



Macedonian Interoperability Building Block: **IOP-0(E)**

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Executive Summary

The governance of interoperability (IOP) determines the political, legal and structural conditions, which are relevant for developing and using interoperable applications. The organisational IOP defines business processes and bringing about the collaboration of administrations that wish to exchange information and may have different internal structures and processes, as well as aspects related to requirements of the user community.

In order to strengthen interoperable services and systems at the governance and organisational level in Macedonia, following recommendations are proposed:

1. Establish a cross-governmental IOP committee. It develops and decides on adjustments and changes of the Macedonian Interoperability Compendium (MIC) and Macedonian Interoperability Framework (MIF) as a high-level institutional level. Members of the Committee are high-level decision makers from of key ministries, regional and local government associations, under the leadership of MISA. The Committee may establish working groups on specific topics. Such a working group is the IOP Review Working Group which is mandated with ensuring compliance of the services with the MIC and MIF.
2. Establish an IOP Clearing (secretariat). The IOP Clearing is an operative unit which administers and supports the IOP Committee as a secretariat. It is also responsible for initiating, developing, maintaining, implementing and supporting all interoperability activities deriving from the MIC and MIF.
3. Implement a Common Assessment Method for Standards and Specification (CAMSS) process suitable for the Macedonian context. The CAMSS is established to promote collaboration between EU Member States. The main objective of CAMSS is to establish a neutral and unbiased method for the assessment of technical specifications and standards in the field of Information Communication Technology (ICT). The CAMSS toolkit consists of a documented reference assessment process, a set of quality requirements (criteria), and assessment tools.
4. Establish Macedonian business process standard, as a Macedonian subset of the European Interoperability Framework (EIF). Business processes should be documented on agreed standards and methodologies. The maintenance of the business processes should be ensured, regularly updated and adapted to the changing environment.
5. Ensure the engagement of relevant stakeholders by establishing a national competence center, raising the awareness through campaigns and fostering information activities, offer training to enhance the skills, enabling the exchange of knowledge and experiences and ensuring a vibrant transfer of international practices and knowledge.
6. Allowing exemptions from the use of MIF only under exceptional cases. Also encourage the institutions to provide more complex and/or joint services where joint agreements are necessary. Exemptions are given granted by the IOP Review Working Group and supported by the IOP Clearing (secretariat) which provides templates and recommends process steps to facilitate agreements.



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1 Introduction

The focus and objective of this guide is to ensure the maintenance of IOP standards, the Macedonian interoperability Framework (MIF) and the alignment among all IOP aspects.

2 Definitions and background

The governance of IOP is defined as *“...the political, legal and structural conditions, which are relevant for developing and using interoperable applications.”*

According to European Interoperability Framework (EIF), *“...organizational interoperability implies integrating business processes and related data exchange [and] ... aims to meet the requirements of the user community by making services available, easily identifiable, accessible and user-focused.”*

Citizens and businesses (i.e. users) expect to have easy access to the public sector services they need. This implies the usage of technologies they are familiar with, including web-applications, mobile devices and social networks. Users are generally not interested in the back-office processes of various authorities providing the services nor how these organisations are linked or coordinate work required to provide a given service. In fact, users often do not even know which organisation is responsible for the service they have requested. The one-stop-shop discussion in eGovernment shows that the provision of public services requires more efforts in collaboration, coordination and participation of the institutions.

Moreover, a purely national approach to standardization and service provision is not sufficient nowadays, as the provision of services should also be in line with the standard and formats used in other countries. This is of particular relevance in countries, including the Republic of Macedonia (henceforth Macedonia) with strong economic and social ties to other countries. Thus any organisational and governance aspects associated with IOP must align to international standards and guidelines facilitating the exchange of data as well as the compatibility of services to ensure “cross borders”.

As for this document these benefits for the users should be achieved mainly by inter-governmental cooperation of organisations and the pursuit of mutually agreed goals: That is business processes and service deliveries of the authorities are synchronized and the data exchanges are established and integrated. A seamless flow of the data and a strong integration of the services require consensus about formal procedures to determine the cooperation of the actors. These procedures are described in proposed models.

The guide is linked to the following documents:

- Macedonian Interoperability Framework (MIF).
- Legal IOP.
- Semantic IOP.
- Technical IOP.

The guide is part of the Macedonian Interoperability Compendium (MIC).



3 Guide

3.1 Macedonian IOP Committee

3.1.1 Recommendation

Establish a cross-governmental IOP committee to maintain and decide on adjustments and changes to the MIC and MIF. The IOP committee may agree on establishing temporary or permanent working groups for follow-up on relevant IOP topics.

3.1.2 Objective

The objective of the Macedonian IOP Committee is to coordinate public sector initiatives related to standardisation and IT architecture. This includes maintaining the Macedonian Interoperability Framework (MIF).

3.1.3 Terms of reference

IOP Committee's terms of reference are:

- Take responsibility for development and maintenance of the entire MIF concept and all products launched during the MIF.
- Ensure coherence, prioritization and progress in the public sectors work with, IOP architecture, standards and infrastructure.
- Coordinate across the international, state, regions and municipalities and across various business areas.
- Develop and maintain a common MIF for the method and procedures for working with IOP, architecture, standards and infrastructure.
- Provide recommendations on the development and use of IOP, architecture, standards and infrastructure, including giving recommendation for mandatory requirements, principles and choices.
- Contribute to the development, construction and operation of tools.
- Communicate and facilitate the sharing of knowledge and experience.
- Facilitate authorities' access to relevant skills, including formulate requirements for training, certification schemes, etc.
- Ensure that the implemented business processes and services are in line with the provisions of the Macedonian Interoperability Compendium (MIC).

As a general principle of publishing and promotion must be under the common corporate identity of the MIF (e.g. MIF standards, MIF guidelines, MIF tools)

The Committee may:

- Establish temporary or permanent working groups (see section 3.1.5) to look at specific areas
- Consult with a broad academic, public and private sector competence environment.
- Contract external expertise if required.
- Amend the terms of reference for its operation, work, composition etc.
- Recommend technical application of the common MIF guidelines.



The Committee refers to Minister responsible for the IOP portfolio and may recommend specific action and/or escalation of issues (e.g. adapt legislation, ensure compliance).

3.1.4 Committee's composition

Membership of the IOP Committee is broad within the public sector with representatives of several ministries as well as the associations of regions and municipalities.

Committee members are high-level decision makers in their respective organisations, and must be able to officially commit their organisations to decisions made in the Committee. It is recommended that the members are persons in charge of a sector (in case of ministries) or head of departments. The Committee is composed of 1 representative of the regions and municipalities. The Committee has up to 15 members including the chairperson. The Chairperson must come from the authority responsible for the IOP portfolio (MISA). Members must include a minimum two representatives from local level/municipalities, minimum one from regional level, plus one from the authority/unit responsible for the National eGovernment Strategy.

The remaining seats are filled in turn by representatives of relevant ministries, agencies and strategic government information technology projects and key data and registry/databases/repository owners.

The Committee is expected to meet at least six times annually (i.e. approximately every two months) unless otherwise agreed.

3.1.5 Practical implementation

The Committee is administered and supported by the IOP clearing (secretariat) (see section 3.2).

3.2 Working groups

The IOP Committee may establish temporary and permanent working groups.

3.2.1.1 Temporary working groups

The Committee may establish temporary working groups on specific topics. The Committee specifies the assignment, expected outputs, duration of a temporary working group assignment and its deadlines.

3.2.1.2 Permanent working groups

The Committee may establish permanent working groups on specific topics. The Committee specifies the assignment, expected outputs and its deadlines. In the next section an example of a working group's terms of reference, composition and practical implementation is presented.

3.2.1.3 Example: IOP Review Working Group (compliance)

3.2.1.3.1 Recommendation

MISA is mandated, by law, to implement, maintain the above as well as ensure compliance. The key challenge is one of none-compliance. Four main issues must be addressed:

1. Ensuring continues maintenance of organisational, semantic and technical IOP standards.
2. Authorities bypass the service BUS.



3. Data exchanging systems lacks the required certification.
4. Over-classification data of due to a lack of understanding by relevant staff or as a way to avoid exchanging data (due to classification).

3.2.1.3.2 Objective

IOP Committee shall establish a permanent working group to ensuring compliance with IOP standards, certification requirements and use of data exchange mechanism.

3.2.1.3.3 Terms of reference

The terms of reference are:

- Establish and maintain a set of objective criteria on which temporary or permanent exemption.
- Establish and maintain a process for submitting and evaluating a request for exemption
- Establish and maintain a core list of experts on various MIC, MIF, IOP-LOST topic, system certification, data classification.
- As a last resort the Review can recommend that the responsible authority (enforced by IOP Clearing, see section 3.3) should utilise Article 40 of the Law of Electronic Management and fine none-compliant organisations.

3.2.1.3.4 Review working group composition

The Review working group is composed of representatives of the state, regions and municipalities, academia and the private sector.

The competences and experience of the Members are appropriate to the issue discussed.

3.2.1.3.5 Practical implementation

The Review working group is administered and supported by the IOP clearing (secretariat) (see section 3.3).

3.3 IOP Clearing (secretariat)

3.3.1 Recommendation

Strengthen the existing competences and knowledge within the responsible authority by establishing an IOP Clearing (secretariat) function, including the ability act as a national center of competence.

3.3.2 Objective

Ensure that the IOP Committee has the full support to fulfil their tasks and to acquire knowledge on interoperability.

3.3.3 Terms of reference

The IOP Clearing is responsible for the management, maintenance and support of the following functions:

- IOP Committee (see section 3.1).
- IOP Review Panel (compliance) (see section 3.2).



- CAMSS (see section 3.4).
- Business process standard (see section 3.5)
- Stakeholder engagement (see section 3.6).
- Agreements types (see section 3.7).

In addition the Secretariat is responsible for ensuring compliance with, management, maintenance and support internally in the responsible authority and with external stakeholders:

- Exchange of data is governed by the Law on Electronic Management.
- Certification of data exchanging systems. This includes agreements and follow-up on exemptions granted by the IOP Review Panel (see section 3.2).
- Procedures for electronic data and document exchange through the interoperability system (i.e. the Unique Environment or Service Bus(es))
- Arbitration between authorities to ensure appropriate data exchange.

In terms of the daily management and support the IOP Clearing must have:

- Administrative (secretariat) function for IOP Committee and relevant working groups
- Organisational function like legal changes and amendments proposed by the relevant bodies, business and organisational processes proposed by the relevant bodies

3.3.4 Composition

The composition of the responsible team must multi-disciplinary i.e. include technical, legal and organisational expertise. If relevant, external expertise may be contracted to fill knowledge gaps.

3.3.5 Practical implementation

The IOP Clearing is housed and managed by the authority responsibility for the IOP portfolio.

3.4 Macedonian Common Assessment Method for Standards and Specification

In a European context a Common Assessment Method for Standards and Specifications (CAMSS) has been developed to promote collaboration between EU Member States. The main objective of CAMSS is to establish a neutral and unbiased method for the assessment of technical specifications and standards in the field of ICT when defining ICT architectures and establishing European public services.

The use of the CAMSS by Member States will help promote transparency in the choice of eGovernment solutions and standards, avoid lock-in with specific ICT vendors, share of information and knowledge, align national processes and reuse good practices. The CAMSS toolkit consists of a documented reference assessment process, a set of quality requirements (criteria), and assessment tools.

3.4.1 Recommendation

Implement an adapted version of the CAMSS process suitable for the Macedonian context.

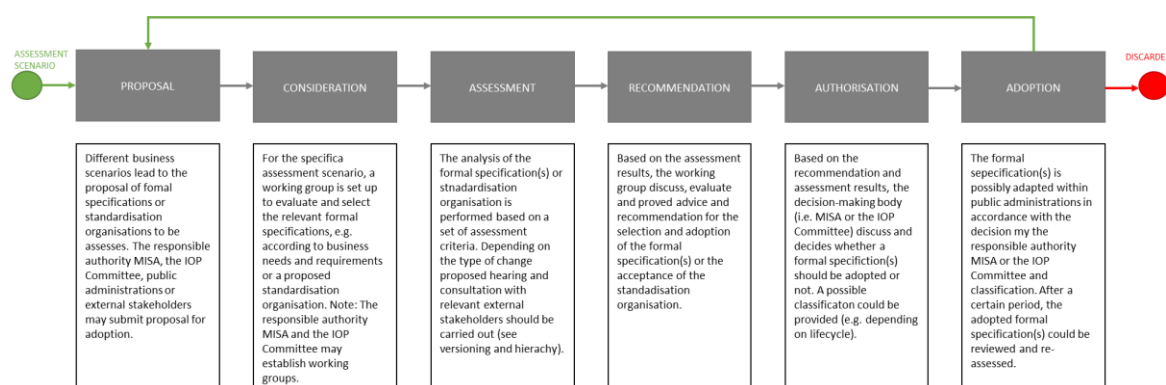


3.4.2 Objective

Ensure the continued alignment and maintenance of the MIF standards, protocols, guides and tools to changing business requirements, technical and international developments.

3.4.3 Terms of reference

Figure 1: Macedonian CAMSS process (for assessment see also figure 2)



From the analysis of the current CAMSS and relevant ongoing actions, a common set of roles and responsibilities¹ involved in the assessment of formal specifications was identified and described.

3.4.3.1 Proposal step

The objective of the proposal step is to identify, register and gather documentation of the proposed formal specification(s) or standardisation organisation that should be considered for adoption in a public administration.

3.4.3.2 Consideration step

The objective of the consideration step is to evaluate and select the relevant formal specification(s) or standardisation organisation according to the business and regulatory needs before starting the actual assessments.

3.4.3.3 Assessment step

The objective of the assessment step is to evaluate and analyse the formal specification using a predefined set of criteria.

3.4.3.4 Recommendation step

The objective of the recommendation step is to provide a recommendation and possible classification for the adoption of the formal specification based on an evaluation and discussion of the assessment results.

3.4.3.5 Authorisation step

The objective of the authorisation step is to decide on the adoption of the formal specification, taking into account the assessment results and the recommendation.

¹ For more on roles and responsibilities see https://webgate.ec.europa.eu/fpfis/mwikis/idabc-camss/index.php/CAMSS_Roles_and_Responsibilities



3.4.3.6 Adoption step

The objective of the adoption step is to execute the authorisation decision and to provide guidelines to the relevant stakeholders on the use of the formal specification.

3.4.3.7 Version management

The objective is to ensure version of relevant documents, standards, etc. and ensure maintenance and transparency of changes to the MIC, MIF and all other IOP-LOST aspects.

3.4.4 Practical implementation

The responsibility for developing and maintaining Macedonian CAMSS and the support of the processes is with the IOP clearing (secretariat) (see section 3.1).

3.5 Business process standard

With increasing service complexity a combination of several business processes is often required in order to deliver useful and convenient services to the end-users. When these business processes are internal to an organisation the interoperability issue is not eminent. However, if other organisations and their business processes are involved or affected – for example for providing cross-organisational life events services – interoperability becomes of paramount importance.

Business processes may not be regarded as an inter-organisational matter. For example, a clear and concise modelling of the processes in a standardised language supports the understanding of the processes and facilitates their integration. This is supported by the European Interoperability Framework (EIF) recommendations that public administrations should document their business processes and agree on how these processes will interact to deliver public services. (EIF, Chapter 4; Interoperability levels, Recommendation 15).

3.5.1 Recommendation

Establish Macedonian business process standard in line with the EIF and document them.

3.5.2 Objective

Ensure that joint and multi-actor services can be developed in:

- An efficient, effective and consistent manner to create back-office efficiency and value added for the end-user.
- A national, cross-border and international context.

3.5.3 Terms of reference

3.5.3.1 Modelling business processes

Public administrations should document their business processes and agree on how these processes will interact to deliver a (European) public service. (EIF, Chapter 4; Interoperability levels, Recommendation 15).

IOP-O requires the modelling of business processes in order to support the cooperation of the business processes and the identification of interoperability possibilities. Only if the tasks, procedures and routines are documented, interoperability could be provided in order to get cross-



organisational services. In the service-oriented architecture, it is recommended to use a harmonized standardized methodology to model business processes. This standardized definition language allows a common description of processes and support their understanding. For example, methodologies like BPMN (Business Process Model and Notation), ARIS or WS-BPEL (WS-Business Process Execution Language, as part of the WS-*) could be used. At least a description of the business interoperability interfaces should be provided.

3.5.3.2 Maintain the business processes models

Public administrations working together to provide (European) public services should agree on change management processes to ensure continuous service delivery (EIF, Chapter 4; Interoperability levels, recommendation 17).

It is recommended to set up processes and clear responsibilities where the maintenance and change of business process and its models is ensured. It is strongly recommended to use collaborative method that creates interaction contexts enabling stakeholders to discuss about business processes and sharing business knowledge.

3.5.4 Practical implementation

The responsibility for developing and maintaining business processes is with the IOP clearing (secretariat) (see section 3.2).

3.6 Stakeholder engagement

Introducing IOP for the diverse organisations has a significant impact on the stakeholders involved and their approaches how to creating, changing, introducing and maintaining services. It is essential for the success of the interoperability project to take into account the requirements, needs and considerations of these processes and service owners.

3.6.1 Recommendation

Ensure the relevant stakeholders are engaged by the responsible authority through a national competence center, awareness and information activities, training and skills development, exchange of knowledge and experiences, international practices and knowledge transfer.

3.6.2 Objective

The primary objective is to ensure compliance with the MIF through increased awareness, knowledge and not least assistance to relevant stakeholders.

3.6.3 Terms of reference

3.6.3.1 National competence center

The center shall show case good practices for different domains of services. These showcases present the variety of possibilities that interoperability can provide and disclose the benefits to the stakeholders. Besides the demo centers, special events like workshops or fairs improve the awareness for interoperability and give the stakeholders the chance to get impressions of other interoperable solutions.



3.6.3.2 Awareness and information activities

Awareness raising for the benefits of interoperable systems ensures the engagement of the stakeholders. Examples of former non-interoperable systems are demonstrated and the detailed changes towards interoperability are shown in a workshop. In these examples the benefits for the users and the organisations should be evident and comprehensible.

3.6.3.3 Training and skills development

For better and deeper understanding, training sessions on interoperability are recommended. In these training sessions the understanding of the needs of the organisation is improved and standards are explained in detail. It is recommended that theory should not be neglected in order to pave the way for wider understanding of the concepts of interoperability. This could be also in cooperation with universities, colleges or other research institutes.

3.6.3.4 Electronic forum for knowledge exchange

Experience shows that with a better understanding stakeholders' engagement is improved and they are more willing to participate in the projects. In sessions where the experts discuss their problems with other experts dealing with similar issues they profit from the different views and solution approaches. Electronic forum has been extremely useful for this purpose as they can be used as documentation and experts with similar question can just check if the issues are discussed already.

3.6.3.5 International practices and knowledge transfer

Interoperability is not only a national issue, but standards and procedures are developed in an international context, more specifically in international working groups e.g. the EIF. It is recommended to participate in international conferences and standard institutions to monitor and participate in the discussions.

3.6.4 Practical implementation

The responsibility for stakeholder engagement is with the IOP clearing (secretariat) (see section 3.2).

3.7 Agreement

3.7.1 Recommendation

To ensure compliance the following should be strengthened and implemented:

- Enforcement by law
- Exemption from the use of the MIF, Service Bus use, certification of systems and use of classification scheme
- Joint services agreements
- Joint services procedures

3.7.2 Objective

To ensure compliance with existing and future legislation, the MIF, use of the classification scheme, use of the Service Bus, certification of relevant IT-systems and registries.



3.7.3 Terms of reference

3.7.3.1 *Enforcement by law*

As described in **IOP-L** legal provisions are in force to ensure that the institutions use the service busses to provide and receive their data. A strict execution of the law improves interoperability at least at the technical level.

3.7.3.2 *Exemption from the use of the MIF, Service Bus use, certification of systems and use of classification scheme*

To ensure compliance a clear and transparent procedure for handle requests for potential exemption is proposed in the form of the IOP Review Panel (see section 3.2) and supported by the IOP Clearing (secretariat, see section 3.2).

3.7.3.3 *Joint service agreement*

Institutions which use the Unique Environment (i.e. Service Bus(es)) are encourage to work together to provide more complex and/or joint services. The basis for such a cooperation are agreements which foster the common understanding and the common provision of services. In the process of negotiation the IOP Clearing (secretariat, see section 3.2) could provide vital support and facilitate consensus. Moreover, the Secretariat could provide a repository for these agreements so it can give an overview of all agreements among the institutions and list of services based on these agreements.

3.7.3.4 *Joint services procedures*

The responsible authority, in effect the IOP Clearing (secretariat, see section 3.2), shall support institutions with proposal for procedures to come to an agreement (i.e. in its capacity as the national competence center, see section 3.5.4.1). Experience shows that agreements could be more easily reached if they follow determined and transparent process steps.

It is also highly recommended to involve the responsible authority through Secretariat (as the national competence center and responsible authority) as early as possible in the agreement process.

3.7.4 Practical implementation

The development and maintenance of agreement types and templates is the responsibility of the IOP clearing (secretariat) (see section 3.2).