RECOMMENDATIONS FOR ICT STANDARDS IN THE CIVIL SERVICE IN THE REPUBLIC OF MACEDONIA

General Secretariat of the
Government of the Republic of Macedonia

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Foundation Open Society Institute – Macedonia and the General Secretariat of the Government of the Republic of Macedonia in cooperation with Foundation Metamorphosis

Recommendations for ICT Standards in the Civil Service in the Republic of Macedonia

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FOSIM's Project

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Dear,

One of the main priorities of the 2006-2007 Program of the Foundation Open Society Institute – Macedonia is the good governance potential in Macedonia, implemented by the "Assessment of Good Governance Potential in Macedonia" Project.

The general aim of this cross-cutting initiative of FOSIM is to promote the concept of good governance as a public interest in Macedonia by intensive monitoring of the public institutions' operation, raising public awareness for the need of good governance, as well as encouraging the application of good governance principles by public institutions in compliance with the EU accession process.

The Project is comprised of three groups of activities:

- Cooperation Agreement with the General Secretariat (GS) of the Government of the Republic of Macedonia. The agreement contains five components: Citizens' Guide through the Institutions, ICT component, Code of Conduct for the Members of the Government of the Republic of Macedonia, transfer of general competencies in ministries and vertical analysis of a pilot ministry in terms of good governance principles;

- Analysis of the good governance potential in eight areas: economy, education, judicial reforms, local self-government, monitoring public funds management, health care, social issues, and human rights; and

- Promotion of the term "good governance" by a special portal (www.gg.org.mk), e-newsletter and award for central institutions applying the good governance principles.

The project pays special attention to the respect of internationally accepted standards in the application and development of information technology. An analysis of the five most used e-services on the governmental portal www.uslugi.gov.mk was made, as well as an IT training needs assessment for the public administration. Recommendations for ICT standards in the civil service have also been prepared. The project provides support for the IT Sector within the GS with human resources.

This publication presents the recommendations for ICT standards for inter and intra-communication in the civil service. On this occasion, we would like to pay our acknowledgement to the working group members (Miroslav Jovanovik, Zoran Janevski, Bardhyl Jasari, Karina Donevska, Aleksandar Ugrinoski, Kliment Kocovski, Andon Stefanovski and Georgi Tasevski), who prepared the analysis and formulated the ICT standards for the civil service. At the same time, we would like to extend our gratitude for the contribution made by the numerous participants in the consultation process, whose remarks and comments were incorporated in the final document.

Having in mind the fact that analyses were conducted in cooperation with the Government of the Republic of Macedonia and its bodies, as well as the fact that in the process of developing recommendations there was active participation by the professional and expert public in Macedonia, we honestly hope that the recommendations for ICT standards will be accepted and applied by the civil service. The acceptance and the coherent implementation will significantly increase the efficiency and the effectiveness of the civil service operation, hence strengthening the efforts for Macedonia to become a contemporary modern state, future member of EU and NATO.

Respectfully,

Project Team
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1. DEFINING STARTING PRINCIPLES AND STANDARDS

1.1. Starting principles

The starting principles for the adoption of Information and Communication Technologies standards that will be used in the civil service in the Republic of Macedonia stem from the need for interoperability.

Interoperability[1] means the ability of information and communication technology (ICT) systems, as well as, of the business processes they support in order to exchange data and enable the sharing of information and knowledge. Interoperability must be provided on technical (norms and standards for connecting computer systems and services), semantic (data meaning) and process level (defining business goals, modeling business processes and achieving cooperation between various administrative units).

Interoperability can be achieved by applying national and international technical norms. Having in mind the European agenda, the Republic of Macedonia must follow the guidelines provided in the European Interoperability Framework for Pan-European eGovernment Services v 1.0[2].

From the above cited document, we stress the following recommendations[3] relevant for Macedonia:

RECOMMENDATION 2:

The following principles, of a general nature, should be considered for any eGovernment services to be set up at a pan-European level:

- Accessibility
- Multilingualism
- Security
- Privacy
- Subsidiarity
- Use of Open Standards

[1] http://ec.europa.eu/idabc/en/chapter/5883
[2] http://europa.eu.int/idabc/en/document/3761
[3] European Interoperability Framework for Pan-European eGovernment Services http://ec.europa.eu/idabc/servlets/Doc?id=19528

- Assess the benefits of Open Source Software
- Use of Multilateral Solutions

RECOMMENDATION 10 (TECHNICAL):

At front-office level, technical interoperability aspects should be considered for the following fields:

- Data presentation and exchange
- Accessibility - Interface design principles
- Multi-channel access
- Character sets
- Collective authoring
- File type and document formats
- File compression

RECOMMENDATION 11 (TECHNICAL):

At back-office level, technical interoperability aspects should be considered for the following fields:

- Data integration and middleware
- XML-based standards
- EDI-based standards
- Web Services
- Distributed Application Architecture
- Interconnection services
- File and message transfer protocols
- Message transport and security
- Message store services
- Mailbox access
- Directory and domain name services
- Network services

RECOMMENDATION 12 (TECHNICAL):

Security aspects to be considered concern all layers:

- Security services
- General security services - PKI
- Web service security

- Firewalls
- Protection against viruses, worms, Trojan horses and e-mail bombs

RECOMMENDATION 13 (TECHNICAL):

Member State administrations and EU Institutions and Agencies should develop and use common guidelines for the technical interoperability of pan-European networks, applications and services in the context of eGovernment. The IDA(BC) guidelines[4] should constitute the basis for such guidelines, and be updated accordingly, also taking into account relevant results and guidelines coming from the Community research and technological development programmes and other Community programmes such as IST, eTen, and eContent.

RECOMMENDATION 14 (TECHNICAL):

The common guidelines should be based on recognised open standards.

IDABC[5] (Interoperable Delivery of European e-Government Services to public Administrations, Businesses and Citizens) is an EU department having major role in defining standards and cannot be omitted.

It takes advantage of the opportunities offered by information and communication technologies:
-to encourage and support the delivery of cross-border public sector services to citizens and enterprises in Europe,
-to improve efficiency and collaboration between European public administrations and,
-to contribute to making Europe an attractive place to live, work and invest.[6]

[4] (http://europa.eu.int/idabc/en/document/2317)
[5] http://ec.europa.eu/idabc/en/home
[6] http://ec.europa.eu/idabc/en/chapter/3

OPEN STANDARDS

Recommendations 2 and 14 particularly emphasize the importance of open standards[7]. The European Interoperability Framework for eGovernment Services defines the term open standard by means of the Directive 98/34/EC, which determines the procedure for provision of information in the field of technical standards and regulations. The Directive[8] provides definition of standard as technical specification approved by recognized international, European or national standardization body.

USE OF OPEN STANDARDS

Focusing on the use of open standards is necessary for the purpose of being able to achieve satisfactory level of interoperability in the context of pan European eGovernment services. The necessary minimum open standards according to the European Interoperability Framework, emphasizes the following features:

- The standard is adopted and will be maintained by a not-for-profit organisation, and its ongoing development occurs on the basis of an open decision-making procedure available to all interested parties (consensus or majority decision etc.).
- The standard has been published and the standard specification document is available either freely or at a nominal charge. It must be permissible to all to copy, distribute and use it for no fee or at a nominal fee.
- The intellectual property - i.e. patents possibly present - of (parts of) the standard is made irrevocably available on a royalty-free basis.
- There are no constraints on the re-use of the standard.

1.2. Fields where adoption of standards is recommended

Fields where standards should be stipulated are defined in the section on principles, and stem from the document and the above described rules. Having in mind the recommendations from the European Interoperability Framework and the conditions in Macedonia, we recommend the initial establishment of standards in the following fields:

[7] The term "standard" is used here in its broadest sense: it includes all specifications of the standardizations process in compliance with the abovementioned principle.

[8] All definitions on the standard were reviewed in 2005, as part of the review of the Directive 98/34/EC.

1. Basic group
2. Front office
3. Back office
4. Networks
5. Security
6. E-operations
7. Policies, forms and recommendations
8. Procurements
9. Web
10. Multimedia
11. Data compression
12. Distant learning contents
13. Miscellaneous

1.3. Identification of specific problems per field with recommended solutions

1.3.1. BASIC GROUP

- Code page - we recommend the use of UTF-8;
- Keyboard – the current standard supports the two options, QWERTY and QWERTZ. We suggest the use of QWERTY only. The problem with the use of various types of keyboards (US, UK, DE) should be solved by means of a decision for use of US keyboard.

1.3.2. FRONT OFFICE

- We recommend the use of ODF format for recording office applications according to the ISO/IEC 26300 standard[9];
- We recommend complete elimination of the use of fonts Mac C Times, Mac C Swiss, Macedonian Helvetic, Macedonian Tms and similar, and the exclusive use of the so called Macedonian support;
- For the final form of documents and forms, which are to be permanently stored, we recommend the use of PDF format according to ISO19005-1:2005;
- We recommend the use of HTML, ISO/IEC 15445:2000;
- We recommend the use of TXT, ISO 8859;

[9] At http://ec.europa.eu/idabc/en/document/6323/469, one can find the document where in the second last paragraph it is said that in meantime several administrations of EU member-states such as, for example, Belgium, Denmark, France, Italy and Spain have already announced the use of ISO 26300.

- We recommend the development and adoption of templates for documents used in the civil service
- The preparation and use of forms in the civil service must be accompanied with the existence of an equivalent form that can be filled-in electronically disregarding the platform. The PDF and ISO/IEC 26300 platforms should be mandatorily used. Other platforms can be used as well, provided the institution has them available. The civil service should accept and deem valid electronically filled-in forms.

1.3.3. BACK OFFICE

The following standards are recommended for use:

- Java 2 Platform, Enterprise Edition (J2EE) v1.4
- Java 2 Platform, Standard Edition (J2SE) v1.4
- Java Network Launching Protocol (JNLP) v1.5
- Java Platform, Enterprise Edition (Java EE) v5
- Java Platform, Standard Edition (Java SE) v5
- PHP: Hypertext Preprocessor (PHP) v5.x

1.3.4. NETWORKS

From the list of available networks, we recommend the use of the following:

- Internet Protocol (IP) v4 (mandatory use)
- Domain Name Services (DNS)
- File Transfer Protocol (FTP)
- Hypertext Transfer Protocol (HTTP) v1.1
- Simple Mail Transfer Protocol (SMTP) / Multipurpose Internet Mail Extensions (MIME) v1.0
- Post Office Protocol (POP) 3 / Internet Message Access Protocol (IMAP)
- Lightweight Directory Access Protocol (LDAP) v3

1.3.5. SECURITY

Security in the system use and management is of exceptional importance. For that purpose, we recommend the mandatory use of:

- Firewall and network segmentation in at least 3 segments (zones) as follows: public, demilitarized and private (Public, DMZ, Private)
- Antivirus protection[10] as follows:

[10] This particularly refers to any version of MS Windows, as it is not a problem for Unix / Linux, except for line 3.

a) workstation
b) server
c) e-mail server/antivirus and anti-spam e-mail gateway

- Spyware protection
- Root kits protection
- Spam protection
- Antivirus and anti-spam e-mail gateway. This solution is preferred in terms of special antivirus protection of the e-mail server and special spam protection. Use of already functional solutions from the so called grey lists for example is possible
- PTR record (Reverse DNS) on every legitimate e-mail server for the purpose of reducing spam
- Blocking the open relay on the e-mail server, as well as
- SPF record
- Secure Hash Algorithm (SHA)-1
- Secure Hash Algorithm (SHA)-256
- RIPE Message Digest (RIPEMD)-160
- RSA
- Digital Signature Algorithm (DSA)
- Advanced Encryption Standard (AES)
- Transport Layer Security (TLS) v1.0
- Secure Shell v2 (SSH-2)

1.3.6. E-OPERATIONS

In the field of e-operations we recommend:

- Defining and introducing the use of standards for electronic operations. It is particularly important to define e-order, e-invoice, e-delivery receipt, and all other electronic equivalents of paper documents in this field[11]
- Defining and introducing the use of e-procurement standards, although the standardization in this field is still in preparatory phase in the EU. It is exceptionally important for us to be compatible with the EU and hence we recommend following and accepting the benefits of the NES project[12] which use UBL 2.0 from OASIS.

[11] In the Republic of Slovenia, this issue was solved within the Chamber of Commerce; hence it would be useful to take the initial versions of documents available at http://www.gzs.si/Nivo3.asp?ID=28210&IDpm=2306 where one can see that documents are XML schemes, prepared also for electronic signature.

[12] http://www.nesubl.eu/, http://ec.europa.eu/idabc/en/document/6464/251, http://ec.europa.eu/idabc/en/document/5794/333

- The developed web contents must be compatible with the leading web browsers (Internet Explorer, Mozilla Firefox, Opera) and should be independent from the platform (operational system) used.

1.3.7. POLICIES

In terms of continuous development of civil service capacities for contemporary, high quality, efficient and effective management of state affairs, we recommend policy making and adoption on:

- Use of information resources in the civil service;
- Use of e-mail and Internet;
- Password policies;
- Use of open source software[13];
- Rigid intellectual property protection (using a licensed software and other aspects stemming from the applicable legislation in the Republic of Macedonia: Law on Copy Rights and Related Rights, Law on Intellectual Property and other relevant laws);
- Mandatory use of Help Desk software in the ICT sectors;
- Mandatory electronic record keeping on software and hardware inventories, as well as appropriate policies for its implementation;
- Introduction of ITIL (BS15000), as the best practice based on ISO 20000 IT Service Management

1.3.8. PROCUREMENTS

For the purpose of completing the process on e-procurement and upgrading the procurement practices, we recommend developing of:

- An act/policy on equal treatment in terms of software procurement[14];
- Templates for technical and functional specification of hardware and software;
- Templates for procurement contracts for hardware, software and maintenance.

[13] The policy can be downloaded here: http://www.e-hrvatska.hr/sdu/en/Dokumenti/StrategijeIPrograma/categoryParagraph/04/document/Open_Source_Software_Policy.pdf

[14] When developing the information systems and tender announcements, one must take into account the OSS based solutions in addition to the non open solutions. Decisions can be made in favor of OSS, commercial software or combination of both, but in case they equally meet other requirements, priority should be given to the open source software. Decisions should be made individually for every case.

1.3.9. WEB

Standardization of creation, management and use of web contents in the civil service will be enabled if the use of following protocols is standardized:

- Hypertext Markup Language (HTML) v4.01
- Extensible Hypertext Markup Language (XHTML) v1.0
- Cascading Style Sheets Language Level 2 (CSS2)
- Extensible Style sheet Language (XSL) v1.0
- Hypertext Transfer Protocol (HTTP) v1.1
- Simple Object Access Protocol (SOAP) v1.1

1.3.10. MULTIMEDIA

High quality, easy accessible and compatible contents will be provided if the use of the following formats is standardized:

- Quicktime (.qt, .mov)
- MPEG-4 Part 14 (MP4)
- Ogg
- Joint Photographic Experts Group (JPEG)
- Graphics Interchange Format (GIF)
- Portable Network Graphics (PNG)
- Tagged Image File Format (TIFF) v6.0

1.3.11. DATA COMPRESSION

In terms of standardization of the quality and the data compression process, we recommend the use of:

- ZIP v2.0
- GZIP v4.3
- 7ZIP

1.3.12. DISTANT LEARNING CONTENTS

Distant learning is becoming a reality and hence we recommend the mandatory use of:

- SCORM[15] compatible LMS (Learning Management System) for contents delivery and
- SCORM standard for developing distant learning contents (SCORM 1.2 Conformance Requirements).

[15] www.adlnet.gov

1.3.13. MISCELLANOUS

In the process of standardizing civil service work by means of ICT, it is necessary:

- to set up standards and standardize the state domains, with special attention on the use of Macedonian names of the institutions;
- to enable transliteration (writing Macedonian with English letters);
- to follow and respect standards in the EU defined by FORMEX[16] v4.0 in the preparation of the legal regulations (laws and by-laws), and in Macedonia these are developed by the public enterprise "Official Gazette of the Republic of Macedonia"
- to unify and cleanse state code books. There is a need for using single code books for every single area, as well as to define/authorize institutions competent for their maintenance and updating;
- to connect the existing knowledge bases at the public administration bodies, create conditions for developing new contents, exchange of contents and provide their unconditioned accessibility for the users in the public administration network;
- to adjust websites, particularly e-forms, to be available for use by disabled people. We recommend the use of W3C standards for people with special needs;[17]
- to provide training on ICT project cycle management for civil servants;
- to upgrade and harmonize websites of state institutions with the necessary standards;
- exclude the use of DRM technology for documents kept, stored or distributed by the civil service.

[16] http://formex.publications.eu.int/ - XML patterns for primary and secondary legislation
[17] http://www.w3.org/WAI/WCAG1AA-Conformance)

2. ICT STANDARDIZATION IN THE CIVIL SERVICE IN THE REPUBLIC OF MACEDONIA

2.1. On the process and need for ICT standards in the civil service in the Republic of Macedonia

Suggested standards in general are exclusively following the principles of openness and availability without limitations. We are striving towards possibilities for use/creation of resources that will not be limited and depend on the selected business model and software license for the selected model or the platform used by the selected model.

Accepting open standards means that offered ICT solutions for the civil service will meet the necessary minimum standards. This contributes to the development and upgrading of services offered by the civil service to the citizens and other entities.

Accepting open standards and ensuring their application will disable the market monopoly and dominant position of any technology. This will ensure independence and flexibility of the civil service and public administration in terms of providing ICT services, especially if one has in mind the specific function of the service for permanent archiving of documents and services, i.e., to develop and guard the national wealth.

The acceptance of this document, the basic principles and enabling the use of open standards will eliminate and disable the use of closed systems, non-standard solutions and platforms that are not interoperable with other platforms. Moreover, for example, this would overcome the problem of signing contracts with one supplier and the dependence on any platform or system, and would strengthen the position of the public administration in the Republic of Macedonia in procurements and negotiations with suppliers of ICT systems and solutions.

Finally, respecting basic principles and using open standards will increase the democratic capacity of the state and will provide solid basis for good governance that would contribute to the development and attainment of strategic goals.

Having in mind the determination of the Republic of Macedonia to become an EU member-state, it is quite expected and justified to accept the already implemented and internationally accepted standards in this field. We recommend the use of good practices from particular EU countries.

The use of final materials and already adopted and valid standards such as, for example, SAGA, is exceptionally important from practical point of view. Switzerland has completely accepted the SAGA document as binding document in terms of its implementation. The use of this document does not represent bypassing the standardization body, but setting foundation for upgrading and use of valid and relevant standards in the public administration in the Republic of Macedonia. Documents and practices of this type exist in almost all EU states.

We expect certain suggestions provided in this document, despite the harmonization process[18], to result in various interpretations. We understand this as part of a process that aims at providing high quality results. We are convinced that ICT systems in the civil service and public administration must be developed on generally accepted principles set on solid basis, to be compatible and interoperable, with the possibility to communicate in a "comprehending" way. Only in this manner, the service and the administration will be able to be efficient in providing services to citizens and businesses in the Republic of Macedonia.

For the members of the working group and for the project team, the collection of materials, the debate on the needs in Macedonia and the process of harmonizing expert public opinions, as well as the recommendations of this document, were a pleasant challenge. Standards proposed in this document are not unchangeable and should be revised and revisited with a predefined timetable and when needed.

[18] Prior to publishing this document, the same was distributed to all relevant organizations such as MASIT, The Chamber of Commerce, and Trade Unions, Organization Open Source Software Macedonia, Standardization Institute of the Republic of Macedonia and all affected state institutions, for the purpose of developing a document with recommendations whose implementation will be widely accepted.

Links have been provided for used materials available on Internet. Having in mind the fact that materials are already available in electronic form, the same will be available for downloading at the project website (www.gg.org.mk), where this document will be published as well.

2.2. Application of ICT standards in the civil service in the Republic of Macedonia

Adoption of new and atypical standards in the ICT sector is not recommendable and the practice in the developed countries avoids it. In the regulation of this filed we suggest the acceptance and use of already adopted relevant standards. In terms of stipulating, harmonizing and proposing new standards in the ICT sectors in the public administration, it is a usual practice for many countries to establish a special body with responsibilities in terms of standardizing the ICT sector in the civil service. The following sources can help the standardization process of ICT use in the civil service in the Republic of Macedonia:

- SAGA – Standards and Architectures for e-Government Applications, (English translation is provided with version 3.0) – Germany;
- NORA – Nederlandse Overheid Referentie Architectuur (at the moment there is only Dutch version) – Netherlands;
- TSC – Technical Standards Catalogue (available in English language, last version 6.2) – Great Britain.

Having in mind the fact that in Macedonia, the Standardization Institute of the Republic of Macedonia is responsible for adopting standards and having in mind the existence of the IT Commission, we recommend the existing Commission to be authorized by the Government of the Republic of Macedonia for accepting and revising the ICT standards for the civil service. In addition to the Commission members, we suggest for the authorized body to also include IT sector heads from the civil service bodies in full capacity.

Relevant standardization institutions throughout the world:

1. European Committee for Standardization, http://www.cenorm.be/cenorm/index.htm
2. European Committee for Electrotechnical Standardization, http://www.cenelec.org/
3. European Telecommunications Standard Institute, http://www.etsi.org/
4. International Organisation for Standardization, http://www.iso.org
5. International Electrotechnical Commission, http://www.iec.ch
6. World Wide Web Consortium (W3C), http://www.w3.org
7. OASIS, http://www.oasis-open.org
8. Open Archives Initiative, http://www.openarchives.org/
9. ECMA International, http://www.ecma-international.org/
10. Advanced Distributed Learning, http://www.adlnet.gov

3. RECOMMENDATIONS FOR CATEGORIZATION OF STANDARDS OF INTEREST

The working group believes that the concept that best reflects the classification needs can be found in SAGA[19]. Namely, it refers to 3 (three) categories and 3 (three) lists as follows:

Classification
- Mandatory
- Recommended
- Under observation

Expanded classification (lists)
- White
- Grey
- Black

3.1. Classification of standards and proposed extended classification of standards (lists) definitions

Classification of standards[20]

Mandatory

Standards are mandatory if they are tried-and-tested and represent the preferred so-lution. Such standards must be observed and applied with priority.

Competing standards can be mandatory parallel if they have clearly different core applications. The standard which is best suited for the given application must be adopted in such cases.

[19] URL http://www.kbst.bund.de/cln_012/nn_945224/SharedDocs/Anlagen-kbst/Saga/standards-and-Architectures-for-_20e-Government-applications-version-3__0-pdf.html

[20] Standards and Architectures for e-Government Applications Version 3.0: http://www.kbst.bund.de/cln_012/nn_945224/SharedDocs/Anlagen-kbst/Saga/standards-and-Architectures-for-_20e-Government-applications-version-3__0-pdf,templateId=raw,property=publicationFile.pdf/standards-and-Architectures-for-%20e-Government-applications-version-3_0-pdf.pdf

In the event that mandatory and recommended standards or standards under obser-vation exist parallel, the latter – i.e. standards under observation – should be adopted only in justified, exceptional cases.

A standard classified as mandatory does not necessarily have to be used in every e-government application. A mandatory standard only has to be adhered to if the use of the technology or functionality related to this standard is necessary or reasonable in view of the requirements of the specific application.

Recommended

Standards are recommended if they are tried-and-tested, but if they are not manda-tory and/or if they do not represent the preferred solution or if their classification as mandatory still requires further agreement. In the event that no competing mandatory standards exist besides recommended standards, deviations from the recommended standards are permitted in justified, exceptional cases only.

Competing standards can be recommended parallel if they have clearly different core applications. The standard which is best suited for the given application must be adopted in such cases.

In the event that recommended standards or standards under observation exist parallel, the latter – i.e. standards under observation – should only be adopted in justified, exceptional cases.

Under Observation

Standards are under observation if they are in line with the intended development trend, but if they have not yet achieved a mature level or if they have not yet sufficiently proven their value on the market. In the event that no competing mandatory or recommended standards exist in addition to standards under observation, such standards under observation can serve as an orientation aid.

Proposed Extended Classification of Standards (lists)[21]

White list

Standards are listed on the white list if proposals for their inclusion in SAGA were submitted to the SAGA team and if these standards were not yet classified further. Standards on the white list are evaluated by the SAGA team and the expert group who may also decide that a standard is to be left on the white list if further develop-ments are to be awaited and if a classification decision is to be made at a later stage.

Grey list

Standards are added to the grey list if they are no longer included in the current SAGA version, but if they had „recommended" or „mandatory" status in an earlier SAGA version and/or if they were widely used in the market in the past. When existing systems are upgraded, these standards are to be maintained in effect and can be used further.

Black list

Standards are added to the black list if they were examined and rejected by the SAGA team and the expert group.

[21] see reference to footnote 20

3.2. Conditions and justifiability for the assessment of the ICT standards applicability in the civil service in the Republic of Macedonia

Assessment of existing standards' applicability

The implementation of suggested standards in the public sector in the Republic of Macedonia is possible if the necessary realistic timetable is provided. Examples for successful implementation of standards can be found in part of EU countries, where they have provided particular but realistic deadline for standards' application. From that aspect, the working group believes that suggested standards are applicable, but is particularly important to also determine implementation deadlines that will be adopted in an integral form with the standards. In simple words, a stipulated standard without implementation deadline and application start is a "dead letter on paper" and the best way to never be put into operation.

On the other hand, the application of standards will enable "more vivid" ICT market in the Republic of Macedonia, hence encouraging greater competition, higher quality and thus higher level of professionalism in terms of offered services. The working group believes that the acceptance of standards will positively impact the small- and medium-sized ICT enterprises, as well as the new companies that are yet to be established.

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