was working successfully, other municipalities and organisations became interested and wanted to use the portal as well. The Kongsberg region eventually published FriKomPort as a free software application under the GPL and it has been used widely across Norwegian regional public administrations, universities and other organisations⁸⁵. However, the Chief Technical Officer of FriKomPort was quoted in 2015 as saying that it is “desperately in the need for a total makeover” and that a new site would soon be launched⁸⁶.
- Norwegian Board of Technology, 2004⁸⁷: The Norwegian Board of Technology (NBT)⁸⁸, established in 1999, is an independent government advisory board with a broad range of tasks related to assessment, counselling, dissemination and public debate on new and emerging technologies. In 2004, the NBT issued the Norwegian government with a recommendation to publicly stimulate OSS development through a variety of public sector pilot programmes.
- Skolelinux/DebianEdu, 2001⁸⁹: Skolelinux/Debian Edu is an operating system based on Linux that is intended for education use. The term Skolelinux translates from Norwegian to “school linux”. The software distribution was created with schools in mind and has grown in recent years to the point that it is managed by a rich international community of software developers⁹⁰.

⁸⁴ <https://joinup.ec.europa.eu/collection/open-source-observatory-osor/document/frikomport-sharing-code-costs-and-benefits-0>

⁸⁵ <https://joinup.ec.europa.eu/collection/open-source-observatory-osor/news/noeu-hosting-makes-open-sou>

⁸⁶ <https://joinup.ec.europa.eu/collection/open-source-observatory-osor/news/norways-frikomport-readied-t>

⁸⁷ <https://www.csis.org/analysis/government-open-source-policies>

⁸⁸ <https://teknologiradet.no/>

⁸⁹ <https://wiki.debian.org/DebianEdu/>

⁹⁰ <https://joinup.ec.europa.eu/collection/open-source-observatory-osor/specific-resources#section-22>

