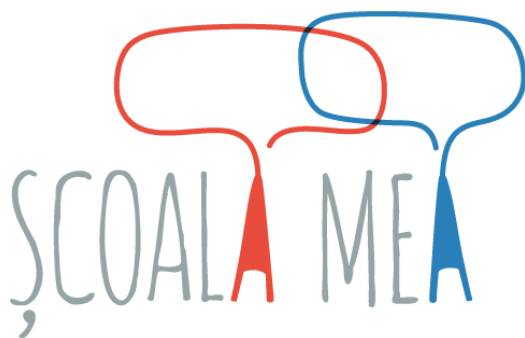


OPEN DATA READINESS ASSESSMENT IN EDUCATION



Social Accountability for the Education Reform in Moldova

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■ Introduction

This assessment was carried out as part of “Empowered Citizens Enhancing Accountability of the Education Reform and Quality of Education in Moldova” Project, which has the strategic goal to empower Moldovan citizens to engage with local, regional and national authorities in evidence-based policy and budget dialogue regarding the educational reform, quality of services, and development priorities of primary, lower secondary and upper secondary schools and to enable an environment where social accountability initiatives could thrive and develop. In this context, the opening of educational data is both a condition and a factor in the development of social audit of schools. Thus, taking into account the crucial importance of the open data in social audit of schools, the aim of this assessment is to present a complex image of the availability of open educational data, which could be mainly used to foster development of social audit in schools.

This assessment was conducted on the basis of the methodology, developed by the World Bank for the assessment of open data at the Government level¹. Thus, the assessment was performed on eight dimensions: (i) Leadership, (ii) Policy and Legal Framework, (iii) Institutional framework, responsibilities and skills of the staff, (iv) Data of the Ministry of Education, (v) Application of Open Data, (vi) Ecosystem of Open Data, (vii) Financing, (viii) National ICT Infrastructure and Skills.

Each analysed dimension is presented in three sections: Evidence, Assessment, Recommendations. The evidence of open data availability were identified based on the available information and the opinions of Government officials and stakeholders. Each evidence has been marked with the symbol (+) if it is positive for opening data or (-) if it is negative. In its turn, records are grouped by sub-dimensions, which describe the respective dimension. The assessment of each dimension is presented in the form of a color:

- **Green (G)** - denotes a condition that facilitates significantly the open data;
- **Yellow (Y)** - represents a situation in which evidences do not indicate crucial obstacles, but neither favor the opening of data (with some improvements it could facilitate it);
- **Red (R)** - evidences denote critical obstacles in the process of data opening.

Recommendations for each dimension are formulated in terms of removing obstacles and achieving a favorable situation on open data.

Finally, the assessment presents the constraints related to the use of open data for social audits in schools.

¹The World Bank's Open Government Data Working Group has developed an 'Open Data Readiness Assessment' (ODRA) methodological tool for conducting an action-oriented assessment of the readiness of a government - or even an individual agency - to evaluate, design and implement an open data initiative, <http://data.worldbank.org/about/open-government-data-toolkit/readiness-assessment-tool>

■ Assessment of Open Data in Education

Based on the Prime Minister Ordinance of April 2011, in order to ensure “transparency of the decision-making and citizen’s participation in the governance, as well as the access of citizens and businesses to government’s public data” the web-portal www.date.gov.md. The e-Government Center, subordinated to the State Chancellery, was appointed as responsible for portal maintenance, coordination of its development, and provision of the necessary methodological support to public authorities. Subsequently, this initiative was included as a basic pillar in the Strategic Program for Technological Modernization of Governance (e-Transformation)².

In April 2012, the Republic of Moldova joined the global initiative for Open Government Partnership (OGP) in the second group of countries, for the development of Government e-Transformation Initiative related to “transparency, access to public sector information, accountability, citizens involvement, fighting corruption and provision of high-quality public services”³. In the OGP context, the open data are regarded as an instrument that ensures the right to information, contributing to transparency and accountability⁴. In accordance with the Moldovan agenda in OGP, the Government approved the Moldova Open Government Action Plan 2012-2013⁵.

At the same time, the opening of data in education depends not only on the general Government policies, but also on the policies of the Ministry of Education, and on other factors that are not under the direct control of authorities. The development of the civil society, mass media, Information and Communication Technology sector (ICT) and IT skills aren’t less important for the shaping of supply and demand of open data. Thus, the success of educational open data is determined by all these factors, which at different stages of the implementation of Open Government concept can change their importance in opening the data.

In order to cover the whole range of factors that determine or influence the educational open data, the assessment was carried out based on the methodology developed by the World Bank⁶ and contains 8 dimensions: (i) Leadership, (ii) Policy and Legal Framework, (iii) Institutional Framework, Responsibilities and staff skills, (iv) Data of the Ministry of Education, (v) Application of Open Data, (vi) Ecosystem of Open Data, (vii) Financing, (viii) National ICT Infrastructure and Skills. When assessing the factors’ impact on these dimensions, we also took into account their importance for the availability of educational open data. Thus, **three levels of importance** were set: Very important, fairly important and important, which were taken into account when making recommendations and conclusions on the availability of open data.

²Strategic Program for Technological Modernization of Governance (e-Transformation), approved by Government Decision No 710 of 20 September 2011,

<http://lex.justice.md/index.php?action=view&view=doc&lang=1&id=340301>

³Information on the Republic of Moldova in OGP, <http://www.opengovpartnership.org/country/moldova>

⁴ “Open Government Partnership = Access to information as a right + Transparency and accountability as a public policy + Open data as an instrument.”, European Public Sector Information Platform: Topic Report no 2013/10, The influence of the Open Government Partnership (OGP) on the Open Data discussions, Bogdan Manolea, Veronica Cretu,

⁵Government Decision No 195 of 4 April 2012 approving the Moldova Open Government Action Plan 2012-2013

⁶ The World Bank's Open Government Data Working Group has developed an 'Open Data Readiness Assessment' (ODRA) methodological tool for conducting an action-oriented assessment of the readiness of a government - or even an individual agency - to evaluate, design and implement an open data initiative, <http://data.worldbank.org/about/open-government-data-toolkit/readiness-assessment-tool>

1. LEADERSHIP

Evidence 1.1 Is there a visible leadership at the level of Ministry of Education (MoE) on data opening?

- No public statement by the Ministry (Minister or Deputy Minister) on the commitment to open data was identified.
- From the public information it was not clear who of the MoE top management is responsible for opening data. At the same time, taking into account the MoE organizational chart, the Division for Information Technologies and Didactic Support is subordinated to a Deputy Minister. Note that the Standard e-Transformation Regulation, approved by GD 499 of 06 July 2012, p. 6, Chapter II stipulates that it should be “an autonomous internal unit, subordinated directly to the manager of the authority.”
- + The public documents and interventions, conducted interviews revealed that the Minister supports the concept of open data.
- + In documents and laws promoted by the Ministry there are stipulations which prove a commitment to the principles of open governance (ex. Education Code).
- The annual reports of the Ministry do not make any references to open data, which proves the low attention paid to this topic.

Evidence 1.2 Is there any open data management (organizational) unit that would be responsible for development and implementation of open data initiatives / open governance in all institutions of the Ministry?

- No, there is no structure (in any form) that would pro-actively address the topic of open data, that would develop policies and manage this process. No pattern of development, approval and enforcement of initiatives on open data was identified. Thus, top-down implementation is not ensured, the volume of open data is vastly left to the discretion of departments and institutions subordinated to the Ministry. From the discussions with representatives of MoE, such a structure should become the Division for Information Technologies and Didactic Support (DIT).
- + The MoE has an e-transformation unit (Division for Information Technologies and Didactic Support (DIT)), which is responsible for coordinating the development, monitoring and assessment of education policies on the implementation of ICT and didactic support, provision of methodological support and strengthening of the strategic planning capacity concerning ICT and educational records. It also coordinates the ICT implementation in subordinated institutions, General Rayon / Municipal Divisions for Education, Youth and Sports.
- + No interest groups or individuals have been identified in MoE, who would be against the open data initiative. But rather, due to some problems related to the lack of a clear policy at ministerial level, some technical and operational issues hindered the development of open government initiatives in the Ministry.

Evidence 1.3 Are there any promotional activities, implementation plans on open data?

- At the Ministry level there is no plan for open data. As well, there is no provision on open data in the annual work plan of the Ministry⁷ for 2014, except for “Assess the published open data and review the list”.
- No public activities to increase visibility and awareness of importance of open data/ governance in conjunction with education sector were identified. Such isolated activities have been identified in a few events devoted to other topics.
- + The Ministry supported the initiative of opening data in schools as part of “Empowered Citizens Enhancing Accountability of the Education Reform and Quality of Education in Moldova” Project.

Evidence 1.4 Is there a political context at the Government level that facilitates the opening of data at MoE?

- + At the Prime Minister’s level there is public commitment and support to implement the concept of open data and governance. The portal of public Government data www.date.gov.md was launched by the Prime Minister’s Provision No 43 of 29 April 2011.
- + At the central level there is an e-Government Center, subordinated to the State Chancellery, which under open data component is directly responsible for creating and maintaining the open data portal and providing the necessary support to Moldovan authorities in order to open their data.
- + After the GD No 710 of 20 September 2011 approving the Strategic Program for Governance Technological Modernization (e-Transformation), the Government issued GD No 195 of 04 April 2012, which approved and implemented the Action Plan for Open Government for 2012-2013, and GD No 1096 of 31 December 2013, which approved the 2014 Action Plan for the Implementation of the Strategic Program for Technological Modernization of Governance (e-Transformation), which contains provisions related to open data.
- Though the Prime Minister supports firmly the open governance, the central public authorities are reluctant to open their data. This is proved by the manner in which the open government initiatives are implemented by public authorities, which do not hurry to employ a pro-active attitude and use fully the opportunities created by the existing general framework related to open government.
- At the ministerial level there is literally no awareness of the relation between open governance, as a driving force for other objectives, such as transparency and accountability, economic growth and improved quality of public services.
- No parliamentary group that would rise awareness and really promote openness and transparency in governance was identified.
- + In the National Participation Council there is a sectoral working group, which aims at monitoring the reforms related to e-Governance.
- + At the society level, there are capacities to perform an independent assessment of open data.
- + The National Bureau of Statistics has the capacities to support open data policy.

ASSESSMENT of Leadership

Table 1. Assessment of Leadership

⁷The annual work plan of Ministry of Education for 2014. Approved by Ministry of Education Order No 130 of 25 February 2015, action from the General Objective No 10: Managerial and Methodical Support to the Educational System, “Assessment Activities” Section, point 7, <http://edu.md/file/docs/Planul%20de%20activitate%20al%20ME%20pentru%20anul%202014.pdf>

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Evidence Area	Importance	Assessment	
		R/Y/G	Comment
Leadership (MoE)	Very high	Yellow	The spirit of openness, including for open data initiatives, which is present in MoE, is not supported by public actions in this regard
Management Structure	High	Yellow	Such a structure does not exist, some related functions are performed or are expected to be performed by DIT
Promotion of Open Data	Medium	Red	MoE practically does not perform any effective action to promote open data
Context	High	Yellow	The existence of the e-Government Center and portal date.gov.md facilitates a lot data opening at MoE.
IN TOTAL	Very high	Yellow	

RECOMMENDATIONS on Leadership

Table 2. Recommendations on Leadership

Actions	In charge	Comment
1. Identify a person at the level of top MoE management who will be responsible for open data and will make public commitment to open the data.	Minister	It is good for this person to be the Minister, but when there is a Deputy Minister who is closer to open data objectives, then he/she could be appointed.
2. Appoint a person or structure to be in charge of the open data policy, subordinated to the Minister/Deputy Minister responsible for open data.	Minister	It could be a separate structure consisting of one person. Or these responsibilities could be taken by a person responsible for an integrating direction from the Ministry, for example Division for Policy Analysis, Monitoring, and Evaluation. If it is believed that DIT may be that structure, then the status of this division should be changed essentially.
3. Include measures of data promotion/opening in Activity Plan of MoE	DIT, PR	This activity to be implemented by the Public Relations and DIT

2. LEGAL AND POLICY FRAMEWORK

Evidence 2.1. Are there any policies on open data, (re)use of public sector information?

- + The policy framework at the Government level is not an impediment, on the contrary it serves as a driving force for educational open data. Adoption of Law No 305 of 26 December 2012 on information re-use in the public sector and GD No 886 of 08 November 2013 approving the Methodological Norms for the implementation of this Law created a favorable legal framework for the use and re-use of public information.
- + The document can be re-used by: reproduction, copying, publication and submittal under the relevant legislation; dissemination and redistribution; adaptation, modification, transformation and extraction of data from the document in order to create derived documents; exploitation for commercial purpose, provided that the source of the document is confirmed, including any statement of assignment specified by public authority or organization that posted the document on the single governmental portal of open data and, if possible, to provide a "link" to these Terms.
- + The data re-use is free of charge, but for certain data fees may be established, if they are used for commercial purposes.
- The term "Commercial purpose" is not defined in sufficient details in regulatory acts, which could lead to unjustified fees for access to information.
- MoE published neither the list of open data approved by the Minister, nor the Annual Report on Re-use of Documents (according to p. 21 of Methodological Norms for the implementation of Law No 305 of 26 December 2012 on the Re-use of Documents from the Public Sector or the Open Governance Action Plan for 2012-2013, approved by GD 195 of 4 April 2012).
- MoE has not developed policies on open educational data, currently it is implementing the decisions taken by the Government. Thus, MoE does not have a pro-active policy on open data, but it implements some fragmented activities imposed by Government.
- + MoE has a favorable organizational and technical framework for the development and implementation of open data policies.
- The data controller is responsible for personal data protection (Articles 29, 30 of Law No 133 of 08 July 2011 of the Law on Personal Data Protection). Concurrently, according to the Terms of Accessing and Reusing Public Sector Information, specified in Annex 1 of Methodological Norms for the implementation of Law No 305, the user is accountable for any irregularities⁸. Thus, the current wording can be interpreted as that the re-user will be responsible, including for a potential disclose of personal data even if they are taken from a source which by definition is "open", therefore it should not contain personal data.

⁸Excerpt from the Annex 1 of Methodological Norms for the implementation of Law No 305, approved by GD No 886 of 08 November 2013, "The holders shall guarantee that the document is available for free, according to the clauses envisaged by these Terms, but they do not guarantee that the document does not contain any error or irregularity, nor that they will provide documents on a continuous basis. The holders are not responsible for the loss, injury or damage of any kind caused by third parties, resulting from the re-use of documents. The re-user is the only responsible for documents re-use. He/she shall not mislead third parties or distort the content of the documents, their source and data on last update."

Evidence 2.2 What are the policies / laws on state secrets and access to information?

- + There is a legal framework that can be characterised as favorable to the development of the concept of open governance, including open data. The main acts that underlying the legal and regulatory framework on the access to information and development of open data concept are the following:
 1. Law No 982 of 11 May 2000 on Access to Information;
 2. Law No 1069 of 22 June 2000 on Computer Science;
 3. Law No 467 of 21 November 2003 on Computerization and State Information Resources;
 4. Law No 264 of 15 July 2004 on Electronic Document and Digital Signature;
 5. Law No 305 of 26 December 2012 on Information Re-use in the Public Sector;
 6. GD No 886 of 08 November 2013 of Methodological Norms for the implementation of Law No 305 of 26 December 2012 on Information Re-use in the Public Sector;
 7. Law No 171 of 06 July 2000 on Commercial Secret;
 8. Law No 245 of 27 November 2008 on State Secret;
 9. Law No 133 of 08 July 2011 on Personal Data Protection;
 10. GD No 1123 of 14 December 2010 approving the Requirements for ensuring the security of personal data during their processing by information systems of personal data;
 11. GD No 710 of 20 September 2011 approving the Strategic Program for Technological Modernization of Governance (e-Transformation);
 12. GD No 857 of 31 October 2013 on the National Strategy for Development of Information Society "Digital Moldova 2020".
- + Government developed the Concept of Open Government Data, which is pending approval. This draft sets out the main principles, which will encourage public authorities to publish data. The concept will be followed by a biannual action plan on approval and promotion of open data in central public authorities. Hence, the regulatory framework on open data must be strengthened, that will allow the Government to align to the leading countries in this field and adhere to Open Data Charter, signed by G8 countries (Information Note to Concept).

Evidence 2.3 What policies/laws help or hinder the civil society and the public to use information?

- + The Parliament of the Republic of Moldova has adjusted the relevant legislation to the European Union law, by adopting the Law on the Re-use of Public Sector Information, No 305 of 26 December 2012 and subsequently by Government approval of the Government Decision No 886 of 08 November 2013 on the Methodological Norms for the implementation of Law No 305 of 26 December 2012 on Information Re-use in the Public Sector⁹.
- Though such cases were not identified in MoE, in other public institutions it is a common practice not to reveal data to the public due to the lack of some mechanisms to "isolate" the personal data (commercially sensitive data) from the rest of the document (or information). Thus, under the pretext of protecting personal or commercial data, the access to the public interest information is often limited.
- + Methodological Norms for the implementation of Law No 305 of 26 December 2012 on Information Re-use in the Public Sector approved by GD No 886 of 8 November 2013 force the central public administrative authorities to publish annually reports of documents re-use.

⁹Information Note to the Concept on Open Government Data,
<http://particip.gov.md/proiectview.php?l=ro&idd=1392>

ASSESSMENT of Legal and Policy Framework

Table 3. Assessment of Legal and Policy Framework

Evidence Area	Importance	Assessment	
		R/Y/G	Comment
Policies on open data	Very high	Yellow	The general legal framework is favorable, but the educational policy framework needs to be developed
Policies on Access to Information	High	Green	The general legal framework favors educational open data
Use of open data	Very high	Yellow	Data security policies are the bottleneck
IN TOTAL	High	Yellow	

RECOMMENDATIONS on Legal and Policy Framework

Table4. Recommendations on Legal and Policy Framework

Actions	In charge	Comment
1. Develop a plan for 2-3 years on opening data in education	Deputy Minister, DIT	Including all subordinate institutions
2. Develop the list of open educational data according to the plan (p.1) and have it approved by the Ministry of Education	DIT, Division for Policy Analysis, Monitoring, and Evaluation	Currently the list is not approved by the Minister of Education
3. Include a section on open governance in the MoE annual activity reports	Deputy Minister, DIT	

3. INSTITUTIONAL FRAMEWORK, RESPONSIBILITIES AND SKILLS

Evidence 3.1 Is there an Agency that has the mandate, required technical skills and experience to manage the Open Data portal?

- + There is a unique portal date.gov.md, where open data are posted by all central public institutions and it is managed by "e-Government Center" - a public institution founded by the State Chancellery of the Republic of Moldova. The institution has a significant political support from the Prime Minister and the Secretary-General of the Government.
- + The center was created in 2010 and thanks to effective knowledge management and strategic partnerships with states and institutions with relevant expertise, the Center copes with the tasks of leading and managing the Open Data.
- + The e-Government Center serves as an agent for the implementation of Open Data in central institutions, offering full organizational, methodological and technical support.
- + The e-Governance Center also serves as an agent for the promotion of Open Data portal for beneficiaries and central institutions.

Evidence 3.2 Does the MoE have a structure dedicated to management of data in education?

- + The MoE has an e-transformation unit, which is responsible for coordinating the development, monitoring and assessment of education policies on the implementation of ICT and didactic support, provision of methodological support and strengthening of the strategic planning capacity concerning ICT and educational records. It also coordinates the ICT implementation in subordinated institutions, General Rayon / Municipal Divisions for Education, Youth and Sports.
- The e-transformation unit (Division for Information Technologies and Didactic Support) of the Ministry of Education requires to increase the capacities in order to cope with tasks with which it was invested.

Evidence 3.3 Does the MoE have informational systems (system) and/or other viable and effective mechanisms for data collection and management?

- + MoE has developed¹⁰ an Information System in Education, but it is not applied yet. If adjusted and extended, it could become an integrated information system in education. At the same time, this will have to be connected to other information systems, including of other Ministries and Agencies.
- + MoE has an Information and Communication Technologies Center in Education (ICTCE), which could facilitate the development of digital services in education. In addition, it manages the technical process of issuing diplomas in the educational system.
- MoE does not have an integrated information system or systems with a high level of integration. Besides, currently the information produced in other Ministries, e.g. Ministry of Finance, are not integrated.
- + The existence of numerous IT-skilled people allows to organize relatively easy the data collection and production in the educational system.

Evidence 3.4 Is there any process to assess the quality of the provided services?

¹⁰In accordance with GD No 270 of 13 April 2007 approving the Concept of Educational Information System

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- + There are processes to assess the quality of service provided in relation to open data at the country level. The assessments are conducted by experts or independent organisations. This topic is also addressed through Independent Reporting Mechanism under the Open Government Partnership. In addition, some assessments take place in the e-Government Center, as a component of the e-Governance progress.
- MoE does not have its own processes to assess the quality of the provided services in relation to open data, e-services etc.

Evidence 3.5 Is it clear who is responsible for the data in the MoE and in the educational system?

- + Generally, it is clear who and for what is responsible in the MoE. However, their responsibilities are not described sufficiently in the appropriate documents. As a rule, this subject cannot be found explicitly, except for EIS.

ASSESSMENT of the Institutional Framework

Table5. Assessment of the Institutional Framework

Evidence Area	Importance	Assessment	
		R/Y/G	Comment
Role of the Government Agency for Open Data	High	Green	The e-Government Center provides the open data infrastructure to MoE
Structure responsible for data in MoE	Medium	Yellow	Insufficient capacity of the IT Division
Informational Infrastructure	Very high	Yellow	There is no integrated information system, except for EIS that could be extended on the whole sector
Assessment of the service quality	Medium	Yellow	MoE does not perform such an assessment
Distribution of duties	Medium	Yellow	It is not described explicitly
IN TOTAL	High	Yellow	

RECOMMENDATIONS on the Institutional Framework

Table 6. Recommendations on the Institutional Framework

Actions	In charge	Comment
1. Increase the capacity of IT Division by filling the positions and providing adequate trainings	Deputy Minister, Head of DIT	Ongoing personalised training, based on individual assessment
2. Develop the information system for the whole educational system	Deputy Minister, DIT	As revealed by the preliminary assessment, EIS could be extended to the entire educational system
3. Establish an internal assessment (in the MoE) of the quality of open data services	Deputy Minister, Internal audit, DIT	During the assessment, DIT plays a technical role, this activity is recommended to be controlled by the Deputy Minister
4. Develop a "map" of responsibilities related to data for the educational system	DIT	This will facilitate understanding of tasks and responsibilities of the persons involved

4. EDUCATIONAL DATA

Evidence 4.1 What are the policies on the management of education information?

- At the level of educational system there isn't any comprehensive policy concerning the method of collection, storage and use of data. At the same time, there is an Educational Information System (EIS) in a very high stage of finality (it is not commissioned yet), which is intended to automate the processes of collecting, updating and storing data on general education in Republic of Moldova. EIS can be extended throughout the educational system.
- The open data on the portal www.date.gov.md from the educational system are posted by the MoE, NBS and information on public expenditures in the educational system can be found at Ministry of Finance (in BOOST). Thus, there is no holistic view of the data, moreover there is no clarity regarding how they interact with each other in order to exclude gaps and overlaps.
- + In order to protect the personal data, the necessary legal and institutional framework to ensure protection of personal data is in place.
- MoE does not have data security policies regarding the use of data from the MoE and subordinated institutions in information and management systems.
- + Currently measures are being taken in cooperation with the National Center for Personal Data Protection (NCPDP) in order to solve these issues for EIS. The minutes of 14 February 2014 established the main actions so that the EIS meets the requirements for personal data protection - amendment of GD No 270, development and approval of the Regulation, issuance of the Minister's Order approving the policy framework on data security in the operation of EIS.
- + Control procedures, standardisation and archiving of EIS data. Besides, the NBS data are delivered according to the data production procedures of the NBS.
- For the other data (except for those provided by EIS and NBS) processes to ensure data quality and their archiving were not identified. There are some incomplete data from the visible set of data that reveals problems in ensuring the authenticity of the published data.

Evidence 4.2 Does the MoE have a coherent image of the data and information that it owns, collects and distributes in education?

- There is no inventory (register) of all data held by the Ministry or other educational institutions, specifying all the elements needed for their management (goal, responsible, owner, updating period, method of dissemination, beneficiaries, etc.).
- + There are systems under development or already in operation that ensure data management in order to meet their own and the beneficiaries' needs, but a regulation is needed that would include the data interaction when providing open data.
- + EIS is in place, which now covers the general educational sector, provides a big opportunity because it can be extended on all areas of education, completed with an application on management of educational institutions (central office and subordinated institutions) and it could become an unique integrated system for the sector.

Evidence 4.3 Data storage and level of digitisation

- The amount of digital data was not assessed. Concurrently, considering the existence of EIS for the general education sector, without comprising other data that are related to preschool, extracurricular, specialized, higher education, etc. it can be assumed that the amount of digital data is about 40% -50%.
- The information before 2012 are even less digitised, because the data in EIS are entered only since 2012.
- + Thanks to the development of EIS, the data storage from this system is performed automatically on a separate storage device in a secure room at the Information and Communication Technologies Centre in Education (ICTCE).
- + ICTCE is subordinated to the MoE.

Evidence 4.4 What data are already open?

- + In accordance with the information on the portal date.gov.md portal, so far (April 2014) 32 sets of data have been opened by MoE and 56 by NBS. Also, the Ministry of Finance has a database BOOST, where disaggregated data are open regarding expenses in the public sector, including in education.
- + The information presented by MoE is in the .csv or .xlsx format, and can be previewed and is available through API¹¹. The information can be downloaded free of charge. The information presented by NBS can be downloaded in various formats and can be formed based on user queries.
- Most of the information presented by the MoE is not updated according to data description, thus the overwhelming part of the information refers only to the 2009-2010 academic year. Some data are presented since 2008-2009, the rest of data - since 2009-2010.
- Some sets of data presented by MoE are not fully completed. This creates an overall negative impression on the data accuracy. No data quality assurance procedures were identified, and their lack is also confirmed by divergences between the presented data with the NBS data (e.g. number of university graduates, cycle I).
- MoE data have a description of metadata that is difficult to access. Thus, it is difficult to understand what some indicators represent, which are data sources, collection methodology etc. This limits the proper use of data, makes it difficult to use data from multiple sources and combine them.
- + The NBS data are described, with the methodology and explanatory information, they can be accessed based on user queries, most of them are updated in accordance with the description of the data.

Evidence 4.5 Are there any capacities at the ministerial level or outside it with sufficient skills in “data management” that could serve as leadership for new initiatives on open data?

- + At the MoE and national level there are capacities (NBS, DIT, ICTCE, IT teachers, e-Government) that could allow data collection, transmission of informational flows, information analysis and publishing. At the same time, to achieve qualitatively this goal, periodical trainings are needed.
- Data collection by persons who do not have direct responsibilities stipulated in the agreed job descriptions concerning data collection (or management), do not have a financial support and it diminishes the data quality.

¹¹API (Application Programming Interface) is an interface between softwares and facilitates their interaction, IT Dictionary, <http://www.it-area.ro/dictionar/API>

ASSESSMENT of the Data Opened by the Ministry of Education

Table 7. Assessment of the Data Opened by the Ministry of Education

Evidence Area	Importance	Assessment	
		R/Y/G	Comment
Policies on data management	Very high	Red	The MoE data need improvements in terms of security and quality. Cooperation with NBS in open data is not sufficient
Clarity on data ownership	Medium	Yellow	There is no inventory of data in education, at the same time, a part of the problems are solved through EIS
Data digitisation	Very high	Yellow	Small amount of data digitisation
Data already open	High	Red	Much of the information is not updated, without description they cannot be used with other sources
Capacity, skills	High	Yellow	There is potential, but it lacks clarity on training and remuneration of some people
IN TOTAL	High	Yellow	

RECOMMENDATIONS on the Data Opened by the Ministry of Education

Table 8. Recommendations on the Data Opened by the Ministry of Education

Actions	In charge	Comment
1. Develop and approve a policy on protection of personal data in education	Deputy Minister, DIT	Activities that are currently implemented for the EIS can be extended to the entire educational system
2. Take an inventory of the data held in the educational system	Deputy Minister, DIT	It could be an activity preliminary to the development of an informational system at the educational system level
3. Develop an instruction on data management, with a generic name "the production of open educational data". This document will include operations and responsibilities of persons responsible for data at each stage (collecting, processing, control, approval, publishing) to produce open data	DIT	It is an action that will facilitate the production of data and is designed to ensure implementation of the requirement to meet the public demand for open data based on open data plan
4. Develop a document, based on which various educational institutions would open their data, mainly NBS and MoE	Deputy Minister, DIT	The user should receive coherent information about the sector regardless the institutions that present data
5. Develop a training plan for all persons implied in educational data management	Deputy Minister, DIT	The training will be conducted in accordance with the requirements for achieving the objectives related to data management, open government, IT in teaching
6. Publish annual (or biannual) reports on open data, at least in the form provided by Annex 7 of GD No 886 of 08 November 2013	DIT	It is a legal obligation

5. DEMAND FOR OPEN DATA

Evidence 5.1 What is the level and nature of demand for data in the civil society and media?

- + There are (although few, but there is a positive trend in this regard) Non-Government Organisations, including those from the National Council for Participation that monitor and analyse the Education sector. At the same time, the existing demand can be characterized as incipient. This is primarily due to the fact that social audit on education is at the beginning.
- + Education is a popular topic with the general public, but its analysis and depth is moderate towards low. The most common topics are: Baccalaureate, reorganization of schools, teachers' salaries, topics related to education financing, expenses related to school.
- Currently the information presented on the open data portal does not contain comprehensive and relevant data so that journalists and/or citizens could draw easily conclusions, monitor, react/participate in the decision-making in education (there are missing indicators on expenses, output and performance).
- + With the implementation of "My School - Social Accountability for the Education Reform in Moldova" Project in education a stable demand for social audit will be created.
- + By "My School" and "BudgetStories.md" projects - Expert-Grup uses actively and visibly open data in education.

Evidence 5.2 What is the level and nature of demand for data in business/private sector?

- No structured demand from the private sector concerning education data was identified. The business sector does not realize the benefits of open data in education. At the same time, based on the interviews it can be concluded that there were some demands from the NGOs that were/are interested in development of various applications (including websites) dedicated to education data (information).
- In other sector there are also few instructions on the use of data for commercial purposes.
- + At the same time, there is a relatively developed IT sector, which under favorable conditions would be able to develop products based on open data in education.

Evidence 5.3 What is the presence and involvement of MoE through social media and other digital channels?

- + Facebook, Odnoklassniki and Twitter are the main social media platforms used in Moldova. Ministry of Education is now on Facebook and is an active user on this platform. The Facebook profile is well managed, advertisements, links and useful information are posted periodically (1-2 posts per day, with a few exceptions). The page has 4.503 likes and it is on the 2 place among the most popular Facebook pages among state institutions, following the Ministry of Justice.
- No MoE policy on its presence on "social media" or on other digital platforms was identified. At the same time, it is necessary for the Government to develop the "Guidelines on the Use of Social Networks in the Public Sector" that can serve as a basis for policy development at the ministry level.
- + Even if the level of citizen's participation on digital platforms is not so high, the digital platforms and digital access are the most dynamic as a form of citizen involvement.

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- No MoE analysis on topics that are most interesting to the public and on who are the data beneficiaries was identified.

Evidence 5.4 What is the demand for data between MoE and other Government institutions and among institutions in the education sector?

- + There is at least one potential demand for open data from other Ministries, Central Agencies and LPA. At the same time, the exchange of information among institutions mostly occurs through data requests, without using the open data.
- No policy on analysis of demand for data from other institutions was identified. As a rule, requests for data of permanent nature are sent to the National Bureau of Statistics.
- Provision of information within the educational sector and in relation to other public institutions is not holistic in nature. For example, the financial data are insufficient to analyse the situation of a school, and to fill in the gaps it is necessary to address the Ministry of Finance.

Evidence 5.5 How responsive is the MoE to requests for data?

- + The most common opinion is that the Ministry of Education is open to requests for information, especially when requests are approved by the top management of the institution.
- No analyses or processes related to the demand and supply of the data from the education sector exist, therefore there is no mechanism to meet effectively and efficiently their requirements.

ASSESSMENT of the Demand and Citizens' Involvement

Table 9. Assessment of the Demand for Open Data and Citizens' Involvement

Evidence Area	Importance	Assessment	
		R/Y/G	Comment
Demand from the Civil Society and media	Very high	Yellow	It is a nascent demand, related especially to the social audit
Demand from the business sector	High	Yellow	Low level, but it is not an obstacle to open data
MoE involvement in "social media" and other digital channels	High	Yellow	Has a positive dynamics
Inter-sector demand and between MoE and other Government sectors	Medium	Red	Informational relations between sectors and MoE and among educational institutions are not traditionally established by open data.
MoE responsiveness to requests for data	Very high	Green	Concurrently, it should be mentioned that MoE "responsiveness" is not based on policies and instruments, but on the political will of the governance
IN TOTAL	High	Yellow	

RECOMMENDATIONS on the Demand and Citizens' Involvement

Table 10. Recommendations on Data Demand and Citizens' Involvement

Actions	In charge	Comment
1. Analyze the demand for open data from the	DIT	Necessary to ensure the demand for open

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civil society, media and citizens, private sector		data and MoE objectives
2. Develop tools for monitoring, evaluation and identification of the open data demand by the civil society, media and citizens, private sector	DIT	Some steps have been taken in this direction, but they do not have a systemic nature and due to this cannot achieve the necessary effects
3. Develop a concept on the presence in "social media" and other digital channels	PR, DIT	It is a fast evolving field. This would enhance the efficiency and effectiveness of MoE communication
4. Develop an identification and record keeping mechanism of open data by authorities, including those from education	DIT	It is an action to present complex information, when in order to have a clear image about the activity of an institution data are needed from many public institutions

6. OPEN DATA ECOSYSTEM

Evidence 6.1 Are there any media institutions or journalists that have the necessary skills to use open data in order to formulate useful information, easily understood by the wide public?

- + There are some journalists and media institutions (not too many), which are concerned with the public sector. Education, as a sector, is interesting for the press, but their interventions are mainly based on the politicians' statements on reforms, wage level and education quality, rather than on open data analyses.
- + Private media is dominant on the market. There are functional and active media associations.
- Concurrently, according to Freedom House, Freedom of the Press Report of 2013, the Moldovan press is "partially free".
- + The electronic media is ascending and along with it the number of information sources increases as well, including through the publications of nongovernmental sector.

Evidence 6.2 Is the Ministry of Education involved in activities of promoting data re-use activities?

- No MoE activities that would involve development of application for the use and re-use of open data in education were identified.
- + At the same time, promotional activities were organized by the Center for Electronic Government with reference to data held by the Government.
- No records on (re)use of MoE open data by other Government agencies exist.

Evidence 6.3 Is there an industry of software development?

- + The Republic of Moldova has a relatively well developed ICT sector.
- Generally, the use of software based on open data is low, while in education it is even lower.

Evidence 6.4 Is there a community of educational and/or research institutions that have persons trained in data analysis and provide trainings in this area?

- + There is a basis of high education that can be used to improve the technical skill needed to analyse data.
- + Computer science courses are included in the high school curricula.
- At the same time, there are few people from the public and non-government sector that are appropriately trained to analyse educational data.
- + The Ministry of Education can count on computer science teachers concerning its policies and activities in this area.

ASSESSMENT of the Open Data Ecosystem

Table 11. Assessment of the Open Data Ecosystem

Evidence Area	Importance	Assessment	
		R/Y/G	Comment
Media institutions	High	Yellow	Media sector is not well developed in terms of open data use, but it is a fast-growing sector, new segments have appeared, especially in the use of Internet

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Promotion of MoE data reuse	High	Red	The MoE does not have a pro-active attitude on (re)use of open data
Software industry	Medium	Green	It is not very innovative, but the existing skills cover the existing demand
Academic / research community	Medium	Green	Even if the situation in this respect is not very hopeful, generally, the existing conditions are good enough to facilitate the data opening
IN TOTAL	Medium	Yellow	

RECOMMENDATIONS on the Open Data Ecosystem

Table 12. Recommendations on the Open Data Ecosystem

Actions	In charge	Comment
1. Develop measures to facilitate the development of some communities of journalists, IT professionals, analysts for open data development	DIT, PR	It could be done with the help of the existing professional associations, initiative groups. Strengthening the IT professionals and analysis of education data (e.g. creation of a forum for computer teachers)
2. Develop measures for a better adaptation of the IT curricula and other related branches to the existing demand and competition conditions	DIT	This recommendation is mentioned in the White Book of ICT and other documents

7. FUNDING OF OPEN DATA INITIATIVES

Evidence 7.1 Existence of resources for the first stage of open data initiative

- + At the central level, funding is provided to implement open data initiative as part of e-Government initiative, which ensures the operation of the open data portal.
- Though no request for the development of MoE open data concept was identified, which could not be covered by funding, this is not due to availability of resources but rather to the lack of planned activities on the subject.

Evidence 7.2 Existence of financial resources to finance the development of various software that will use open data.

- No such resources were identified at the MoE or sectoral level, but even no request was made in this respect.
- + There were and still are many donors' initiatives (including the World Bank) regarding the development of different software for open data use.

Evidence 7.3 Are there sufficient financial resources to develop the IT infrastructure and expenses for the management of open educational data initiatives?

- No funds allocated from own sources (state budget) for the development of some important ICT project in education were identified.
- + MoE allocates resources to ensure implementation of the existing ICT platforms, including the open data initiative. However, due to the lack of MoE clear policies on open data, there is no clarity on whether these resources are sufficient to ensure with the well-trained staff to meet the requirements.
- + World Bank granted a fund to MoE for the development of the Education Information System. The information systems already developed or still under development, were developed mainly with the support of external donors.

Evidence 7.4 Does the Government or the Ministry of Education have funds for innovation?

- + There are several opportunities to finance innovational applications. These facilities can be accessed by support programs of SMEs and innovations at the Academy of Sciences.
- + There are sufficient opportunities to access resources for active involvement of NGOs, development of software for data use, promoting transparency and accountability.
- However, for various reasons the government funds were found to be less effective for innovative projects.
- + Public Private Partnerships in ICT is a relatively known and discussed topic in the IT sector. At the Government and at the Ministry of Communication Technology level several events (workshops) have been organised, including with external support.

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Table 13. Assessment of Open Data Funding

Evidence Area	Importance	Assessment	
		R/Y/G	Comment
Funding of open data initiatives	Very high	Yellow	There is funding for the operation of the open data portal (e-Gov), while for the implementation of initiatives there are no resources
Funding of education software	High	Yellow	No resources have been identified, but donors provide support
Financing of IT infrastructure in education	High	Yellow	Important projects are funded with external support
Financing of innovation	Medium	Yellow	There are several funding opportunities at the Government level, but they are not enough and difficult to access
IN TOTAL	High	Yellow	

RECOMMENDATIONS on Funding

Table 14. Recommendations on Data Opening Funding

Actions	In charge	Comment
1. Assess the cost of activities related to open data, ICT infrastructure, promote and formulate a financial plan to cover them	DIT	Most of the expenses for IT infrastructure and other expenses of the educational system will be included in the budgetary subprogram "Policies and Management in Education", and the part of the current expenses - to the respective subprograms for the educational sectors
2. Create partnerships and develop the necessary public conditions for the civil society to establish these partnerships with MoE or with subordinated institutions	DIT, PR	This would facilitate the fundraising for NGOs in the use of open data in education

8. NATIONAL INFRASTRUCTURE OF TECHNOLOGIES AND SKILLS

Evidence 8.1 Existence of physical and economic access to the Internet infrastructure

- + There is a well developed infrastructure of Internet access, which covers the vast majority of the population, provided by cable and/or mobile networks. Upload and download speed (according to NetIndex¹²) is one of the highest in the world. Moldova has an ICT Development Index of 4.74 and is a member of upper medium group and sub-index on access to infrastructure of 5.81¹³. Optical fiber networks cover 90% of the country's municipalities, mobile networks cover 99% of the country and has reached a penetration level of 124%. Moldova ranks the 5th in the world for the lowest prices for fixed broadband¹⁴.
- + The number of users is quite high and has a good dynamic growth. According to surveys carried out in 2013 by the E-Government Centre, about 64% of households have Internet access, compared to 58% in 2012. According to the National Regulatory Agency for Electronic Communications, in 2013 the number of subscribers increased to over 700,000. Internet connection services are affordable, Moldova ranks 25th according to The Global Information Technology Report 2013.
- + There is free Internet access in some landscaped parks and squares, university campuses, and other public places (cafes, airport). In general there is a trend of extending the Internet access in public places.

Evidence 8.2 Does the Government use common services and infrastructure for several institutions?

- + With the establishment of the e-Government Center, the activities of developing and sharing resources and digital services have intensified.
- + In December 2013, the e-Government Center has purchased services to implement a solution for interoperability in e-Governance.
- + In July 2012, the e-Government Center also has purchased hardware, software and services related to M-Cloud (Stage-1). In April 2014 Software Licenses for M-Cloud Platform and Development of platform level services were purchased.
- + There are a number of standards in this area, including standards on metadata, approved by the national standards organization - National Standardisation Institute. There is also a Technical Committee (TC-28) of standardisation in Information Technology.
- + The Government Decision No 656 of 5 September 2012 approved the Interoperability Framework Programme.
- + The Center of Special Telecommunication is responsible for the privacy of data important for the state.

Evidence 8.3 How good are the ICT skills of MoE staff, its leaders and subordinated institutions?

- + The ministry's leaders and officers have the basic IT skills and use them.

¹² <http://www.netindex.com/download/2,82/Republic-of-Moldova/>

¹³ Measuring the Information Society, 2013, http://www.itu.int/en/ITU-D/Statistics/Documents/publications/mis2013/MIS2013_without_Annex_4.pdf

¹⁴ The draft Strategy on Increasing the Competitiveness of the Information Technology Industry for 2014-2020, http://www.mtic.gov.md/img/d2014/download/04/01/3_Strategia_crestere_competitivitatiiTI.pdf

- + The ministry has organized trainings on e-Governance.
- + ICT knowledge and skills are taken into account when ministry officials are appraised.

Evidence 8.4 How strong is the Moldovan ICT industry?

- + In 2012, the ICT sector (service, production and trade) contributed to GDP with approximately 8.7% and reached MDL 7.7 billion¹⁵ and employed over 22,000 people (in 2011)¹⁶.
- + Even if the software industry is relatively small, it could grow very quickly and be able to cover the local demand related to the development of open data initiative. In 2011, the share of IT industry in GDP was of 0.82% or approximately MDL 720 million, employing 7600 people¹⁷.
- + There is a National Association of Private ICT Companies. It is an active organization, which promotes actively the sector's interests. The private sector shows a strong motivation for greater involvement in local projects.
- There are few platforms for start-ups in information technology.
- Government has few projects implemented by the private ICT sector. At the same time, there are 10 major state-owned enterprises in ICT.
- Even if the general level on the *skills* pillar is in the middle of world ranking (Network Readiness Index 2013), ranking the 78th out of 144, with a score of 4.7 points out of 7, the worrying point is that two individual indicators related to education, quality of schools management and quality of education system Moldova rank the 121st and 103rd, respectively¹⁸.

Evidence 8.5 How active are the MoE and its subordinated institutions on the Internet?

- + The Ministry has a regularly updated website.
- With a few exceptions the Ministry's website serves as a "Bulletin Board", there is only one e-service.
- Not all the subordinated institutions have website or are present on the Internet.
- + There is a Government website servicii.gov.md. By approving the "Actions Plan for Open Governance" and the "Strategic Program for Technological Modernization of Governance" the Government wants to provide over 500 traditional services as e-services by 2020.

ASSESSMENT of Technological Infrastructure and Capacities

Table 15. Assessment of Technological Infrastructure and Capacities of the ICT Sector

Evidence Area	Importance	Assessment	
		R/Y/G	Comment
Mobile / Internet infrastructure	High	Green	A wide and relatively accessible coverage, as well in terms of cost
Common use of services and infrastructure	Medium	Green	Though all common platforms are not yet functional, they are in a process of rapid development

¹⁵The draft Strategy on Increasing the Competitiveness of the Information Technology Industry for 2014-2020, http://www.mtic.gov.md/img/d2014/download/04/01/3_Strategia_crestere_competitivitatiiTI.pdf

¹⁶ICT Sector in Moldova: Policy White Book

2012, <http://ict.md/files/White%20Book%202012%20Romanian%20Version%20FIN.pdf>

¹⁷ Ibid. 14

¹⁸The quality of school management indicator is part of Pillar 2 (Business and Innovation) while the quality of education system is part of pillar 5 (skills) of the Network Readiness Index from the Global Information Technology Report 2013, http://www3.weforum.org/docs/WEF_GITR_Report_2013.pdf

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Skills in MoE	High	Yellow	There are fundamental skills, but more organization and trainings are required
ICT training	Medium	Yellow	Generally, the ICT and IT industries are not considered as a constraint in the development of open data, but cannot be seen as a force that contributes to this process
MoE presence on the Internet	Medium	Yellow	MoE presence on the <i>social media</i> and digital channels is still not sufficient to achieve a high level of involvement and citizens' attendance
IN TOTAL	High	Yellow	

RECOMMENDATIONS on Technological Infrastructure and Capacities

Table16. Recommendations on Technological Infrastructure and Capacities of the ICT sector

Actions	In charge	Comment
1. Develop a policy on external assessment (by representatives of civil society and on their resources) of the level and quality of educational institutions' presence on websites	Deputy Minister, DIT	This would allow independent assessments, which could serve as motivation and guidance for increasing the presence of educational institutions on the Internet
2. Strengthen the role of MoE through DIT, RP and the rest of the MoE Departments as a leader in opening national data, including through the educational institutions' own pages	DIT, PR, MoE Departments	MoE by virtue of its mission has more intellectual resources to become the driving force in several Government reforms

■ Constraints to the Implementation of Social Audits in Schools

The Project “Empowered Citizens Enhancing Accountability of the Education Reform and Quality of Education in Moldova” is expected to conduct social audits in the schools from several settlements in the Republic of Moldova. The ultimate goal of social audit is to enhance the quality of education in available financial conditions. In order to achieve this goal, comprehensive information is required on all operational aspects of a school, as well as general information on the operation and performance of schools in the region and country. These include non-financial and financial indicators on school inputs, performed activities and achieved results, school management, on some results of the assessments and controls that take place in schools and on education policy documents. Therefore, information and data from multiple sources are needed, in some cases they need to be combined in order to obtain the relevant indicators of the real school activities.

Table 1 reflects the data availability of the main groups of data needed to ensure effective involvement of citizens in obtaining a quality education in schools in terms of the preset funding.

Table 17. Data availability in the educational sector

	Types of Open Data	In Open Data	In EIS
1	Identification data of the school (address, name, code, type, etc.)	Partially, but not critically	Full information
2	Data about school infrastructure and its characteristics	Only a small part, without characteristics of the infrastructure	Full information
3	Facilities available to provide teaching material	There is equipment (laboratories, tv, computers, web)	Not existing
4	Data on teachers and workload (profile, experience, certification, merits, etc.)	Partially, but it would be enough to start	Full information
5	The number of pupils and class structure, subjects, extracurricular activities	Partially, but extracurricular activities are only on the list of extramural activities	Full information
6	Financial indicators (at least in the economic budget classification structure)	Partially, without a sufficient details in MoE, but exists in BOOST	Not existing
7	Reports on learning outcomes (grades, promotion, skills)	Partially existing	Partially existing
8	Reports on the external assessment (or/and internal assessment) on observing school standards (quality standards assessments)	Not existing	Not existing
9	School management (structure)	Not existing	Full information
10	Structure of auxiliary personnel	Not existing	Full information
11	Data needed for inclusive education	Partially existing	Full information

The analysis of open data in the education system has shown that the level of open data can meet the information requirements for social audits in schools, with some constraints. At the same time,

along with the implementation of the standards for hub schools and the Education Information System (EIS), the fundamental information and data production possibilities will be considerably improved. A temporary solution would be formulating requests for data required to the district Departments of Education and school.

It is also necessary to note that an easy access to data is possible only by developing an interface, via which the user can form tables required by concrete queries (requests), similar to the NBS' one. It is also necessary to fill the data with the financial information, which can be taken from the Ministry of Finance. But, in relation to the financial information there are some constraints related to the open data in the treasury system, the amendments of the legal framework regarding the powers of the authorities and additional funding from various sources (including the parents' contributions). In this respect, it is necessary for the State Treasury to commit to open data in education and data of Rayon Divisions for Education, publishing them monthly (or at least quarterly) in the disaggregated structure of budget classification.

Also, for a comprehensive coverage with data and information, besides the data from the EIS and the Treasury, it is necessary to publish also assessment reports and other monitoring documents related to the didactic process and school functioning (e.g. fire inspection report, etc.). For this, the surveillance and monitoring activities that are compulsory under the legal framework applicable for schools and didactic process can be listed, and the results (reports) should be published in electronic form in the "school file", which will be centrally stored as a component of the EIS. Ideally, to ensure an easy access to the data necessary for a school, it is necessary to make possible for all data related to a school to be accessed in one place.

Another constraint is the schedule of opening and updating data. For an effective social audit it is very important for the information to be available at the right times, when draft decisions are developed, immediately after the reporting periods (monthly and/or quarterly, biannually, annually). The information published with delay basically becomes useless, and in some situations can be daunting even for citizens' involvement.

For an effective social audit, it is not enough only to have access to information about a particular school, but also similar information to be available for a number of schools. Therefore, opening data for schools must become a policy for the Ministry of Education, facilitating and encouraging at the same time the Rayon Divisions for Education and schools to have their own open data initiatives.