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Montenegro

Executive Summary

In previous years, the promotion of open source software (OSS) in Montenegro was under the responsibility of the former Minister of Information Society and Telecommunications, who invited schools and the public administration to increase their adoption of OSS solutions and organised events on the subject.

Through the adoption of the Strategy for Using Open Source in Montenegro in 2011, the government presented the importance of open and free solutions within the public administration and schools for the first time. The Strategy was followed by the 2016 Action Plan that identified the focus areas and necessary steps to continue to promote the use of OSS in the country. Following the release of the Action Plan, the Ministry of Information Society and Telecommunication was dissolved and its functions were transferred to the Ministry of Public Administration, Digital Society and Media, which plans to cover the subject of OSS in the Digital Transformation Strategy of Montenegro for 2022-2026.

Despite this, Montenegro has a rich history of volunteers being involved in activities related to the use of OSS, such as organising events and install days in schools and universities. Currently, institutes for higher education are the key players in promoting OSS in Montenegro, offering university courses and activities pertaining to OSS.

Actors

This section presents the key governmental bodies that are responsible for setting OSS policies and the main strategic players that work together with the government at all levels to raise awareness on OSS. In Montenegro, there is no governmental body that is specifically responsible for OSS policies.

Policy maker

- The former Ministry of Information Society and Telecommunications[1] (*Ministar za informaciono društvo i telekomunikacije*) was tasked with the implementation of the Strategy for the Development of Information Society[2] and the Strategy for using open source in Montenegro[3]. In 2012, the use of OSS in the public administration was limited to servers and databases[4]. In 2016, the Ministry was dissolved and the task on the development of information society was later transferred to the Ministry of Public Administration, Digital Society and Media[5] (*Ministarstvo*

[1] https://mif.gov.me/pretraga/112474/Otvoreni-kod-donosi-dugorocnu-ustedu.html
[2] http://tehnika-informatika.com/wp-content/uploads/2011/08/strategija_razvoja_informacionog_drustva_u_CG_do2013.pdf
[3] https://www.gov.me/ResourceManager/FileDownload.aspx?rId=84038&rType=2
[4] https://mif.gov.me/pretraga/112474/Otvoreni-kod-donosi-dugorocnu-ustedu.html
[5] https://mju.gov.me/biblioteka/strategije_i_akcioni_planovi

javne uprave, digitalnog društva i medija). This Ministry is closest to policymaking in areas related to OSS, however, there are no explicit references to OSS on its website.

- The Ministry of Education[6] (*Ministar prosvjete*) and the Ministry of Science[7] (*Ministar nauke*) were involved in the promotion of OSS, in alignment with the 2016 Action Plan for the Implementation of the Strategy for Using Open Source[8].

Strategic player

- Universities in Montenegro play a key role in promoting OSS and open data through the promotion of events organized by volunteers, employees, and students. They are also the current drivers of open source initiatives through regular coursework, theses, and other activities. At the University of Montenegro, key players include the Center of Information Systems of the Faculty of Electrical Engineering, and the Faculty of Science and Mathematics. Private universities are also playing a strategic role, such as the Faculty for Information Systems and Technologies of the University of Donja Gorica, and the Faculty of Information Technology of the Mediterranean University. Many universities are also using OSS tools such as Linux and LAMP servers, OSS development tools and programming languages (Python, Java, R, PHP), and software such as Moodle, BigBlueButton, and OSS as part of various courses taught in these schools.

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 Montenegrin Government plans to address, define strategies, set strategic goals, and increase the interaction of the Ministry of Public Administration, Digital Society and Media with the OSS community in the future Digital Transformation Strategy of Montenegro for 2022-2026. This future strategy follows up on posterior action plans and strategies presented below in chronological order, starting from the most recent milestone.

- The Action Plan for the Implementation of the Strategy for Using Open Source[9] was adopted in 2016. As the follow-up from the below-mentioned 2011 Strategy for using open source in Montenegro, this Action Plan identified three focus areas, namely strengthening the strategy by involving associations and private companies, improving the use of open source in schools and promoting further its use within the public administration.
- The Strategy for Using Open Source in Montenegro[10] (2011) presented OSS as a cost-efficient solution for public institutions and aimed to promote the switch to open source and the

[6] https://mps.gov.me/ministarstvo
[7] https://mna.gov.me/ministarstvo
[8] https://www.gov.me/ResourceManager/FileDownload.aspx?rId=243020&rType=2
[9] https://www.gov.me/ResourceManager/FileDownload.aspx?rId=243020&rType=2
[10] https://www.gov.me/ResourceManager/FileDownload.aspx?rId=84038&rType=2

development of Montenegrin tools that could be utilised in other markets. At the time, the use of OSS was primarily oriented towards education due to the introduction of IT courses in some school curriculums. The strategy listed goals that emphasised promoting the use of OSS in public administrations and the education system, plus the development of IT skills.

- The Strategy for the Development of the Information Society (2009-2013)[11] highlights the use of open source as one of the required steps for the cost-efficient development of the country's ICT, through the allocation of incentive funds and development of projects exclusively based on OSS.

Open source software initiatives

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

- Strengthening Open Source, 2016[12]: The 2016 Action Plan for the Strategy of using open source in Montenegro listed 'strengthening the open source initiative' as a goal. This initiative relied on the organisation of events[13] that presented the challenges and opportunities[14] in the use of OSS and open calls for the introduction of OSS solutions.

- Ministry of Education, 2016: The Ministry of Education performed a number of activities for the implementation of ICT solutions, which included the use of OSS. Several of the portals created by the ministry were built with OSS, such as the School network (*Školska mreža*[15]), which provides information on educational institutions in Montenegro, Portal for parents (*Portal za roditelje*[16]), which monitors and surveys university graduate students, and Portal for teachers and students (*portal za anketiranje nastavnika i učenika*), which provides information about projects and procedures in the education system. Additionally, a number of educational institutions have their own websites that are mainly created using OSS technologies such as Wordpress or Joomla.

- Scientific Network (*Naučnu Mrežu*), 2016[17]: The Ministry of Science developed the second version of the Montenegrin information system for scientific data and research. The platform uses OSS such as Drupal, Linux, Apache, MySQL and PHP and also serves as a stage for communication and the exchange of ideas, work and projects between scientists and visitors.

- Montenegro Open Source, 2010[18]: Montenegro Open Source is a group of volunteers that started organising events and meetups aimed at the promotion of OSS, primarily Linux and

[11] http://tehnika-informatika.com/wp-content/uploads/2011/08/strategija_razvoja_informacionog_drustva_u_CG_do2013.pdf
[12] https://www.gov.me/ResourceManager/FileDownload.aspx?rId=243020&rType=2
[13] https://www.gov.me/pretraga/165518/INFOFEST-2016-Open-source-u-Crnoj-Gori-izazovi-i-mogucnosti.html
[14] https://www.slideshare.net/tp0x45/open-source-u-crnoj-gori-izazovi-i-mogunosti-infofest-2016-budva-montenegro
[15] http://www.skolskamreza.edu.me/
[16] https://www.dnevnik.edu.me/login
[17] https://naucnamreza.me/
[18] https://www.facebook.com/groups/258034517594279/

Open Office. The group was very active in the period 2012-2016 and worked on raising awareness about OSS. During that time the group certified as a Local Community for Ubuntu Linux (Ubuntu LoCo) and executed several install days and OSS promotional presentations, primarily in schools and universities. Most of the people from these groups are now employed in local universities and have continued promoting OSS in their courses and projects. These promotional events were occasionally featured in media and local newspapers[19].

- Ubuntu LoCo Montenegro Team, 2007[20]: Members of the official group of the Ubuntu Community of Montenegro were involved in information technology-related conferences such as the annual IT Conference organised in Žabljak, Montenegro, and Infofest organised in Budva, Montenegro. The Community participated in panel discussions or plenary presentations that reflected the use, advantages, and importance of OSS.

[19] https://www.vijesti.me/vijesti/343571/u-podgorici-prezentovana-nova-verzija-ubuntu-os
[20] https://wiki.ubuntu.com/MontenegroTeam