**Market survey**

**Technical specifications**

**‘Purchase of public transport data analysis software for the integration of data, and preparation and visualisation of analytical reports’**

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# Abbreviations and terms

* 1. Client — Riga Municipality Limited Liability Company *(SIA)* Rīgas satiksme;
	2. Tenderer — any supplier that meets the requirements set by the Client and is entitled to provide the service specified in the technical specifications;
	3. System — public transport data analysis and integration software, for the preparation and visualisation of analytical reports’
	4. PTV — public transport vehicle;
	5. APC — automatic passenger counting system, which records passengers that board and leave vehicles at stops, as well as vehicle occupancy;
	6. AVL — PTV movement supervision system;
	7. GPS — global positioning system;
	8. E-talons EPS — electronic payment system that uses electronic payment cards;
	9. QR EPS — electronic payment system using QR code tickets;
	10. TikiTaka EPS — electronic cash payment system;
	11. Validation — registration of tickets in an EPS;
	12. RFID — radio frequency identification system;
	13. GTFS — general transit feed specification: a set of files that contain public transport timetables and associated geographical information in a single format;
	14. Assignment — PTV assignment for the day;
	15. Ticket check data — data on passenger validation checks performed, fines issued, etc.;
	16. Pikas — route list and associated geography management system;
	17. Mobis — PTV daily assignment management system;
	18. PikasFleet — AVL management system;
	19. DWH — centralised data storage facility of the Client;
	20. AI — algorithm that can make recommendations based on machine learning data to streamline public transport;
	21. AD — active directory;
	22. AMS — application management system of the Tenderer.

# General information

* 1. As part of the market survey, the Tenderer demonstrates the capabilities of its System using the Client’s data. The Tenderer receives access to the Client’s data on an individual basis, by sending a non-disclosure statement and application to the e-mail address indicated for applications and proposals;
	2. The Tenderer receives access to the data if the Tenderer meets the qualification requirements set in Section 7;
	3. The purpose of the System to be procured is to enable the creation and aggregation of a centralised integrated dataset linking AVL, APC, EPS, Pikas/Mobis, and ticket checks data, calculating, analysing, displaying, and transferring various indicators to the DWH MS Azure SQL server, with the goal of streamlining PTV quantity planning, PTV capacity planning, PTV route and trip planning, and efficient ticket inspector planning and performance;
	4. The operation of the system is ensured by the Tenderer, in accordance with the requirements set in this document;
	5. Adaptation and implementation of the System, delivering core functions (2.6) and data within 6 months, and integration of other data and functions (Section 3) within 12 months;
	6. Main functions of the System:
		1. Integration and linking of EPS (E-talons, QR, TikiTaka) data and AVL and APC data in a single analytical System, in order to gain information about the actual geolocation of Validations (route, section, stop, and/or user-defined area), and number of passengers in the PTV (number in vehicle, number boarded/left at stop), passenger flow analysis between different Riga neighbourhoods, identification of transfer points. The Tenderer provides diagrams with information about the algorithms for linking AVL and APC to EPS data;
		2. Integration of ticket check data into the System, processing, cataloguing, and analysis of data for producing reports, tables, comparisons, graphs, and other analytical materials according to the imported data across different statistics, with data filtering by parameter. Display of data in the user-selected format and the ability to switch the level of detail of the indicators using different parameters (by day, by hour, by route, etc.). The indicator control panel makes it possible to filter the indicators by one or more parameters, to compare them over a specific period or multiple periods;
		3. Integration of Pikas data into the System and displaying of the indicators associated with it (analysis of planned/actual timing of route sections, passenger flow in routes, directions, trips, at stops);
		4. Automatic classification and reporting of erroneous data by their type, to minimise the impact of such data on calculations and reporting. Examples of erroneous data: wrong recording time, GPS coordinates outside the route network served, PTV located at multiple stops at the same time, vehicle speed exceeds its technical capability, data only for passengers boarding a PTV or vice versa, only for passengers leaving, vehicle capacity significantly exceeds its set real capacity, redundancy of data, more validations recorded during the trip than the number of passengers boarded/left recorded by APC, Validations in PTV without linking to its route, wrong PTV numbers;
		5. User-selectable data interpolation to generate data whenever data from one or more PTV systems are missing or erroneous. In the case of data interpolation, a mark must be provided to detect these data so that they can be used in calculations and reports at the user’s preference. The Tenderer provides information about the methodology of the interpolation;
		6. Configurable at the user’s choice. Storage of the System in the Client’s DWH MS Azure SQL server.

# PTV and ticket check data visualisation, analysis and reports in the System

* 1. The System provides the user with the functions of displaying PTV data and ticket check data, and visualising indicators based on various calculations in a geographical map, graphs, heat maps, matrices, tables, with the capacity to flexibly filter them using selected criteria and to make comparisons between user-selected periods;
	2. The functions of the System must allow the user to create (split and classify) PTV data and ticket check data in different groups with the help of intertables: for example, to classify stops by their territorial assignment to a neighbourhood or area, to define calendar days as weekdays and weekend days;
	3. Using the PTV data available, the System provides reports on passenger travel patterns (origin to destination) between user-defined areas in matrix, table, and map form, given that the EPS only contains validation information for passengers boarding the vehicles, without such information for passengers leaving them. The Tenderer provides information about the algorithm used to collect data for estimating the origin-destination passenger travel patterns;
	4. The System provides a visualisation of information about improvements necessary in the public transport service, e.g. information about PTV trips with overcrowded vehicles, locations where PTV regularly runs behind or ahead of the planned timetable, an analysis of stops or sections with scheduled and actual trip times, various passenger comfort level indicators, and recommendations on recommended characteristics for these indicators based on the results of the analysis;
	5. The system provides a report on the comparison of EPS and APC data (taking into account that not all PTV are equipped with APC), identifying major discrepancies across various parameters and levels of detail (identification of the number of fare dodgers);
	6. For tabular data reports, the System makes it possible for the user to sort the data displayed using any of the data columns, to turn individual columns off/on, and to change the sequence, in which the columns are visualised;
	7. The system enables the saving of report results, graphs, views as user bookmarks;
	8. All individual configurations and bookmarks of the user are saved once the user leaves the System, and are applied whenever the user returns to the System.

# System requirements

* 1. The system must be available on a website managed by the Client and based on the SaaS (software as a service) principle;
	2. There must be access to at least 30 analyst-level users, at least 10 administrator-level users, and 100 management-level users;
	3. The System must protect the information processed so that unauthorised individuals or systems cannot retrieve or modify this information. User login via AD;
	4. Management level users must be able to view reports without having to log into the System, using only the Client’s intranet;
	5. The interface must enable the user (at all levels: administrator, analyst, management) to intuitively identify the basic functions and perform basic actions quickly and without training;
	6. The System must be protected against user data requests that are too large (e.g. requesting all data, or data requests that exceed technical capabilities) by automatically alerting the user whenever the request parameters need to be changed;
	7. The System must be available without undue delays (for large requests, up to 30 seconds), including for the loading of large amounts of data, switching to other views, user login, and visualisation of reports;
	8. The monthly System availability must not be lower than 98%. If reports or other data cannot be retrieved (due to time out), a message is displayed with a detailed explanation of the error;
	9. The user interface is in Latvian or English;
	10. The maintenance of the System is a component of the service that includes technical support, handling of problem requests, and provision of consultations as required.

# Outgoing and incoming data format

* 1. Outgoing data:
		1. The System makes it possible to export report and results data in commonly used file formats (e.g. .csv, .xlsx, .jpeg, .png, .pdf);
		2. When exporting a graph, geographic map, or heat map, basic details about the information displayed is provided (legend, title, information filtered, designations, notes, etc.);
		3. The basis for the geographic map used must be open-source;
	2. The formats for incoming data (data import into the System) are csv., MS SQL, .xlsx. For enabling the functioning of the system it is allowed to import external data in other commonly used file formats (.json, .xml, .shp, .kml, .geojson, etc.), for example, data on population density, number of persons by actual place of residence, number of employed persons by place of work, mobile phone operator data, etc.

# Preferred features that extra points can be awarded for

* 1. Preferred, non-mandatory additional features in the System that extra points can be awarded for:
		1. The System has a tool that displays the departure times of the nearest trips by indicating the location (by entering the necessary stop) and statistics on APC and EPS data discrepancies during a trip based on historical data, intended for the operational planning of check activities. If this tool is provided in the System, it must be usable on the website, on a tablet, and on a mobile device;
		2. There is an AI feature that has at least the following capabilities:
			1. make recommendations based on data for PTV quantity planning, PTV capacity planning, PTV route and trip planning, and efficient ticket inspector planning and performance;
			2. display of the most frequent locations of AVL data loss on a geographic map;
			3. ability to disable/enable AI functions for the user;
		3. A public transport service quality *assessment tool*, or any other functions for which the Tenderer provides an additional explanation of their applications and methodology.

# Tenderer qualification requirements

* 1. The Tenderer has implemented the System it developed for at least 3 clients in the past three years (2021, 2022, 2023, and 2024 up to the submission of the proposal), of which:
		1. at least one client operates a city public transport route network, and the number of data sensors in it is at least 150;
		2. at least one client has a system in place that integrates and analyses GPS and electronic ticket system data;
	2. The Tenderer provides the following specialists:
		1. One (1) project manager with experience implementing a public transport data analysis system or an equivalent system within the past 3 years (2021, 2022, 2023, and 2024 up to the submission of the proposal);
		2. One (1) programmer with experience developing or adapting a public transport data analysis system or an equivalent system within the past 3 years (2021, 2022, 2023, and 2024 up to the submission of the proposal);
		3. One (1) system tester with experience testing a public transport data analysis system or an equivalent system within the past 3 years (2021, 2022, 2023, and 2024 up to the submission of the proposal).
	3. For the purposes of Sections 7.2.1, 7.2.2, 7.2.3, an equivalent system is defined as a system that meets at least the following criteria:
		1. the equivalent system enables the mutual integration of data from different sources based on different identifiers, including based on date (dd.mm.yyyy) and time (hh:mm:ss) columns, taking into account that the times of the data sources can have different (have different offsets);
		2. the equivalent system operates online;
		3. the equivalent system has data analysis and visualisation functions;
		4. the equivalent system can identify of erroneous data.

# Price/proposal assessment

* 1. The assessment of Tenderer prices includes:
		1. price of developing the main functions of the System (6 months) and other functions (12 months);
		2. System maintenance price, including technical support, for 24 months;
		3. price for increasing the scope of service:
			1. price per additional analyst-level user;
			2. price of 1 working hour for the implementation of improvements requested by the Client.

# User management and training

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| **Requirement ID** | **Requirement description** |
| **LPA-1** | The Tenderer provides for multi-level administering of users via AD, defining rights and access levels, for example: * administrator, with all System rights, including the creation of new users and changing of user rights;
* analyst that analyses, prepares reports, and publishes data for management-level users;
* management-level user that reads and downloads the published reports.
 |
| **LPA-2** | The Tenderer provides 24 hours of online or face-to-face training for 10 users (administrator and analyst-level users), making video recordings of the training, and issues training materials (including the video recordings of the training). |
| **LPA-3** | The Tenderer trains analyst-level user in the System test environment prior to the acceptance of its development to confirm that the user manuals are appropriate and the System is fully functional. |
| **LPA-4** | The Tenderer prepares and, with the acceptance certificate, submits the following documentation:* a description of every API call, including examples of calls and all possible replies, with field formats and explanations;
* descriptions of the System’s internal processes and algorithms;
* Methodology for calculations set in the System;
* descriptions of the System’s database, its procedures, functions, views, tables, data fields;
* a risk assessment and submits it in accordance with the procedures set by the Client;
	+ - * analyst-level user manual covering the full scope of the functions of the System, including video recordings and step-by-step explanations of the main use cases;
			* administrator manual covering the full scope of the functions of the System, including video recordings and explanations;
			* installation manual, if any;
			* System versions, if any;
			* the Tenderer must submit the documentation to the Client in Latvian in a recognisable and editable digital format (MS Word or MS Excel);
			* by agreement with the Client, the Tenderer may combine multiple manuals in one.
 |
| **LPA-5** | During the Contract, the Tenderer ensures that all the documentation listed in requirement LPA-4 is kept up-to-date, making necessary updates following the implementation any changes or additions in the System that affect its technical design and need to be represented in the corresponding documentation. |

# Warranty

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| **Requirement ID** | **Requirement description** |
| **GP-1** | The Tenderer provides a warranty covering additions and corrections of errors for a period of twenty-four (24) months. The warranty period for System additions starts on the date of signing of the acceptance certificate for the entirety of the development and delivery of the Systems in the production environment.The warranty covers the full faultless operation of the System, and covers the functions of the System developed (modified) by the Tenderer and the functions of the System affected by the services set in functions developed (modified) by the Tenderer. If there is a dispute as to the cause of an error (i.e. whether the error was caused by the Tenderers’s actions and must be rectified under warranty, or whether the error was caused by a standard software error in the System that was not detected during the contract period), it is assumed that if the error is reproducible in the version delivered by the Tenderer, the error is covered by the warranty.In the event of a dispute as to the cause of an error, the burden of proof lie with the Tenderer. |
| **GP-2** | The Tenderer must, at his own expense, rectify any errors and deficiencies, as well as their consequences, if the errors and deficiencies are due to the defects described above. |
| **GP-3** | The Tenderer must, at its own expense, ensure that any errors, as well as their consequences, are rectified if the error is due to the Tenderer’s failing to perform design, requirement definition, quality control, testing work, or not performing that work altogether. Work is deemed of unsatisfactory quality if it fails to deliver the functions specified in the technical specifications, if there are errors found in the calculations or algorithms, or if there are errors or inaccuracies in the user interface. |
| **GP-4** | The warranty must cover the following services:* corrective maintenance — fixing front-end and back-end performance issues and errors;

preventive maintenance — front-end and back-end improvements made to prevent potential problems before they affect the quality of the performance of the Systems. |
| **GP-5** | The warranty must cover the following services:* when submitting the deliverables as part of maintenance, the Tenderer must comply with the requirements set for the development of the Systems;
* when submitting the deliverables as part of maintenance, the quality of the previously developed code and the functions of the Systems must not be negatively affected.
* The Tenderer must keep records of the services provided under the warranty in the AMS.
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# Maintenance and service

* 1. By day ten of every month, the Tenderer submits to the Client a report on the service and maintenance performed in the previous calendar month.
	2. System development process:

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| **Requirement ID** | **Requirement description** |
| **SIP-1** | As part of the routine development process:* the Tenderer must comply with development standards in a way that they are compatible with the expected delivery results for the Client’s test environments.
 |
| **SIP-2** | Training, instruction, and demonstration sessions:after the delivery process, the Tenderer verifies the operational capacity of the functional test environment and organises training for the use of the new functions together with a representative of the Client;* the Tenderer prepares and/or updates a user manual and/or video course;
* the Tenderer publishes the user manual and/or video course.
 |
| **SIP-3** | Acceptance testing:* within ten (10) business days after every deliverable, the Tenderer must, in conjunction with the Client, prepares an acceptance testing report;
* any errors and omissions found are recorded electronically by the Client in the Tenderer’s AMS and communicated to the Tenderer in the formalised work assignments;
* the testing must not stop at the first error. the Client must test all the functions delivered, unless the first tests reveal that further testing of the deliverable is impossible;
* it is the duty of the Tenderer to rectify the errors detected during the acceptance testing as soon as possible and to initiate the delivery of the corrected code.
 |
| **SIP-4** | Acceptance process:* before the deliverable is installed in the production environment or accepted for maintenance, the Tenderer and the Client must agree that the deliverable has been prepared and meets all quality criteria;
* the Tenderer must produce a user manual and/or video course on how to use the new or expanded functions;
* the Tenderer must prepare or update and publish an administrator’s manual, if it is necessary;
* publishing in the production environment (rollout); the release manager is in charge of this process;
* return to the previous version (rollback); the release manager is in charge of this process;
* in the event of successful publication, the delivery is considered to have been accepted for maintenance.
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| **SIP-5** | Warranty error handling:* errors detected as part of maintenance are recorded electronically by the Client in the AMS developed, describing the error. the Client can report an error via a video call with the Tenderer handling the deliverable, in which the Client demonstrates the error;
* errors occurring as a result of the submission of the last deliverable must be rectified by the Tenderer in the next deliverable;
* having received an error report, the Tenderer assesses whether that particular error set can be fixed without interfering with other functions, with a patch, or if a change is necessary that may affect the operation of the System. In that situation, a new development and/or design process needs to be initiated.
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* 1. System maintenance requirements:

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| **Requirement ID** | **Requirement description** |
| **SUP-1** | The Tenderer ensures continuous technical supervision and recovery of System operation, including full data recovery.  |
| **SUP-2** | The Tenderer performs version updates of technology platforms, if any, as recommended by the developer, with the approval of the Client. |
| **SUP-3** | The Tenderer provides the management of applications and the preparation of reports on applications submitted and resolved in the previous month. |
| **SUP-4** | The deletion or minimisation of data must be ensured at the Client’s request within the deadline specified, provided that this does not breach the laws and regulations of the Republic of Latvia and the European Union. |
| **SUP-5** | For the management of applications, the Tenderer provides an AMS and features that include at least the following:* application author (entered by the Client or the Tenderer);
* system component referred to by the application (entered by the Client or the Tenderer);
* priority of the application (entered by the Client or the Tenderer);
* description of the error/problem (entered by the Client or the Tenderer);
* date and time of the application (provided by the AMS automatically);
* status (at least the following statuses are recorded: registered, processing started, in development, delivered, testing, closed);
* status can be changed by the Supplier or the Tenderer;
* date and time of status change (provided by the AMS automatically);
* correspondence history related to the application (stored in the AMS for all applications);
* date and time of application closure (provided by the AMS automatically, as the respective statuses change);
 |
| **SUP-6** | During the contract, the Tenderer must ensure the availability of the System during the Client’s business hours (24/7) in compliance with Cabinet Regulation 442 ‘Procedures for the ensuring conformity of information and communication technologies systems to minimum security requirements’ and ensure a monthly availability of the System service of 98%, not including scheduled downtimes approved by the Client.The Tenderer is not required to meet the corresponding accessibility requirements in situations that arise from circumstances beyond its competence and influence. |
| **SUP-7** | The System can handle the processing of at least 500 simultaneous requests.The total number of users of the System is expected to be at least 140. |
| **SUP-8** | The handling of an application only stops once the Client provides its confirmation that the proposed solution is acceptable or that the application can be closed for other reasons. An application may be closed only by the Client or its representative. |
| **SUP-9** | An application may be withdrawn by the Client as out-of-date, or may be rejected (or reclassified) by the Tenderer on reasonable grounds, provided that the Client accepts the grounds for the rejection (reclassification).  |
| **SUP-10** | The Parties may agree on a different (longer) time for rectifying a defect, if the Tenderer explains this and the Client accepts it. |
| **SUP-11** | When creating new versions of deliverables, the Tenderer must assess the possibility of combining the results of the processing of multiple applications within a single deliverables version in order to reduce the number of versions delivered separately. At least the following information must be included in the system software version notes:* version identifier;
* changes made in the version (enclosing AMS applications with descriptions, comments, and statuses added to the applications).
 |
| **SUP-12** | For every deliverables version, the Tenderer must ensure that the following testing takes place in the test environment prior to the delivery, in accordance with the following classes of testing:* Functional tests that must cover all functions included in the deliverables version, according to user stories, application scenarios, or business requirement specifications if developed for the item in question. The Tenderer must arrange performance and speed requirements for the System, as well as its security tests.
* Integration tests if the functions of the System delivered within the version in question affect the data interfaces with external information systems.
* The test reports produced for the automated regression tests, functional tests, and integration tests (if any) are to be included in the documentation package for the deliverables version in question.
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| **SUP-13** | After the successful automated tests (if necessary), the Tenderer informs the Client of this, and the Client implements its test scenarios. |
| **SUP-14** | A deliverables version is deemed to have been accepted once the Client carries out its own internal testing activities and the Client’s representative in charge informs the Tenderer that the deliverables version can be installed in the production environment. During the testing, the Client may inform the Tenderer of the errors and problems identified which the Tenderer must rectify. The Client is entitled to carry out an unlimited number of testing activities, to inform the Tenderer of the results, and to record every error, deficiency in the form of an application with the corresponding status in the AMS. |
| **SUP-15** | The performance of the respective measures is to take place after the acceptance of the corresponding delivered version by the Client, subject to the following conditions: * the delivery of the version takes place at a time agreed in advance by the representatives of the Tenderer and the Client in charge;
* the corresponding delivery time is agreed to be no later than one (1) business day before the version is brought to the production environment;
* this condition may change via separate agreement between the Tenderer’s representative in charge and the Client’s representative in charge; this agreement must be in writing (via e-mail) and documented in the delivery test environment as part of the functions developed, where all information about version activity requests is stored.

If, as a result of the implementation of a new version, the Client identifies a deficiency in the operation of the Systems, the Client’s representative in charge may request the Tenderer to roll back to the previous version using roll-back scripts. An assessment of the operating deficiency must be carried out within the set deadlines. |
| **SUP-16** | During the Contract, the Tenderer ensures that all additions to the documentation are provided in the documentation library following the implementation any changes or additions in the System that affect its technical design and need to be represented in the relevant documentation. As part of expanding the documentation, version control management must take pace, making it possible to trace the versions of the documentation using version identifiers. |

# System security requirements

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| **Requirement ID** | **Requirement description** |
| **SDP-1** | The Tenderer ensures that the exchange of data between the System and other systems takes place via secure encrypted data transmissions. The Client arranges the purchase of the necessary external certificates.The Client provides the necessary internal certificates. |
| **SDP-2** | In maintaining the System and implementing changes, the Tenderer must ensure the System’s compliance with the following laws and regulations of the Republic of Latvia (in their versions and amendments effective during the Contract): * Cabinet Regulation 442 ‘Procedure for information and communication technology system compliance with minimum security requirements’ of 28 July 2015.

The Tenderer must also comply with general ICT good practices, standards, and principles for security, such as protection against the top 10 OWASP vulnerabilities.  |
| **SDP-3** | System compliance with standards: ISO/IEC 5055:2021 and ISO/IEC/IEEE 15289:2019. |
| **SDP-4** | During the Contract, the Tenderer ensures that all security deficiencies identified by the Client, the Tenderer, a public discovery, etc. (for example, information and security vulnerabilities reported by an independent security auditor via https://cve.mitre.org) are eliminated. Whenever a deficiency is found in a System component that causes security risks, a review and analysis of the remaining functions of the System must also be carried out in order to identify and address the specific type of deficiency in all parts of the System where it can arise. |
| **SDP-5** | During the Contract, the Tenderer ensures that the functions of the System are maintained that enable the collection of audit trails. |
| **SDP-6** | During the Contract, the Tenderer will be provided with administrator access rights to the test environment and the System test environment. The respective access rights will be arranged via remote access, subject to prior approval by the Client, with the necessary access data securely handed over to the Tenderer’s representative in charge no later than ten (10) business days after the Contract takes effect, to the extent specified by the Client’s representative in charge.  |
| **SDP-7** | In processing system change requests for which applications have been received in the AMS, the Tenderer ensures that the following security conditions are met for their implementation: * the solution used must check for publicly known vulnerabilities, e.g. via https://cve.mitre.org;
* it is prohibited to use in the development of the System components for which security updates are not delivered or which are not supported during the contract, or for which there are plans to discontinue development and/or delivery of security updates within 5 years from the start of development.

The System must not have built-in access features that bypass the authentication mechanisms. |
| **SDP-8** | When delivering a new version, the Tenderer must:* remove unused sections of code and insertions of malicious code,
* check for the absence of additional interfaces introduced for testing purposes in the delivery version.
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# Change request

* 1. The following are deemed to be change requests:
		1. functions previously not covered in the order that become necessary over time;
		2. functions previously ordered that need to be implemented using a method that is different from what was previously agreed.

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| **Requirement ID** | **Requirement description** |
| **IP-1** | The Tenderer ensures that change requests are performed in accordance with the guidelines of the Client following, the particular categories of applications and their priorities (category 6 applications). |
| **IP-2** | The Tenderer prepares an implementation proposal (work assignment) for category 6 applications at no additional cost. |
| **IP-3** | The work assignment for the change request is approved and confirmed by the Client. |
| **IP-4** | During the maintenance period of the Systems, the Tenderer must arrange the processing of change requests, preparation and assessment of change proposals at no additional charge. |
| **IP-5** | The Tenderer must start implementing change requests immediately after the conclusion of the corresponding agreement or on the date specified in that agreement if there are special conditions for the implementation time. |
| **IP-6** | During the development and implementation of the Systems, the Client reserves the right to make adjustments in the previously defined requirements (category 6) that do not change the total planned scope of work by more than 20% of the contract price. |

# Cooperation between the Client and the Tenderer

* 1. The Tenderer must, at the request of the Client, provide information that the Tenderer has about the functions of the System and about other related matters that are relevant to the Client.
	2. The Tenderer performs the maintenance of the System, including technical support, troubleshooting and consultancy, in accordance with ITIL ITSM (support-level) guidelines.

# Error and application priorities

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| **Class** | **Brief description of the problem** | **Priority** | **Response and performance time starting from AMS application** |
| Reaction time | Temporary solution delivery time | Permanent solution delivery time |
| **1.** | A problem that causes the System to stop working and/or its functions to become unavailable. (Emergency maintenance) | Critical | No more than 1 business day | 2 business days | No more than 3 business days |
| **2.** | A problem caused by a software error in the System, or a malfunction, that results in a significant loss of function, with no known workaround, but it is possible to continue operation with limitations. (Emergency maintenance) | Urgent | No more than 2 business days | 3 business days | No more than 5 business days |
| **3.** | A problem that causes minimal loss of capability and/or function, its impact on the System is of low or nuisance significance. (Scheduled maintenance) | Medium | No more than 5 business days | 7 business days | No more than 10 business days |
| **4.** | A problem that does not cause potential loss and is considered to be a software error in the System, an inaccuracy, or a malfunction that has a minor impact on the operation of the System.(Scheduled maintenance) | Low | No more than 5 business days | - | No more than 10 business days |
| **5.** | A situation in which the Client needs support to resolve specific issues or to obtain additional information about the System and its functional capacity, including receiving training on the System and preliminary assessment of changes. | Low | No more than 5 business days | - | - |
| **6.** | A request to make changes to, or add functions or documentation to, or perform other additional work with the System that is beyond the scope of the Contract or different from the categories described above. | Low | No more than 10 business days\* | - | - |
| \* During this time, the Tenderer prepares a proposal containing a description of the solution and an estimate of the workload. If the Tenderer requests additional information for the preparation of the proposal from the Client, the deadline in business days specified is suspended until the Client provided the Tenderer with the information requested. |

* 1. Error impact assessment:

|  |  |  |
| --- | --- | --- |
| **Class** | **Impact description** | **Assessment** |
|  |
| **1.** | The error prevents the duties arising from laws and regulations or contracts from being performed in full or in part, with no workaround available. | High |  |
| **2.** | The error is a nuisance at work or causes additional manual work, but it is possible to perform the duties of the Client under laws, regulations, or signed contracts. | Medium |  |
| **3.** | The functions affected by the error are not significant and do not affect the Client’s work as a whole. | Low |  |

* 1. Error and application processing:
		1. As part of maintaining the System, the Tenderer must ensure the availability of at least the following communication channels that the Client can use to provide information about errors, problems, or other matters in the System:
			1. the Tenderer provides and maintains an AMS that records all applications for emergency work, scheduled work, and consultations;
			2. a communication option using a telecommunications service and a specific phone number indicated by the Tenderer;
			3. a communication option using e-mail, with a specific e-mail address indicated by the Tenderer.
		2. The AMS that makes it possible to handle applications must be available 24/7.
		3. The communication channels (telecommunications channel and e-mail communication channel) that enable other forms of communication must be available (the Tenderer must ensure that the corresponding communication channels are used by its experts, so that it can meet the requirements described in the technical specifications, and comply with the response and performance deadlines) as follows, taking into account the business hours set by the Client:
			1. The Client works five (5) days a week, Monday to Friday, including official public holidays;
			2. The Client’s business hours, Monday to Thursday, are 7:30 to 16:30, and 7:30 to 14:00 on Fridays;
			3. The calendar of business days is the business day calendar for institutions funded by state budget, as set by Cabinet of Ministers order, with a five-day working week from Monday to Friday.