



DG DIGIT

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# Open Source Software Country Intelligence Report Turkey 2021

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# Turkey

## Executive Summary

In the 2000s, the Turkish government led the development of Pardus, a Linux-based operation system in order to disseminate the use of open source software (OSS) by the country's public administrations. Pardus is currently used by thousands of Turkish schools and various public administrations, including the Turkish military. In the last decade, the development of open source software within public administrations has been a recurrent objective of the Turkish government's eGovernment and digital strategies and action plans, as stated for instance in Turkey's Eleventh Development Plan<sup>1</sup> and the 2020 Annual Programme of the Turkish Presidency<sup>2</sup>. The Pardus project also gained importance since 2016, with the development of several Pardus-compatible OSS aiming at complementing the operating system: the Octopus cyber security software<sup>3</sup>, the Engerek identity management system<sup>4</sup>, the Liderahenk management system<sup>5</sup>, and the Interactive Board Interface Project<sup>6</sup>. Since 2020, the Turkish government has intensified its effort to encourage the development of an open source ecosystem in Turkey with the creation of an Open Source Platform<sup>7</sup>, gathering around 100 public entities and private organisations in order to foster the use of open source software in the country.

The development of OSS has been led by the Turkish government, with the support of the Scientific and Technological Research Council of Turkey<sup>8</sup> (TÜBİTAK) which is the governmental agency in charge of the management, funding and conduct of scientific research in Turkey. Within the central government, the main body in charge of drafting OSS policies or strategies is not explicitly stated; however, it is thought that responsibility for this domain lies with the Digital Transformation Office of the Presidency of the Republic of Turkey<sup>9</sup>.

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<sup>1</sup> [https://sbb.gov.tr/wp-content/uploads/2020/03/On\\_BirinciPLan\\_ingilizce\\_SonBaski.pdf](https://sbb.gov.tr/wp-content/uploads/2020/03/On_BirinciPLan_ingilizce_SonBaski.pdf)

<sup>2</sup> [https://sbb.gov.tr/wp-content/uploads/2019/11/2020\\_Yili\\_Cumhurbaskanligi\\_Yillik\\_Programi.pdf](https://sbb.gov.tr/wp-content/uploads/2019/11/2020_Yili_Cumhurbaskanligi_Yillik_Programi.pdf)

<sup>3</sup> <http://www.ahtapot.org.tr/ahtapot.html>

<sup>4</sup> <http://www.pardus.org.tr/projeler/engerek/>

<sup>5</sup> <http://www.liderahenk.org/>

<sup>6</sup> <http://www.etap.org.tr/>

<sup>7</sup> <https://www.turkiyeacikkaynakplatformu.com/>

<sup>8</sup> <https://www.tubitak.gov.tr/en>

<sup>9</sup> <https://cbddo.gov.tr/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 Turkey, there is no governmental body that is specifically responsible for OSS policies.

### *Policy makers*

- The Digital Transformation Office of the Presidency of the Republic of Turkey<sup>10</sup> is responsible for the implementation of the digital transformation of public institutions and increasing the efficiency and quality of Turkish public services in line with the goals, policies and strategies set by Turkish government.
- The Ministry of Industry and Technology<sup>11</sup> is tasked with the development and implementation of all policies pertaining to the digitalisation of the Turkish state and society. When examining the future potential of OSS policies emanating from the Ministry, the following units should be considered:
  - The National Technology Directorate General<sup>12</sup> is in charge of the implementation and support of programmes on open source software and systems and open data fields. The Directorate General is also in charge of contributing to the development of the digital transformation ecosystem.
  - The Strategic Research and Productivity General Directorate<sup>13</sup> is tasked with the cooperation with relevant institutions and organisations in studies to be carried out to develop science, industry, technology, research, development and innovation policies and the contribution to the implementation of the government policies, monitoring, coordinating and evaluating the results.

### *Strategic players*

- The Scientific and Technological Research Council of Turkey<sup>14</sup> (TÜBİTAK) is the governmental agency in charge of the management, funding and conduct of scientific research in Turkey.
- The Software Technologies Research Institute<sup>15</sup> (TÜBİTAK-BİLGEM-YTE), a research institute affiliated to TÜBİTAK, develops Research and Development-focused software solutions that take into account new technologies and innovative approaches to meet the objectives of Turkey's digital transformation strategy.

<sup>10</sup> <https://cbddo.gov.tr/en/>

<sup>11</sup> <https://www.sanayi.gov.tr/anasayfa>

<sup>12</sup> <https://www.sanayi.gov.tr/merkez-birimi/c03f1f3bae27/hakkimizda>

<sup>13</sup> <https://www.sanayi.gov.tr/merkez-birimi/92d9c73bddbb/hakkimizda>

<sup>14</sup> <https://www.tubitak.gov.tr/en>

<sup>15</sup> <https://yte.bilgem.tubitak.gov.tr/en>

## 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.

- Turkey's Eleventh Development Plan<sup>16</sup> (2019-2023) defines the policy objectives pursued by the Turkish government until 2023. The Development Plan details that Turkey will develop its open source software industry and network especially in the field of cybersecurity, including via the launch of an Open Source Platform that will allow developers to gather funding and share their solutions. Additionally, the Development Plan promotes the use of OSS within the Turkish public administration.
- The 2020 Annual Programme of the Turkish Presidency<sup>17</sup> includes the development of an OSS ecosystem in Turkey, as well as the launch of an open source platform.
- The National eGovernment Strategy and Action Plan<sup>18</sup> (2016-2019) aims at increasing the digitalisation of the Turkish administration and the development and implementation of eGovernment services. To this end, the Strategy calls for the preparation of a roadmap for the use of OSS within Turkey's public administration and includes the generalisation of the use of OSS for priority information systems<sup>19</sup> in Turkish public agencies.
- The Information Society Strategy and Action Plan<sup>20</sup> (2015–2018) encouraged the use of OSS within the Turkish public administration, including for the provision of eGovernment services. The Strategy promoted the development of an OSS industry and network in Turkey, aiming at supporting the use of OSS in public sector and increased use of IT in the entire economy. Finally, the Strategy aimed at fostering the use of Pardus, the national open source operating system (more information below).
- The first found policy document regarding open source software in Turkey is the Information Society Strategy and Action Plan 2006-2010<sup>21</sup>. Adopted by the then State Planning Organisation<sup>22</sup> (DPT – now part of the Ministry of Development), the Strategy aims at eliminating the elements that hinder competition and create dependency in software and services in public sector ICT procurement with the use of open standards, the application of software quality standards and OSS in the public sector.

<sup>16</sup> [https://sbb.gov.tr/wp-content/uploads/2020/03/On\\_BirinciPlan\\_ingilizce\\_SonBaski.pdf](https://sbb.gov.tr/wp-content/uploads/2020/03/On_BirinciPlan_ingilizce_SonBaski.pdf)

<sup>17</sup> [https://sbb.gov.tr/wp-content/uploads/2019/11/2020\\_Yili\\_Cumhurbaskanligi\\_Yillik\\_Programi.pdf](https://sbb.gov.tr/wp-content/uploads/2019/11/2020_Yili_Cumhurbaskanligi_Yillik_Programi.pdf)

<sup>18</sup> <https://afyonluoglu.org/PublicWebFiles/strategies/2016ESEP/2016-2019%20National-e-Government-StrategyAnd%20Action-Plan-EN.pdf>

<sup>19</sup> Priority Information systems are a type of software that organisations use to manage day-to-day business activities such as accounting, procurement, project management, risk management and compliance, and supply chain operations.

<sup>20</sup> [http://www.bilgitoplumu.gov.tr/en/wp-content/uploads/2016/03/Information\\_Society\\_Strategy\\_and\\_Action\\_Plan\\_2015-2018.pdf](http://www.bilgitoplumu.gov.tr/en/wp-content/uploads/2016/03/Information_Society_Strategy_and_Action_Plan_2015-2018.pdf)

<sup>21</sup> [http://www.bilgitoplumu.gov.tr/Documents/5/Documents/060700\\_InformationSocietyStrategy.pdf](http://www.bilgitoplumu.gov.tr/Documents/5/Documents/060700_InformationSocietyStrategy.pdf)

<sup>22</sup> <http://www.bilgitoplumu.gov.tr/en/>

## Open source software initiatives

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

- Pardus<sup>23</sup>: The Debian GNU/Linux-based operating system Pardus was developed by the Turkish government in 2005, with the support of TÜBİTAK BİLGEM National Electronics and Cryptology Research Institute (UEKAE). The Pardus project aims to foster the dissemination of OSS within the Turkish public sector by making available a government-built and approved operating system. Thus, the uptake of Pardus has been encouraged by Turkish public authorities. For instance, in 2007, Turkey's Ministry of Defence Military Recruitment Division decided the installation of Pardus on 4,500 desktops and 500 servers<sup>24</sup>.
- Turkey Open Source Platform, 2020<sup>25</sup>: Launched in the framework of the 2020 Annual Programme of the Turkish Presidency, the Open Source Platform aims at developing an open source ecosystem in Turkey. About 100 public or private organisations participate to the platform, in order to develop the use of OSS in Turkey, as well as the development of the country's OSS industry.
- Ministry of Health, 2020<sup>26</sup>: The Ministry migrated to open source software in 2020, including with the deployment of the open source Pardus operating system in January 2020. The software is in use on 3,296 computers while KeyOS<sup>27</sup>, a custom Linux distribution system is installed on 5050 computers as of 2021, including in hospitals.
- Disaster and Emergency Management Presidency (AFAD), 2020<sup>28</sup>: The AFAD migrated to the open source Pardus operating system in 2020. The software is in use in 54 out of 81 cities where the AFAD has an office as of 2021. The AFAD is also actively promoting the use of Linux-based software.
- Istanbul Water Canal Administration (İSKİ), 2020<sup>29</sup>: The organisation started its migration to the Pardus open source operating system in 2009. More than 7,000 of İSKİ's computers run on Pardus as of 2021.
- Pendik municipality, 2019<sup>30</sup>: The Pendik municipality launched an 'Open source transformation project' aiming at reducing its vendor lock-in by switching to and/or purchasing OSS. The programme includes the migration to the Pardus management system, as well as many other OSS such as LibreOffice, Moodle and the Zimbra email server.

<sup>23</sup> <https://www.pardus.org.tr/>

<sup>24</sup> <https://www.csis.org/analysis/government-open-source-policies>

<sup>25</sup> <https://www.turkiyeacikkaynakplatformu.com/>

<sup>26</sup> <https://pardus.saglik.gov.tr/>

<sup>27</sup> <https://keydata.com.tr/keydata/keyos-isletim-sistemi/>

<sup>28</sup> <https://dijital.afad.gov.tr/tr/41418/PARDUS>

<sup>29</sup> <https://shiftdelete.net/iski-pardus-ile-nasil-tasarruf-etti>

<sup>30</sup> <https://www.pendik.bel.tr/sayfa/detay/bilgi-islem-mudurlugu%7Cpardus-ve-acik-kaynak-kod-donusum-projesi>

- Presidency of Religious Affairs, 2018<sup>31</sup>: The organisation started migrating to open source solutions in 2018, including the adoption of Pardus in 2020. Pardus is used on 9,938 computers in the organisation as of 2021, making it the largest open source migration in the Turkish public sector.
- Octopus, 2018<sup>32</sup>: The Pardus-compatible cyber security software was developed by the Turkish Academic Network and Information Centre<sup>33</sup> (ULAKBIM). Octopus is composed of several cybersecurity open source components such as a cyber event management system, a network access control system and a cyber-attack early warning system.
- Engerek Identity Management System, 2017<sup>34</sup>: Engerek is an open source Identity Management System developed by TÜBİTAK and the Pardus community under an Apache-2.0 license. Pardus-compatible, the software can synchronise multiple sources of identity data, manage data from these sources, convert them to another data and synchronise with each other.
- Liderahenk, 2016<sup>35</sup>: Liderahenk is a Pardus-compatible software system that enables central management, monitoring and control of systems and users on the corporate network. The software includes an encrypted channel to secure internal communication.
- Eyüpsultan municipality, 2015<sup>36</sup>: The Eyüpsultan municipality of Istanbul migrated to OSS by adopting the Debian GNU/Linux-based Pardus operating system and undertaking major changes to the IT infrastructure, including a transition to the Zimbra email server and the PostgreSQL database. The uptake of OSS within the Eyüpsultan municipality was supported by the organisation of training sessions allowing civil servants to get practical information on the use of the new software.
- Interactive Board Interface Project (ETAP), 2013<sup>37</sup>: ETAP was developed by TÜBİTAK and the Pardus community, the Pardus interactive board and its open source management system have been specifically designed for education services. Over 60,000 Pardus interactive boards are in use in Turkish schools as of 2021.
- GIBUX project, 2013<sup>38</sup>: The GNU/Linux-based open source operating system GIBUX has been designed and developed by Turkish engineers for the use of the Revenue Administration (GİB) in all the country's tax offices. Started in 2013, the GIBUX project was completed in January 2018 with the country-wide deployment of the software. GIBUX is actively used in 1,184 locations and on 37,300 desktops and 515 servers as of 2021.

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<sup>31</sup> <https://pardus.diyinet.gov.tr/surec.html>

<sup>32</sup> <http://www.ahtapot.org.tr/ahtapot.html>

<sup>33</sup> <https://ulakbim.tubitak.gov.tr/en>

<sup>34</sup> <http://www.pardus.org.tr/projeler/engerek/>

<sup>35</sup> <http://www.liderahenk.org/>

<sup>36</sup> <https://opensource.com/article/20/8/linux-government>

<sup>37</sup> <http://www.etap.org.tr/>

<sup>38</sup> <https://gibux.gib.gov.tr/icerik/gibux-nedir>

