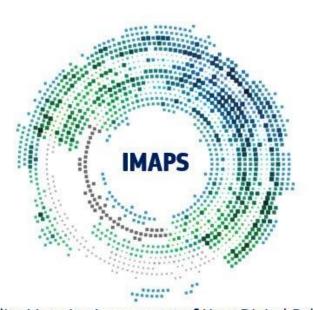# IMAPS v1.2.0

**Interoperability Maturity Assessment of a Public Service**

**Recommendations**



Interoperability Maturity Assessment of Your Digital Public Service

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**IMAPS version 1.2.0 recommendations**

**Table of Abbreviations**

| Acronym | Description |
|---------|-------------|
| ABB | Architectural Building Block |
| CAMSS | Common Assessment Method for Standards and Specifications |
| CarTool | Cartography Tool |
| DIGIT | Directorate-General for Informatics |
| EC | European Commission |
| EIF | European Interoperability Framework |
| EIRA | European Interoperability Reference Architecture |
| EU | European Union |
| IMAPS | Interoperability Maturity Assessment of a Public Service |
| IMM | Interoperability Maturity Model |
| ISA | Interoperability Services for Public Administrations |
| IQAT | Interoperability Quick Assessment Toolkit |
| MS | Member State |
| PA | Public Administration |

# 1. Introduction

The main objective of the **Interoperability Maturity Assessment of Public Services (IMAPS)** is to provide insight into how digital public services can improve their behavioural interoperability maturity. After filling in the online questionnaire, the respondent receives a PDF with advice on how to improve the behavioural interoperability of his digital public service. This report presents how these recommendations are generated.

### 1.1 Principles

The following five principles are applied to generate recommendations:

- **Principle 1:** Each semantic interoperability attribute differentiates between at least two maturity levels;
- **Principle 2:** The improvement tables provide recommendations on how to improve maturity gradually for a specific interoperability attribute;
- **Principle 3:** When a digital public service does not yet reach the maximum level for a specific interoperability attribute, a recommendation is given to make the step towards the next interoperability level;
- **Principle 4:** When a digital public service successfully attains the maximum maturity level for a interoperability attribute, no recommendation is given[1];
- **Principle 5**: When the maturity improvement is not based on specific interoperability characteristics per level, a sliding scale (e.g. from less to more) is used. In this scenario, a generic recommendation (not maturity level specific) is given to improve the maturity further along the sliding scale.

### 1.2 Recommendations overview

- For each improvement step, the recommendation tables in the following chapters show:
- The question the recommendation relates to;
- The assessed maturity level;
- The next maturity level to be reached through improvement[2];
- The recommendation as to how to reach the next maturity level.

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[1] The reason for this is that in this case- according to the model- the service is already implementing a semantic interoperability attribute in a way that it corresponds to best practice. There are no direct recommendations to improve further

[2] With the exception when this is considered a sliding scale

## 2. Service Delivery (D)

### 2.1 Scoring Table

**Table 1: Service Delivery scoring model**

| Item | Ad hoc (1) | Opportunistic (2) | Essential (3) | Sustainable (4) | Seamless (5) |
|---|---|---|---|---|---|
| D1 (70%) | The public service does not publish open data, while it could | The public service publishes data in non-structured formats (e.g. pdf, jpeg) | The public service publishes data in structured, proprietary formats (e.g. MS Excel) | The public service publishes data in structured, non-proprietary formats (e.g. csv, json) | The public service publishes data in non-proprietary formats with semantic metadata / ontologies (e.g. rdf, linked open data)<br><br>Not applicable, open data are not relevant for the solution |
| D2 (30%) | No, the digital public service is only using proprietary standards and is not leveraging existing (open) semantic standards for data exchange | | | Partly, some (open) semantic standards are used for data exchange, combined with proprietary standards | Fully, the data exchange is entirely based on existing (open) semantic standards and specifications Not applicable, there is no machine-to-machine interfacing |
| D3 (25%) | No, there is no information on data privacy available | | Partly, there is limited information on data privacy available | Fully, there is detailed information on data privacy available at national level | Fully & adaptable, there is detailed information on data privacy available and the user can manage (some of his) data privacy settings online Not applicable, the digital public service does not require personal data (e.g. only information |

| | | | | | |
|---|---|---|---|---|---|
| | | | | | provisioning, search functionality) |
| D4 (25%) | No, the digital public service is only available in a single language | | | Partly, some pages and/or documentation is available in multiple languages | Fully, the entire digital public service (from initiation to outcome, including all documentation) is available in multiple languages |
| D5 (25%) | No | Yes, part of a catalogue available to a restricted user group (e.g. partners) | Yes, part of a publicly available catalogue | Yes, part of a publicly and online discoverable catalogue and includes a public service description (including information such as contact details, provider, preconditions and required input) | Yes, part of a publicly and online discoverable catalogue and includes a public service description based on standards such as CPSV-AP |
| D6 (15%) | Yes, login authentication mechanism (username, password) | | | | Yes, formalised ones e.g. EU Login based on Single sign-on principle No, not applicable |
| D7 (10%) | No, there is no certification procedure available for the end users | | | | Yes, there is a certification procedure available for the end users Not applicable, certification is not required for users to access the digital public service |
| D8 (25%) | One digital channel | | One digital and one traditional channel | Multiple digital and traditional channels | Multiple digital (including interactive digital collaboration M2M) and traditional channels |

| | | | | | |
|---|---|---|---|---|---|
| D9 (25%) | No, while this would be possible | | | Partly, pre-filling is used but only for some data fields that are digitally available | Fully, pre-filling is used for all data fields that are digitally available<br>Not applicable, the digital public service does not require data entries |
| D10 (20%) | No, there is no information on rules & processes available before, during and / or after usage of the digital public service. This information resides somewhere else (i.e. is not imminently discoverable) | | | Partly, there is limited information on rules & processes available before, during and / or after usage of the digital public service | Fully, there is detailed information on rules & processes available before, during and/or after usage of the digital public service<br>Not applicable, the digital public service does not need to provide insight into administrative rules and processes (e.g. only information provisioning, search functionality) |
| D11 (10%) | No, the digital public service does not provide for feedback possibilities | | Yes, feedback is possible through a physical channel (e.g. phone, postal) | Yes, feedback is possible through a digital channel (e.g. email, website, chat) | Yes, feedback is possible through a digital channel (e.g. email, website, chat). In addition, the digital public service offers insight into feedback and/or reviews from other end users |
| D12 (10%) | No, the digital public service is not equally accessible | | | Partly, the digital public service provides some accessibility features | Fully, the digital public service is compliant with an accessibility standard such as Web Content Accessibility |

| | | | | | (WAI) Guidelines 2.0, level AA, ISO/IEC 40500:2012 Not applicable, the digital public service does not utilize a graphical user interface |
|---|---|---|---|---|---|
| D13 (10%) | Yes, there are restrictions to use the digital public service | | | | No, there are no restrictions to use the digital public service |

## 2.2. Recommendations

The table below presents the respective recommendation to each option in IMAPS questionnaire. As mentioned above, the purpose of the recommendations is to propose the needed actions to be taken by the public service owners in order to achieve a higher level of interoperability maturity.

In case the selected option is associated to "Seamless level (5)", then no action is required from the public service owners and the recommendation is by default "Congratulations, you are at the Seamless level".

**Table 2: Service Delivery Recommendations**

| Question | Addressed Level | Next Level | Recommendation |
|---|---|---|---|
| **D1. In which format does your digital public service publish its open data?** | Ad hoc (1) | Opportunistic (2) | Currently, the public service does not publish its open data. Consider publishing data in a non-structured format e.g. pdf, jpeg to improve the semantic behavioural interoperability of your digital public service with the external environment. |
| | Opportunistic (2) | Essential (3) | Currently, your public service publishes data in non-structured formats (e.g. pdf, jpeg). Consider delivering open data using structured formats such as MS Excel, csv to improve the semantic behavioural interoperability of your public service by investigating further these formats using the Semantic Interoperability Maturity |

| | | | Assessment of a Public Service (SIMAPS). |
|---|---|---|---|
| | Essential (3) | Sustainable (4) | Currently, your public service publishes data in structured, proprietary formats (e.g. MS-Excel). Consider delivering open data using non-proprietary formats (e.g. csv, json) to improve the semantic behavioural interoperability of your public service by investigating further these formats using the Semantic Interoperability Maturity Assessment of a Public Service (SIMAPS). |
| | Sustainable (4) | Seamless (5) | Currently, your public service publishes data in structured, non-proprietary formats such as csv, json. Consider publishing your data in non-proprietary formats with semantic metadata / ontologies (e.g. rdf, linked open data) to achieve a higher level of semantic behavioural interoperability by investigating further the semantic formats of your data delivered using the Semantic Interoperability Maturity Assessment of a Public Service (SIMAPS). |
| **D2. To what extent are existing semantic standards and specifications used for data exchange?** | Ad hoc (1) | Sustainable (4) | Currently, the digital public service is only using proprietary standards and is not leveraging existing (open) semantic standards for data exchange. Consider using partly some semantic standards for data exchange and investigating them further using the Semantic Interoperability Maturity Assessment of a Public Service (SIMAPS). |
| | Sustainable (4) | Seamless (5) | Currently, the digital public service is using some (open) semantic standards are used for data exchange, combined with proprietary standards. Investigate if it will be possible for your service to move towards a situation where the data exchange is entirely based on |

| | | | existing (open) semantic standards and specifications. Consider investigating further these standards via the Semantic Interoperability Maturity Assessment of a Public Service ([SIMAPS](#)). |
|---|---|---|---|
| **D3. Are data privacy considerations transparent to the user (such as scope of data stored, purpose of usage of data, rights to request changes or lodge complaints, applicable data privacy regulation)?** | Ad hoc (1) | Essential (3) | Currently, end users are not provided with any information on data privacy. This is however essential in fostering users' trust in the digital public service. Map all information that would be beneficial to end users and communicate these via the available channels. Consider investigating further the maturity of the legal requirements of your public service via Legal Interoperability Maturity Assessment of a Public Service ([LIMAPS](#)). |
| | Essential (3) | Sustainable (4) | Currently, end users are only provided with a subset of information on their data privacy. Map all information that would be beneficial to end users and focus on closing the gaps to ensure full transparency. Consider investigating further the maturity of the legal requirements of your public service via Legal Interoperability Maturity Assessment of a Public Service ([LIMAPS](#)). |
| | Sustainable (4) | Seamless (5) | Your digital public service provides detailed information on data privacy to users. However it is currently not possible for the user to manage (some of this) data privacy information online. his is though considered a desirable end state. As a first step, analyse which fields are important for the end user to manage and assess further the maturity of the legal requirements of your public service via Legal Interoperability Maturity |

| | | | Assessment of a Public Service ([LIMAPS](#)). |
|---|---|---|---|
| **D4. To what extent is multilingualism supported?** | Ad hoc (1) | Sustainable (4) | Your digital public service is not multilingual. Consider at a minimum offering a multi-lingual interface. Offer it in one or several languages which best reflect the composition of your user community. |
| | Sustainable (4) | Seamless (5) | Currently, some of the pages and/or documentation are multilingual. Whilst this is a good starting point, you may consider providing the entire service (including functional and technical documentation) in multiple languages. Consider collaborating with pan-European peers to spread burden, streamline functionalities and make multilingualism an integral part of your service. You can further investigate the extent of multilingual data delivery and consumption using the Semantic Interoperability Maturity Assessment of a Public Service ([SIMAPS](#)) and the Technical Interoperability Maturity Assessment of a Public Service ([TIMAPS](#)). |
| **D5. Is the digital public service included in a service catalogue?** | Ad hoc (1) | Opportunistic (2) | Currently, your digital public service is not registered in a Service Catalogue. Registering your public service within a catalogue is recommended to promote and increase the usage of the service. |
| | Opportunistic (2) | Essential (3) | Your digital public service is registered in a catalogue only accessible to a restricted user group. Consider leveraging a publicly available catalogue to reach a larger target audience. Consider investigating further the discoverability of the public service (inclusion in a catalogue) from all Interoperability views (L, O, S, T) using the IMAPS specialisations |

| | | | (LIMAPS, OIMAPS, SIMAPS, TIMAPS). |
|---|---|---|---|
| | Essential (3) | Sustainable (4) | Your digital public service is registered in a publicly available catalogue but is not discoverable online. Ensuring online discoverability is important to promote the machine-to-machine consumption of the digital public service. Consider investigating further the discoverability of the public service (inclusion in a catalogue) from all Interoperability views (L, O, S, T) using the IMAPS specialisations (LIMAPS, OIMAPS, SIMAPS, TIMAPS). |
| | Sustainable (4) | Seamless (5) | Your digital public service is registered in a publicly and online discoverable catalogue and includes a public service description. However, at this moment you are not (fully) leveraging standards such as CPSV-AP. Adopting these standards will help in the delivery of interoperable public service descriptions and group services according to life or business events. Consider investigating further the discoverability of the public service (inclusion in a catalogue) from all Interoperability views (L, O, S, T) using the IMAPS specialisations (LIMAPS, OIMAPS, SIMAPS, TIMAPS). |
| **D6. Are there any authenticaton mechanisms in place for people identification?** | Ad hoc (1) | Sustainable (4) | Currently, the digital public service is using a login mechanism for users' authentication. Consider using formalised authantication mechanisms such as EU Login to achieve a better interoperability of your service. You can further investigate the authentication mechanisms and the technical means in place for people identification using the Technical Interoperability Maturity of a Public Service (TIMAPS). |

| | | | |
|---|---|---|---|
| **D7. Has the digital public service defined a certification procedure?** | Ad hoc (1) | Sustainable (4) | You are providing your digital public service towards the end users without a certification procedure. As a result, you create the risk of interconnections not working properly e.g. in terms of security, governance, technological and semantic interoperability and availability. Consider developing a formalised certification procedure in order to ensure your service can be delivered in a stable and safe manner to end users by investigating further the certification procedures via Organisational Interoperability Maturity Assessment of Public Service (OIMAPS). |
| **D8. Through which delivery channels is the digital public service made available to the end user(s)?** | Ad hoc (1) | Essential (3) | Not all end users will be able to use your service due to the fact only one digital channel is available as access point to it. In order to ensure accessibility to all end users, the addition of a traditional channel would be beneficial. Consider investigating further the digital channels you can use (e.g. web portals) via the Technical Interoperability Maturity Assessment of a Public Service (TIMAPS). |
| | Essential (3) | Sustainable (4) | Currently, the public service is using one digital and one traditional channel for its delivery. In addition to one digital and one traditional channel, your service could improve its accessibility by adding more digital channels. Consider investigating further the digital channels you can use (e.g. web portals) via the Technical Interoperability Maturity Assessment of a Public Service (TIMAPS). |
| | Sustainable (4) | Seamless (5) | Currently, the public service is using multiple digital and traditional channel for its delivery. Consider |

| | | | investigating further the multiple digital channels, including interactive digital collaboration M2M via the Technical Interoperability Maturity Assessment of a Public Service ([TIMAPS](#)). |
|---|---|---|---|
| **D9. Does the digital public service use pre-filling for digitally available data fields?** | Ad hoc (1) | Sustainable (4) | Currently, your service does not require pre-filling or does not make use of pre-filling. If the former is the case, periodically evaluate whether pre-filling is not becoming relevant as your service evolves. For both cases, consult peer practices in order to make sure that you do not miss out on opportunities to pre-fill. |
| | Sustainable (4) | Seamless (5) | Your service pre-fills selected, but not all data fields which would be electronically available. Pre-filling is one of the strongest manifestations of interoperability as it adds significant value to users in terms of reducing user burden and speeding up the service request process. Within your administration, pre-filling minimises the risk of erroneous data entries. Map all information that would be electronically available and design your service to consume it electronically using the Technical Interoperability Maturity Assessment of a Public Service (TIMAPS) and the Organisational Interoperability Maturity Assessment of a Public Service ([OIMAPS](#)). |
| **D10. Are the administrative rules and processes underlying the digital public service (such as decision mechanisms, lead times, information sources used, reporting obligations) transparent to the user(s)?** | Ad hoc (1) | Sustainable (4) | Currently, your public service does not provide information on rules & processes to its end users. This may negatively impact the perception of your service and might lead to wrong assumptions and/or expectations of end users. Map all information that would be beneficial to end users (such as decision mechanisms, lead times, and |

| | | | |
|---|---|---|---|
| | | | reporting obligations) and communicate these via the available channels. Consider using the Organisational Interoperability Maturity Assessment of a Public Service ([OIMAPS](#)) to further investigate the mechanisms of the underlying processes. |
| | Sustainable (4) | Seamless (5) | Currently, your service is providing limited information on rules & processes. Map all information that would be beneficial to end users (such as decision mechanisms, lead times, and reporting obligations) and communicate these via the available channels.  Consider using the Organisational Interoperability Maturity Assessment of a Public Service ([OIMAPS](#)) to further investigate the mechanisms of the underlying processes. |
| **D11. Can users give feedback on the quality of the digital public service?** | Ad hoc (1) | Essential (3) | At this moment your digital public service does not provide the possibility to give feedback. This is though beneficial to capture information on areas for improvement and/or insight into the particular strengths of the digital public service. Ensure you have a physical and/or digital channel available to capture this information and/or address complaints. Consider using the Organisational Interoperability Maturity Assessment of a Public Service ([OIMAPS](#)) to further examine other similar aspects of service performance and user experience. |
| | Essential (3) | Sustainable (4) | Your digital public service has a physical feedback mechanism available to users (e.g. phone, postal). Consider adding a digital channel to capture feedback. Options are a dedicated e-mail address, functionality via the website or a live chat function. Having a digital feedback channel |

| | | | |
|---|---|---|---|
| | | | reduces end user effort and likely enhances the amount and detail of feedback you will receive. Consider using the Organisational Interoperability Maturity Assessment of a Public Service (OIMAPS) to further examine other similar aspects of service performance and user experience. |
| | Sustainable (4) | Seamless (5) | Currently, your digital public service offers the possibility for feedback. It would be beneficial to provide additional insights into the (anonymised) feedback from other end users. This way, end users will have a clear view of the quality of the functionalities offered, their limitations and are able to learn from each other's user experiences. Consider using the Organisational Interoperability Maturity Assessment of a Public Service (OIMAPS) to further examine other similar aspects of service performance and user experience. |
| **D12. Is the digital public service accessible to people with (e.g. visual, auditory, physical, cognitive) disabilities at a comparable level to other users?** | Ad hoc (1) | Sustainable (4) | Currently, your digital public service is not equally accessible to all end users. Implement accessibility features to make navigation, information and interaction with the digital public service convenient for people with disabilities. Consider an accessibility standard such as Web Content Accessibility (WAI) Guidelines 2.0, level AA for this purpose. |

| | Sustainable (4) | Seamless (5) | Although your digital public services provides some accessibility features, it is not fully compliant with an accessibility standard such as Web Content Accessibility (WAI) Guidelines 2.0, level AA. Work towards implementing an accessibility standard to the full extent to ensure your digital public service can obtain the conformance (compliance) logo. You can use the Semantic Interoperability Maturity Assessment of a Public Service (SIMAPS) to investigate the extent of accessibility features provided by the digital public service to its end users. |
|---|---|---|---|
| **D13. Are there any restrictions to non-residents or foreigners for using the digital public service?** | Ad hoc (1) | Seamless (5) | At this moment there are restriction for non- residents or foreigners using the digital public service. Determine how many users are potentially impacted by this and draft a plan to ensure cross border service delivery by opening up the digital public service to foreign users (requiring e.g. alternative authentication mechanisms). Consider using the Organisational Interoperability Maturity Assessment of a Public Service (OIMAPS) to further examine the level of administrative interaction of the service with other services, businesses, end users, etc. |

# 3. Service Consumption (C)

## 3.1 Scoring Table

**Table 3: Service Consumption scoring model**

| Item | Ad hoc (1) | Opportunistic (2) | Essential (3) | Sustainable (4) | Seamless (5) |
|---|---|---|---|---|---|
| C1 (60%) | Fully manually | Mainly manually, some digitally | Mix of manual and digital consumption | Mainly digitally, some manually | Fully digitally |
| C2 (40%) | Most consumed services are self-produced, while relevant services are available for reuse | | | A selection of consumed services are reused | (Nearly) all consumed services are reused |
| C3 (50%) | No, the digital public service does not use legal means to handle the service consumption | | | | Yes, the digital public service has in place legal requirements and/or legal mechanisms to handle the service consumption |
| C4 (50%) | Data is only collected | | More than half of the total data handled is accessed (and consequently collected) | More than half of the total data handled is reported (and consequently collected and accessed) | More than half of the total data handled is analysed (and consequently collected, accessed and reported) |
| C5 (%) | No score | | | | |
| C6 (60%) | No, the digital public service does not consume services from different administrative levels. | | | | Yes, the digital public service consumes services from different administrative levels (e.g. services from different MS, services from different organisations) |

| C7 (40%) | No, updates require manual intervention from public service staff or end user(s) | | | Partly, some updates require manual intervention from public service staff or end user(s), while others are received automatically | Fully, all relevant updates are received automatically<br><br>Not applicable, such subscriptions are not considered relevant |
|---|---|---|---|---|---|

## 3.2 Recommendations

The table below presents the respective recommendation to each option in IMAPS questionnaire. As mentioned above, the purpose of the recommendations is to propose the needed actions to be taken by the public service owners in order to achieve a higher level of interoperability maturity. In case the selected option is associated to "Seamless level (5)", then no action is required from the public service owners and the recommendation is by default "Congratulations, you are at the Seamless level".

**Table 4: Service Consumption Recommendations**

| Question | Addressed Level | Next Level | Recommendation |
|---|---|---|---|
| **C1. How does the digital public service currently consume the services (manually versus digitally)?** | Ad hoc (1) | Opportunistic (2) | You are currently consuming all the services manually. You could enhance your interoperability by 'digitalizing' the consumption further. This will create benefits in the areas of data quality, throughput time, costs and interoperability. Try to find ways to interact more digitally with related organisations. |
| | Opportunistic (2) | Essential (3) | You are currently consuming most of the services manually. You could enhance your interoperability by 'digitalizing' the consumption further. This will create benefits in the areas of data quality, throughput time, costs and interoperability. Fully digital consumption of services also enables straight through processing and/or real-time processing. Try to find ways to interact more digitally with related organisations sing the Technical Interoperability Maturity Assessment of a Public Service (TIMAPS) and the Organisational Interoperability Maturity Assessment of a Public Service (OIMAPS). |

| | | | |
|---|---|---|---|
| | Essential (3) | Sustainable (4) | You are currently consuming some of the services manually. You could enhance your interoperability by 'digitalizing' the consumption further. This will create benefits in the areas of data quality, throughput time, costs and interoperability. Fully digital consumption of services also enables straight through processing and/or real-time processing. Try to find ways to interact more digitally with related organisations sing the Technical Interoperbility Maturity Assessment of a Public Service (TIMAPS) and the Organisational Interoperability Maturity Assessment of a Public Service (OIMAPS). |
| | Sustainable (4) | Seamless (5) | You are currently consuming most of the services digitally. You could enhance your interoperability by 'digitalizing' the consumption further. This will create benefits in the areas of data quality, throughput time, costs and interoperability. Fully digital consumption of services also enables straight through processing and/or real-time processing. Try to find ways to interact more digitally with related organisations sing the Technical Interoperability Maturity Assessment of a Public Service (TIMAPS) and the Organisational Interoperability Maturity Assessment of a Public Service (OIMAPS). |
| **C2. Does the digital public service reuse or self-produce consumed services?** | Ad hoc (1) | Sustainable (4) | You are currently not consuming all relevant services from other public administrations whilst they are available for reuse. This shows that you are not making use of existing services to increase the effectiveness and efficiency of your own digital public service. Elaborate why this is the case. Before producing your own services, always take the time to map existing ones to possibly adapt them for your own purposes. Understand how you can improve your view on which services are being provided by other organisations using the Technical Interoperability Maturity Assessment of a Public Service (TIMAPS). |
| | Sustainable (4) | Seamless (5) | Currently, your digital public service reuses a selection of consumed services. This shows that you are not making use of existing services to increase the effectiveness and efficiency of your own digital public service. Before |

| | | | |
|---|---|---|---|
| | | | producing your own services, always take the time to map existing ones to possibly adapt them for your own purposes. Understand how you can improve your view on which services are being provided by other organisations using the Technical Interoperability Maturity Assessment of a Public Service (TIMAPS). |
| **C3. Does the digital public service have in place any legal means to handle the service consumption?** | Ad hoc (1) | Seamless (5) | Currently, your digital public service does not have in place legal means to handle the service consumption. Legal requirements or any other legal mechanisms ensure a secure consumption of data and services from other public services and enable a smoother service consumption. Consider put in place legal means e.g. regulated rules to facilitate the service consumption. |
| **C4. Please indicate how you handle the data that your digital public service consumes.** | Ad hoc (1) | Essential (3) | Currently, your public service only collects the data that are consumed, without handle them further. Consider accessing and reusing further the data collected from other public services. The more the integration of public data to the public service, the better for establishing smooth interoperation among them. |
| | Essential (3) | Sustainable (4) | Currently, more than half of the total data handled is accessed. Consider reusing further the data collected from other public services. The more the integration of public data to the public service, the better for establishing smooth interoperation among them. Consider using the Semantic Interoperability Maturity Assessment of a Public Service (SIMAPS) to further investigate how your digital public service can handle the data collected and consumed from other services. |
| | Sustainable (4) | Seamless (5) | Currently, more than half of the total data handled is reported. Consider analysing and reusing further the data collected from other public services. The more the integration of public data to the public service, the better for establishing smooth interoperation among them. Consider using the Semantic Interoperability Maturity Assessment of a Public Service (SIMAPS) to further investigate how your digital public service can handle the data collected and consumed from other services. |

| C6. Does the digital public service consume services from different administrative levels (e.g. from different MS, from different organisations)? | Ad hoc (1) | Seamless (5) | Currently, the digital public service does not consume services from other administrative levels. Expanding the boundaries of the organisational relationships between the public service and the consuming services is very important for the organisational interoperability of a public service. Consider consuming gradually services from different organisations or from different MS. The more the different public administrations that can use the data, information, knowledge delivered, the greater becomes the ability of interoperability and interconnection of the public service with its end users. |
|---|---|---|---|
| C7. Does the digital public service subscribe to automatic updates of services (e.g. life events) to trigger its execution and/or update information? | Ad hoc (1) | Sustainable (4) | Currently, all updates require manual intervention.  This means manual effort and potentially quality issues. Determine the business case for improving the automatic processing of updates in terms of efficiency, quality, responsiveness and security. Start with (life) events that have the highest impact on the functioning of the digital public service. Consider investigating further the automatic updates of the consumed services. |
| | Sustainable (4) | Seamless (5) | Currently, your digital public service still relies on some manual intervention when it receives updates. This means manual effort and potentially quality issues. Determine the business case for improving the automatic processing of updates in term of efficiency, quality, responsiveness and security. Proceed with (life) events that have the highest impact on the functioning of the digital public service. Consider investigating further the automatic updates of the consumed services via the Technical Interoperability Maturity Assessment of a Public Service (TIMAPS). |

## 4. Service Management (B)

### 4.1 Scoring Table

**Table 5: Service Management scoring model**

| Item | Ad hoc (1) | Opportunistic (2) | Essential (3) | Sustainable (4) | Seamless (5) |
|------|------------|-------------------|---------------|-----------------|--------------|
| B1 (10%) | The integrated public service is not compliant to any reference model | | The integrated public service is compliant to a custom national model | Yes, to a formalised, common, trans-European model (e.g. SEMIC model for e-payments) | Yes, both the integrated public service and the consumed services are compliant to a reference model (custom and/or formalised) |
| B2 (15%) | No methodologies are used for implementing data management nor metadata management | | A methodology is used for implementing data management or metadata management, but it is not compliant to a common standard | A common methodology is used for implementing data management and is compliant to a common standard | A methodology is used for implementing data and metadata management and at least one of them is compliant to common standards |
| B3 (20%) | For none | For one interoperability layer | For two interoperability layers | For three interoperability layers | For all interoperability layers |
| B4 (15%) | Not compliant | | | Some parts of the digital public service are compliant with some EIRA views | All parts of the digital public service are compliant with EIRA views |
| B5 (20%) | Through none of the above options | | Less than half of the above options | Half of the above options | All of the above options |
| B6 (20%) | For none | For one interoperability layer | For two interoperability layers | For three interoperability layers | For all interoperability layers |
| B7 (40%) | Through none of the above options | Through one of the above options | Through two of the above options | Through three of the above options | Through all of the above options |
| B8 (20%) | No, there is no security profile established | | | Yes, there is an ad-hoc security profile | Yes, there is a security profile following a |

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| | | | | | specific semantic model |
| B9 (20%) | There are no measures in place for data protection | | | Data protection is handled under custom policies and regulations | Data protection is handled under formalised regulations e.g. GDPR<br><br>Not applicable |
| B10 (20%) | No | | | Yes, but without monitoring compliance | Yes, with monitoring compliance and triggering procedures for corrective actions when required |
| B11 (100%) | No, they are not clearly defined | | | Yes, they are partially defined | Yes, they are fully defined |

## 4.2 Recommendations

The table below presents the respective recommendation to each option in IMAPS questionnaire. As mentioned above, the purpose of the recommendations is to propose the needed actions to be taken by the public service owners in order to achieve a higher level of interoperability maturity. In case the selected option is associated to "Seamless level (5)", then no action is required from the public service owners and the recommendation is by default "Congratulations, you are at the Seamless level".

Table 6: Service Management Recommendations

| Question | Addressed Level | Next Level | Recommendation |
|---|---|---|---|
| **B1. To what extent the integrated public service has been modelled based on a reference architecture framework?** | Ad hoc (1) | Essential (3) | Currently, the integrated public service is not compliant to any reference model. Using common architectural frameworks ensures that the administration is leveraging best practices and designs a digital public service that is interoperable with other public services. Consider using a custom national model as a reference architecture for the integrated public service. |
| | Essential (3) | Sustainable (4) | Currently, the integrated public service is compliant to a custom national model. Using common architectural frameworks ensures that the administration is leveraging best practices and designs a |

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| | | | digital public service that is interoperable with other public services. Consider using a formalised, common, trans-European model as a reference architecture for the integrated public service. You can further investigate the reference service models using the Organisational Interoperability Maturity Assessment of a Public Service (OIMAPS) and the Semantic Interoperability Maturity Assessment of a Public Service (SIMAPS). |
| | Sustainable (4) | Seamless (5) | Currently, the integrated public service is compliant to a formalised, common, trans-European model. Using common architectural frameworks ensures that the administration is leveraging best practices and designs a digital public service that is interoperable with other public services. Consider having both the integrated public service and the consumed services are compliant to a reference model (custom and/or formalised). You can further investigate the reference service models using the Organisational Interoperability Maturity Assessment of a Public Service (OIMAPS) and the Semantic Interoperability Maturity Assessment of a Public Service (SIMAPS). |
| B2. Do you have processes in place to implement data and metadata management? | Ad hoc (1) | Essential (3) | Currently, your digital public service does not use methodologies for implementing data management nor metadata management. Having in place such methodologies would enable better readiness of the public service data to be aligned with other implementations of data. Consider gradually using a methodology for implementing data management or metadata management. |
| | Essential (3) | Sustainable (4) | Your digital public service is adequately mature to follow a certain methodology to perform data management. However, considering a commonly standardised methodology would enable better readiness of the public service data to be aligned with other implementations of data. Consider using the Semantic |

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| | | | Interoperability Maturity Assessment of a Public Service ([SIMAPS](#)) to further investigate the methodologies available for data and metadata management. |
| | Sustainable (4) | Seamless (5) | Your digital public service is adequately mature to follow a certain methodology to perform data management. However, considering a commonly standardised methodology would enable better readiness of the public service data to be aligned with other implementations of data. Consider using the Semantic Interoperability Maturity Assessment of a Public Service ([SIMAPS](#)) to further investigate the methodologies available for data and metadata management. |
| **B3. For which of the following layers (Legal, Technical, Organisational, Semantic) the recommendations of EIF have been taken into consideration?** | Ad hoc (1) | Opportunistic (2) | Currently, your digital public service does not take into consideration none of the recommendations of EIF. Consider gradually taking into consideration some of the EIF recommendations e.g. of Semantic Interoperability to improve the interoperability of your public service. |
| | Opportunistic (2) | Essential (3) | Currently, your digital public service takes into consideration the recommendations of EIF only for one interoperability layer. Consider gradually taking into consideration the EIF recommendations of two layers to improve the interoperability of your public service. You can further investigate the EIF layers (L, O, S, T) in the IMAPS specialisations. |
| | Essential (3) | Sustainable (4) | Currently, your digital public service takes into consideration the recommendations of EIF for two interoperability layers. Consider gradually taking into consideration the EIF recommendations of more layers to improve the interoperability of your public service. You can further investigate the EIF layers (L, O, S, T) in the IMAPS specialisations. |
| | Sustainable (4) | Seamless (5) | Currently, your digital public service takes into consideration the recommendations of EIF for three interoperability layers. |

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| | | | Consider taking into consideration the EIF recommendations of all interoperability layers to improve the interoperability of your public service. You can further investigate the EIF layers (L, O, S, T) in the IMAPS specialisations. |
| **B4. Is your digital public service compliant to any of the EIRA views?** | Ad hoc (1) | Sustainable (4) | Your digital public service is not compliant with any EIRA view.  This means that there is no part of your public service that is compliant to EIRA ABBs. Consider applying the EIRA views at least at some parts of your service to make it more interoperable. You can get further inspiration for the EIRA views (L, O, S, T) using the IMAPS specialisations (LIMAPS, OIMAPS, SIMAPS, TIMAPS). |
| | Sustainable (4) | Seamless (5) | Your digital public service is partially compliant with some EIRA views.  This means that some parts of your public service are compliant to some EIRA ABBs. Consider applying the EIRA views to all parts of your service to make it more interoperable. You can get further inspiration for the EIRA views (L, O, S, T) using the IMAPS specialisations (LIMAPS, OIMAPS, SIMAPS, TIMAPS). |
| **B5. Which of the following procedures are in place to validate the consistency of the data, information and knowledge exchanged/managed by the public service?**<br><br>• **Change Management Process**<br>• **Conformance Testing**<br>• **Business Continuity Plan** | Ad hoc (1) | Essential (3) | Currently, your digital public service only provides the Change Management Process to validate the consistency of the data, information and knowledge managed which is not adequate. Consider put in place at least two of the proposed processes to monitor the performance and the data quality of your service. You can take further inspiration for these processes via the IMAPS specialisations (LIMAPS, OIMAPS, SIMAPS, TIMAPS). |
| | Essential (3) | Sustainable (4) | Currently, your digital public service is not mature enough as it provides less than half of the proposed processes to validate the consistency the data, information and knowledge managed. Consider put in place at least half of the proposed processes to achieve a higher level of behavioural interoperability. You can take further inspiration for these processes via |

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| • **Disaster Recovery Plan**<br>• **Performance Testing**<br>• **Data Quality Assurance (Activities)**<br>• **Certification Process** | | | the IMAPS specialisations (LIMAPS, OIMAPS, SIMAPS, TIMAPS). |
| | Sustainable (4) | Seamless (5) | Currently, your digital public service is mature enough and provides half of the proposed processes to validate the consistency the data, information and knowledge managed. Consider gradually put in place all of the proposed processes to achieve a higher level of behavioural interoperability. You can take further inspiration for these processes via the IMAPS specialisations (LIMAPS, OIMAPS, SIMAPS, TIMAPS). |
| **B6. For which of the following interoperability layers (Legal, Technical, Organisational, Semantic)do you consider a catalogue of specifications and standards?** | Ad hoc (1) | Opportunistic (2) | Currently, your digital public service does not consider a catalogue of specifications and standards for none of the interoperability layers. This is not considered a good practice for the behavioural interoperability of your service. Consider gradually having a catalogue of specifications and standards of at least one interoperability layer. |
| | Opportunistic (2) | Essential (3) | Currently, your digital public service is not mature enough as it considers a catalogue of specifications and standards for only one interoperability layer. Consider gradually having a catalogue of specifications and standards of two interoperability layers (L, O, S, T). |
| | Essential (3) | Sustainable (4) | Currently, your digital public service is not mature enough as it considers a catalogue of specifications and standards for two interoperability layers. Consider gradually having a catalogue of specifications and standards of three interoperability layers (L, O, S, T). |
| | Sustainable (4) | Seamless (5) | Currently, your digital public service is mature enough and considers a catalogue of specifications and standards for three interoperability layers. Consider gradually having a catalogue of specifications and |

| | | | standards of all interoperability layers (L, O, S, T) |
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| **B7. Please provide insight if and how the digital public service shares components and knowledge with the external environment.** | Ad hoc (1) | Opportunistic (2) | Currently, your digital public service does not share components and knowledge with the external environment. Work towards reuse and sharing on four areas: <br>- Provisioning of open Web-API services <br>- Sharing source code and/or downloadable software components (including required licensing) <br>- Sharing documentation <br>- Provisioning of knowledge (direct Q&A support). |
| | Opportunistic (2) | Essential (3) | Currently, your digital public service shares components and knowledge with the external environment through one of the proposed options. Work towards reuse and sharing on four areas: <br>- Provisioning of open Web-API services <br>- Sharing source code and/or downloadable software components (including required licensing) <br>- Sharing documentation <br>- Provisioning of knowledge (direct Q&A support). <br>Consider using the Organisational Interoperability Maturity Assessment of a Public Service (OIMAPS) and the Technical Interoperability Maturity Assessment of a Public Service (TIMAPS) to further investigate the interaction of the service with its external environment. |
| | Essential (3) | Sustainable (4) | Currently, your digital public service shares components and knowledge with the external environment through two of the proposed options. Work towards reuse and sharing on four areas: <br>- Provisioning of open Web-API services <br>- Sharing source code and/or downloadable software components (including required licensing) <br>- Sharing documentation <br>- Provisioning of knowledge (direct Q&A support). <br>Consider using the Organisational Interoperability Maturity Assessment of a Public Service (OIMAPS) and the |

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| | | | Technical Interoperability Maturity Assessment of a Public Service (TIMAPS) to further investigate the interaction of the service with its external environment. |
| | Sustainable (4) | Seamless (5) | Currently, your digital public service shares components and knowledge with the external environment through three of the proposed options. Work towards reuse and sharing on four areas:<br>- Provisioning of open Web-API services<br>- Sharing source code and/or downloadable software components (including required licensing)<br>- Sharing documentation<br>- Provisioning of knowledge (direct Q&A support).<br>Consider using the Organisational Interoperability Maturity Assessment of a Public Service (OIMAPS) and the Technical Interoperability Maturity Assessment of a Public Service (TIMAPS) to further investigate the interaction of the service with its external environment. |
| **B8. Is there a security profile established?** | Ad hoc (1) | Sustainable (4) | Currently, there is no security profile established within your public service. A security profile is a set of rights and restrictions that can be associated with a user or group of users. The security profile determines the actions (such as viewing, creating, and editing) that a user can perform on various resources, such as sourcing documents and master data. Consider establishing a security profile based on ad-hoc rules and rights. |
| | Sustainable (4) | Seamless (5) | Currently, there is an ad-hoc security profile established within your public service. Consider establishing a security profile based on a specific semantic model which includes a detailed service process description of its security choreography or workflow. You can get inspiration via the Technical Interoperability Maturity Assessment of a Public Service (TIMAPS). |
| **B9. How is data protection handled?** | Ad hoc (1) | Sustainable (4) | Currently, your digital public service does not have any measures in place for data protection. Data protection ensures |

| What measures are in place? | | | transparency and integrity of the data processed and collected, therefore it is necessary to have policies in place to handle them. Consider using custom data policies and regulations to handle data protection. |
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| | Sustainable (4) | Seamless (5) | Currently, your digital public service handles data protection with custom policies and regulations. Consider using formalised regulations e.g. GDPR to handle the data protection within your service, as it provides a set of rules and regulations that governs the use of personal data. You can further investigate the measures to handle data protection via the Legal Interoperability Maturity Assessment of a Public Service (LIMAPS), the Semantic Interoperability Maturity Assessment of a Public Service (SIMAPS) and the Technical Interoperability Maturity Assessment of a Public Service (TIMAPS). |
| B10. Is the digital public service subject to a Service Level Agreements? | Ad hoc (1) | Sustainable (4) | Currently, your digital public service is not using Service Level Agreements (SLAs) to make the expected service performance transparent and predictable for users. Ensuring SLAs and institutionalizing a Service Level Management process is considered a good practice and helps the organisation to steer on service stability and outcome. |
| | Sustainable (4) | Seamless (5) | As part of the Service Level Management process, good practice organisations monitor the compliance monthly and provide reports to their users to indicate compliance or provide an overview of the corrective actions that were taken to restore the service. Consider using the Legal Interoperability Maturity Assessment of a Public Service (LIMAPS) to further investigate the legal requirements of the public service. |
| B11. Are all terms and conditions of the digital public service operation | Ad hoc (1) | Sustainable (4) | Currently, the terms and conditions of the digital public service operation are not clearly defined to its end users. Consider partially defining the legal terms and |

| clearly and explicitly defined? | | | conditions of your public service using a public service description or a license. |
|---|---|---|---|
| | Sustainable (4) | Seamless (5) | Currently, the terms and conditions of the digital public service operation are partially defined to its end users. Consider fully defining the legal terms and conditions of your public service using a public service description or a license. You can use the Legal Interoperability Maturity Assessment of a Public Service (LIMAPS) to further investigate how to make clear the terms and conditions of the public service to the end users. |