Reykjavík

25.11.2022

BORGARRÁÐ 1. júlí 2022: Fyrirspurn fulltrúa Sjálfstæðisflokksins um Klapp, rafrænt greiðslukerfi Strætó - MSS22060232

1. Klappið fór í loftið í nóvember 2021.
2. Byrjunarörðugleikar hafa verið leystir og virkar greiðslukerfið vel. Hinsvegar eru viðskiptavinir enn að læra á nýtt kerfi enda var farið úr greiðslufyrirkomulagi sem tekið var í notkun um 1940 yfiir í nýjasta fyrirkomulag og að breyta slíkri menningu mun taka tíma. Við innleiðingu á snertilausum greiðslum verður skipt um skanna og fullkomnari skannar settir í vagnana og við það eykst skönnunarhraði.
3. Þegar nýju appi var hleypt af stokkunum var ákveðið að innleiða í skrefum virkni sem var í eldra appi, eins og leiðarvísir, hvar er vagninn o.fl.. Þessi virkni er nú til staðar í nýja appinu og búið að loka fyrir eldra appið. Ýmis ný virkni hefur verið kynnt í nýja appinu sem ekki var í eldra appinu.
4. Hægt var að nota strætómiða fram eftir árinu 2022 og skila síðan inn gegn inneign. Það var orðið löngu tímabært að fasa út strætómiða end mikil pappírssóun ásamt því að auðvelt var að falsa þá.
5. Hraði þeirra er í samræmi við þær kröfur sem gerðar voru, en upp hafa komið vandamál með þá sem eru að mestu leyst í dag. Viðskiptavinir hafa þurft að læra á hvernig bera á kort og síma upp að þeim þannig að þeir virki sem best. Við innleiðingu á snertilausum greiðslum mun birginn á sinn kostnað skipta út skönnum og verða nýir skannar hraðvirkari og einfaldari í notkun fyrir viðskiptavini. Enginn kostnaður fellur á Strætó við þessi útskipti.
6. Snertilausar greiðslur í almenningssamgöngum er ekki komið víð og sem dæmi eru 2 borgir nýbúnar að innleiða þetta í Svíþjóð og Helsinki að vinna að innleiðingu. Stefnt er að því að þessi virkni verði kominn í vagna á höfuðborgarsvæðinu á næsta ári.
7. Við fengum fjölmargar athugasemdir eftir ýmsum leiðum og var ekki sérstaklega haldið utan um fjölda þeirra.
8. Þetta er lausn sem er í notkun í Svíþjóð og Noregi og byggir á bobcat staðli. Til að geta boðið upp á snertilausar greiðslur þurfa skannar að uppfylla ýmis öryggisatrið sem greiðslukortafyrirtækja setja svo sem PCI o.fl.
9. Sjá hér að ofan. Strætó bauð út á EES, með forvali og varð FARA AS hlutskarpast í útboðinu. FARA AS er síðan í eigu Ticketer, sem er stórt breskt fyrir á sviðin greiðslulausna í almenningssamgöngum. Meðal annars var gerð krafa í forvali að um væri að ræða fyrirtæki sem hefði reynslu og þekkingu af slíkum greiðslukerfum. Skannar koma frá Etterplan sem hefur áralanga reynslu í þessum bransa. Allir pakkinn var boðinn út og síðan sér FARA AS um samskipti og val á búnaði sem nota þarf í greiðslukerfinu.
10. Sjá svör hér að ofan.

11. Bókfært á fjárfestinguna frá 2020 er um 300 m.kr. Gert er ráð fyrir skv. Útboði að kostnaður verði um 330 m.kr. og eftir það verði fjárfest í nýungum í gegnum kerfið, svo sem tengingar við aðrar þjónustur.
12. Áætluður heildarkostnaður við þær lausnir sem boðnar voru út er um 330 m.kr.

Fylgigögn: Útboðsgögn vegna greiðslukerfis.

Kostnaðaráætlun greiðslukerfis

sign

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Jóhannes Rúnarsson

Framkvæmdastjóri Strætó

Ticketing system for Public Transportation

Invitation to Negotiate (ITN)

NO. 14580

Contracting authority:

Strætó bs.

Administrator of the Negotiation:

Reykjavik Procurement Office

August 2019

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0 Definitions

AES - Advanced Encryption Standard

AMPS - Account Management and Processing System

API - Application programming interface

APPLICANT - A party interested in the Opportunity which submits a PQQ response.

TENDERER - An Applicant which was successfully short-listed following its PQQ response and is now invited to negotiate with the Purchaser.

CDA – Combined Data Authentication

CONTRACTOR - Tenderer with whom a contract is drawn up following a request for tender.

CRM – Customer Relationship Management

DDA – Dynamic Data Authentication

EEA – The European Economic Area – including Iceland

EMI – Electromagnetic interference

EMV – Enhanced motion vehicle.

GDPR - General Data Protection Regulation

ITN – Invitation to Negotiate

LLRU – Lowest Level Replaceable Unit

MTT - Mass Transit Transaction model

NDA - None Disclosure Agreement

NFC – Near Field Communication

NTP – Notice to Proceed

OEM – Original Equipment Manufacturer

PM – Project Management

POS - Transit store Point of Sale

UR – Regulation no. 340/2017 on procurement by parties operating in the water, energy, transportation and postal service sectors and the Public Procurement (utilities)

PSP – Payment Service Provider

PURCHASER – Agency, local community or other public entity in accordance with Article 3 of the PPA who the purchasing party is following the request for tender.

PQQ – Pre-Qualification Questionnaire

RFI - Radio frequency interference

RPO – Reykjavik Procurement Office

SLA – Service-level agreement

TENDER – A written response to this ITN by the tenderer

THE SYSTEM/EFARE SYSTEM/THE PRODUCT - The Electronic Ticketing System (all hardware and software) that is requested in this procurement.

1 Tender specifications

1.1 Terms and conditions of the invitation to tender

The terms of the invitation provide information on the procurement process and the rules that will be followed in the execution of the procurement process. In addition, they contain the eligibility requirements demanded of the Applicant that they must fulfil according to further definitions.

The following parties are invited to participate in a tender in accordance with the previous Prequalification procedure

- Conduent Business Solutions France SAS
- Fara AS
- Flowbird Transport Limited
- INIT Innovative Informatikanwendungen in Transport-, Verkehrs- und Leitsystemen GmbH
- Ridango AS
- Thales Revenue Collection Systems France SAS

1.1.1 General description

Strætó bs. Public Transportation Administration in the Capital area of Reykjavik, ID. No. 500501-3160 issues this invitation to negotiate for a new Electronic Ticketing System (eFare system) for Public Transportation in the Capital area of Reykjavik - hardware, software, hosting and associated services. The system is intended to replace all current ticketing mechanisms in the area for the benefit of the passengers, the Capital area of Reykjavik and to simplify and streamline the administration of the public transportation system.

The Strætó passenger can currently pay with cash, visually confirmed card (plastic and paper), visually confirmed app and paper tickets, sold in batches. There are discounts for the elderly, handicapped, the youth and corporate discounts for yearly subscriptions. The fares are checked visually by the driver on passenger entry at the front of the vehicle.

The high-level reasons for the project are the following:

- Increase the accessibility of the system for regular, infrequent and new passengers, including tourists
- Support a better data driven decision process in Strætó on all levels with more and better information on uses of the Public transportation system
- Increase payment security and prevent fraud
- Decrease the driver's payment surveillance responsibilities and increase the Inspectors role and responsibilities
- Reduce or even eliminate cash handling
- Adopt next generation payment technology

1.1.2 The Procurement supervisor

The Reykjavík Procurement Office (RPO), Borgartún 12-14, 105 Reykjavík, is the supervisor of this procurement on behalf of the Purchaser, Strætó bs. ID No.500501-3160.

The Reykjavik Procurement Office can be contacted by sending an e-mail to utbod@reykjavik.is or by calling (+354) 411-1111. The website of the Reykjavik Procurement Office is http://www.reykjavik.is/utbod/.

1.1.3 The Procurement

This Negotiated procedure with prior call for competition is proceeded according to article 50 of the UR.

The Purchaser is regulated by the Utilities Directive, which is implemented into Icelandic law by UR and the Public Procurement Act 120/2016 (as relevant). The procurement of the aforementioned procedure and described in these procurement documents is subjected to UR rules.

The Purchaser has already conducted the initial stage of the procurement, which involved the evaluation of PQQ responses. Through the application of the selection criteria set out in the PQQ, the Purchaser has invited all qualified tenderers into Phase 2.

The Purchaser reserves the right to either accept the most economically advantageous tender received in Phase 2, or, if considered necessary, start Phase 3, the negotiation phase, with tenderers, see below.

The procurement process will be performed in two phases with an optional third phase. Phase 1, the PQQ, has already been performed. This ITN is being issued to all tenderers that qualified from the PQQ stage to Phase 2.

In Phase 2 tenderers are invited to submit a tender for the Ticketing system for Public Transportation, as further described in section *2 Technical specification*. After the Deadline for receipt of tenders has expired Purchaser will open and review received tenders and select a tenderer according to 1.1.14, Selection of tenderer.

The Purchaser can, at its sole discretion within the validation period (see 1.1.12), decide to add a third and final phase; *the negotiation phase*, as further described below. If performed, the negotiation phase shall take place after Phase 2 has been wholly performed but excluding the selection of a tenderer.

The Purchaser reserves the right to request further information and documents from tenderers after opening and reviewing their tender and during the negotiation phase.

Structure of the negotiation

The Purchaser reserves the right to accept tenders received in Phase 2 without proceeding to the negotiation phase, as described above.

If the Purchaser decides to proceed to the negotiation phase, all qualified tenderers, which tenders fulfil all technical requirements, according to section *2 Technical specification* will be invited to the negotiation phase. By proceeding to Phase 3, the negotiation phase, all submitted tenders become invalid, but all qualified Tenderers remain as Tenderers for the procurement. Qualified Tenderers can withdraw from the procurement at any time during Phase 3 and can withdraw their Final Tender prior to the Deadline for submitting Final Tenders expiring. All tenderers will be allotted the same amount of time to clarify the documents submitted by them and have an interactive conversation about the project and their submitted tender.

If the Purchaser decides to proceed to Phase 3, the negotiation phase, the Purchaser may at its sole discretion decide on how many stages and rounds the negotiation will take place. Once the Purchaser is satisfied that no further negotiations are necessary with tenderers, it will formally close the negotiation phase of the Procurement and issue the Invitation to Submit Final Tender. After the Invitation to Submit Final Tender has been issued the Deadline for submitting Final Tenders is within ten (10) business days from the issuance. The negotiation phase cannot lead to significant changes of tender documents. However, during the negotiation phase Purchaser and tenderers may negotiate prices and tenderers are allowed to alter their prices from their originally offered price in Phase 2. All tenderers qualified to the negotiation phase will be given the same

opportunity to alter and negotiate their prices from their originally offered price. After the deadline of submission of a Final Tender has expired Purchaser will open, review and select a tenderer from submitted Final Tenders according to 1.1.13 Tender opening and evaluation and 1.1.14 Selection of tenderer. Only submitted Final Tenders can be selected. No alterations or modifications of Tenders are allowed after the Deadline for submitting Final Tenders has expired other than stated in 1.1.13.

If the Purchaser decides to proceed to the negotiation phase (Phase 3), further information regarding the formal commencement of the negotiation phase of the Procurement will be presented to the tenderers.

1.1.4 Information meeting

Not applicable.

1.1.5 Summary of the invitation for the procurement

- Tender
  - ITN documents delivered 30.08.2019
  - Deadline for enquiries expires 24.09.2019 at 10:00 GMT
  - Response deadline 27.09.2019
  - Deadline for receipt of tenders 03.10.2019 at 10:00 GMT
  - Deadline for receipt of Final Tender n/a
- Delivery time of product See Chapter 1.2.5

1.1.6 Tender documents

- Tender document – Invitation to Negotiate No.: 14580.
- Tender form, Appendix 1
- Enquiries replies and changes (addendums) made during the tendering period.

1.1.7 Acts of law and regulations

Prospective parties to the agreement, goods and services as described in these procurement documents must comply in all respects with Icelandic laws and regulations. In the event of any conflict between the text of the procurement documents and the law, the law as stated shall govern. The procurement and agreement described in these procurement documents are governed by Icelandic law.

1.1.8 Language

All communication and documents shall be in English.

1.1.9 Clarification of procurement documents

Tenderers must examine all instructions, forms, terms, specifications, and other information in the tender documents. Failure to comply with the aforementioned in accordance with the tender documents may disqualify the Tender.

If a tenderer requests further information or further clarification of the procurement documents, or if any discrepancy comes to his notice that might have an impact on the content of the procurement or the offer amount, he shall send an enquiry to the Procurement Department, in writing and with reasonable notice given the nature of the enquiry, no later than the specified enquiry deadline.

Enquiries must be labelled with the number of the invitation to procurement and sent through the tendering website of the Procurement Department http://utbod.reykjavík.is.

Additional information and annexes to procurement documents will be published on the website of the Procurement Department.

Purchaser has the right at his sole discretion to issue amendments to the Invitation to Tender at any time until twelve (12) days prior to the deadline for submission of Tenders during the Tender Period. Such amendments and any questions will be issued to all participating Tenderers and will as far as possible take due consideration of the remaining Tender Period.

1.1.10 Preparation and delivery of tender

Tender shall be prepared in accordance with the Procurement Form and instructions on the tendering website of the Procurement Department. Accordingly, copies of the Tenderer's own general terms and conditions or those of his proposed subcontractors must not be attached to or referred to in his Tender. Any such general terms and conditions included or referred to in the Tender will be disregarded, by the Purchaser, and may lead to disqualification of the Tenderer. Reservations made by Tenderers concerning their fulfilment of requirements detailed in tender documents will not be accepted. Tenders containing such reservations will be considered non-compliant and will be rejected.

Tender, together with requested documents, are to be submitted electronically to the tendering website of the Procurement Department: http://utbod.reykjavík.is/.

Tender cannot be submitted after the expiry of the stated Deadline for receipt of tenders and if Phase 3 is performed, Final Tenders cannot be submitted after the deadline for Final Tenders. Tenders submitted after the aforementioned deadlines are invalid.

The Purchaser reserves the right to reject tender that are not prepared in accordance with procurement documents.

Tenderer can withdraw their tender or Final Tender on the tendering website of the Procurement Department prior to the Deadline for receipt of tenders or a Final Tender prior the Deadline for receipt of Final Tenders.

1.1.11 Submission of tender responses

Tenderers must submit their tenders in accordance with the requirements of this ITN no later than before the Deadline for receipt of tenders expires, according to 1.1.5 Summary of the invitation for the procurement.

If the negotiation phase is performed, then Tenderers must also submit their Final Tenders in accordance with the requirements of this ITN no later than before the Deadline for receipt of Final Tenders expires.

Tenders may be submitted at any time before the Deadline for receipt of tenders expires and if the negotiation phase is performed then Final Tenders prior to the Deadline for submitting Final Tenders expiring. Tenders received before this time will be retained unopened until the aforementioned deadlines have passed.

Tenderers may modify and resubmit their tenders prior to the Deadline for receipt of tenders and if the negotiation phase is performed then their Final Tenders prior to the Deadline for submitting Final Tenders expires. However, at the aforementioned deadlines, Tenderers should ensure that only one tender is submitted and available for downloading by the Purchasers. Tenders may not be modified after the tender deadline has passed.

Any tender received after the Deadline for receipt of tenders has expired and if the negotiation phase is performed, then Final Tenders after the Deadline for submitting Final Tenders has expired will be rejected, unless the tenderer can demonstrate that failure to

submit on time was caused by the fault of, or can be attributed to, the Purchaser and the tenderer can provide irrefutable evidence that the tender was incapable of being received in full by the due date and time. Responsibility for the timely submission of tender's rests solely with the tenderer.

Tenders must be submitted through the procurement portal only http://utbod.reykjavík.is. For the avoidance of doubt, submission via any other means will not be accepted by the Purchaser.

1.1.12 Documents to be submitted with the tender

The following documents shall be submitted with the tender:

- Appendix A Tender form - fully completed and filled out.
- Technical information required to ensure compliance to the requirements as listed in Appendix A Tender form.

The Tenders shall remain valid for sixty (60) days from expiration of the Deadline for receipt of tenders. Final Tenders shall remain valid for thirty (30) days from the expiration of the Deadline for receipt of Final Tenders.

1.1.13 Tender opening and evaluation

The Purchaser will open all Tenders and Final Tenders if Phase 3 is performed on a date notified to the Tenderers. The Tenders and Final Tenders will be opened and reviewed in a closed, confidential and informal setting at the Reykjavík Procurement Office not accessible to Tenderers.

The Tender evaluation process of both Tenders and Final Tenders will be carried out in strict confidentiality. Information from individual Tenders or other information relating to the examination, clarification and evaluation of individual Tenders and recommendations for the award of Contract will not be disclosed to other Tenderers or any other persons not officially concerned with such process, until the award to the successful Tenderer has been announced.

During Tender evaluation of both tenders and Final Tenders, the Purchaser may, at his discretion, ask the Tenderer for a clarification of his Tender, including further breakdowns of lump sums. The request for clarification and the response will be in writing.

The Purchaser will examine the Tenders and Final Tenders to determine whether they are complete, whether any computational errors have been made, whether the documents have been properly signed, and whether the Tenders are generally in order. Arithmetical errors will be rectified on the following basis: If there is a discrepancy between the unit price and the total price, which is obtained by multiplying the unit price and quantity, or between subtotals and the total price, the unit or subtotal price must prevail, and the total price must be corrected. If there is a discrepancy between words and figures, the amount in words will prevail. If there is a discrepancy between the unit price and the amount in words the unit price shall prevail.

The aforementioned in no way alters the Tenderers responsibility of compliance to Tender documents and creates no obligation or responsibility on behalf of Purchaser to rectify or adjust tenders. Likewise, it in no way limits Purchaser discretion to select a tenderer based on criteria described in 1.1.14 Selection of tenderer or to disqualify a tender.

1.1.14 Selection of tenderer

The most economically advantageous tender according to the tender documents is the best price tender that meets all the technical requirements of the tender documents.

The Purchaser will accept the most economically advantageous and valid tender that fulfils the requirements of the tender documents or decline all tenders.

1.1.15 Acceptance of tender

When a tender or a Final Tender is accepted in writing, with an e-mail, within its validation period, this constitutes as a binding agreement based on the tender documents and the tenderer's offer. Tenderers will be informed of the outcome of this procurement procedure by e-mail sent to tenderers stated e-mail address. All obligations described in the tender documents and the tenderer's offer are enforceable against the selected tenderer once his offer has been accepted in writing by Purchaser.

1.2 General terms and conditions

The general terms and conditions provide for the duties and rights of the parties to the agreement once a binding agreement has come into effect on the completion of the procurement process, after a tender has been finally approved by Purchaser.

1.2.1 Contract

After acceptance of the tender a written contract between the parties will be made regarding the procurement described in this invitation.

Before the contract is signed, a time schedule, payment schedule and performance insurance from the tenderer must be available and approved by the purchaser.

1.2.2 Prices reference base

Tenders submitted shall be in Euros (EUR) and shall exclude value added tax (VAT).

1.2.3 Payment

Payments for The System, Tender Form section A, will take place in accordance with approved payment schedule. Last payment, 10% of the total amount will be paid when The System has passed all tests and is approved by Purchaser.

Payments for the SLA, Tender Form section B, shall be made on a monthly basis, for the items listed in section B of the Tender Form.

Payments for development and changes shall be made according to an agreed payment schedule.

Approved payments will be paid by Purchaser, no later than thirty (30) days after the end of the month in which the sale occurred. The final due date shall be the same as the due date.

Late payment interest or any interest on claims made relating to the procurement described in this invitation shall not exceed what is stipulated in the Act on interest and price indexation no. 38/2001. Both tenderers and Purchaser can demand interest on any claims made relating to the procurement described in this invitation according to the Act on interest and price indexation no. 38/2001 regardless of the currency.

1.2.4 Communication during the contract period

When the contract enters into force, Purchasers IT staff will manage communications with the tenderer during the contract period. Purchaser reserves the right to hold monthly project management meetings with the tenderer during the contract period. Tenderers shall include in their tenders all cost and expenses for project management meetings.

At the commencement of the project written rules will be drawn up regarding how contract monitoring, and the management of the contract will be organized by the Purchaser and these rules will then be given to the tenderer.

1.2.5 Delivery and delivery terms

The tenderer shall deliver a fully functional system within 10 months from acceptance of tender. An approved time schedule will be part of the agreement.

The Delivery time of product is defined as the time when The System is up and running and in live use by Purchaser passengers with the hardware setup completed in all the fleet, including the buses from Purchaser, and the contracted buses from Hagvagnar and Kynnisferðir, as listed in Appendix 2**.** Functionality or hardware required post-delivery of The System is defined separately, either as required one year after Delivery time of product or three years after Delivery time of product.

1.2.6 Terms of employment

The tenderers shall ensure and be responsible for all his employees, subcontractors and temporary agencies that are involved in the performance of the contract receive wages, the terms of employment, health insurance and accident insurance, and other rights, in accordance with the contract, current applicable collective agreements and acts of law at any given time. All the above mentioned shall apply irrespective of the length of service of the relevant employee. The tender shall fulfil his obligations as a user company according to the Temporary-work Agencies Act no. 139/2005, if the services of such companies is being used, and he warrants towards Purchaser that staff from temporary agencies are subject to rights under Icelandic law and collective agreements.

If work is performed outside Iceland the wages shall be in compliance with collective agreements and statutory terms and conditions of the relevant country, or in accordance with the requirements of the International Labour Organization.

At any time during the period of the contract the tenderer shall be able to demonstrate that all rights and obligations according to the above mentioned are fulfilled. The tenderer shall produce documentation that prove to the Trade Union concerned or/and the Administration of Occupational Safety and Health that the above-mentioned rights and obligations are fulfilled within five (5) business days from the day when the documentation was requested.

If documentation is not submitted within that timeframe, or if the tenderer is unable to demonstrate that the abovementioned rights or obligations have been fulfilled in the estimation of Purchaser. Purchaser may collect per diem fines amounting up to ISK 50.000 that includes VAT per day, for each staff member whose rights are not fulfilled, or for each day when documentation is not delivered within the specified time limit. Per diem fines shall be paid until remedial action has been taken. If the total amount of per diem fines reaches 10% of the contract amount the Purchaser can rescind the contract

Purchaser at the same time reserves the right to retain contractual payments for the payment of unpaid wages, salaries or other contractual remuneration and distribute contractual payments directly to the staff of the subcontractor or temporary agency, if there is a default of payment on behalf of the subcontractor or temporary agency to the staff. Purchaser may during the period of the contract visit tenderers / subcontractors place of business in consultation with the relevant trade union and the Administration of Occupational Safety and Health and gather information about the staff and wage payments to them. The tenderer shall explain this contractual obligation to the subcontractor.

The Purchaser may retain payments or collect a performance insurance. The Purchaser reserves the right to allocate payments to the victim/staff member in consultation with the relevant trade union as the case may be.

The application of these remedial efforts on account of default does not affect the validity of the performance insurance.

1.2.7 Extra- and additional work

During the project, Purchaser can decide to make changes, postpone or cancel a part of the project or make other changes on the project's scope, for technical or financial reasons. If the changes have effect on the time schedule or the project total price they shall be negotiated specifically. If an agreement is reached that the contractor shall work extra work or additional work, the price offered by the tenderer in his tender applies.

Additional work

Additional work is defined as the part of the project which the Purchaser asks for in writing but was not included in the original project's scope.

Extra work

Extra work is defined as the part of the project which the Contractor must conduct for the project to be delivered but is not mentioned in the project's scope.

1.2.8 Penalties

If delivery of The System is delayed beyond the agreed delivery date for reasons that are not attributed to Purchaser, then the tenderer shall pay a contractual financial penalty of 0,1% of the total contract amount for The System for each calendar day the delivery is delayed beyond the agreed delivery date. Purchaser will issue an invoice or invoices to the tenderer stating the reasons they become due and deduct the payment from tenderer's invoice or invoices or demand payment of aforementioned invoice or invoices.

1.2.9 Defaults and termination

The tenderer shall in all matters observe his contractual obligations in accordance with the accepted tender and the terms and conditions of the request for tender/contract. If Purchaser suffers loss and/or damages on account of default by the tenderer, the tenderer is fully liable to pay compensation for such loss and/or damages.

Default by tenderer gives Purchaser the right to suspend payments, demand a discount or apply other remedial action legally provided for in commercial law.

In the event of repeated or gross default by the tenderer, Purchaser can terminate the contract without notice.

If the tenderer seeks composition or moratorium on payments, if he is declared bankrupt or in financial distress, Purchaser may without notice terminate the contract.

Purchaser will without any compensation rescind the contract in whole or in part during the period of validity:

a) If a significant change of the contract calls for a new procurement procedure, cf Article 99 of the UR. This applies e.g. if the changes are subject to a complaint and the findings of the Complaints Commission are that these changes were not authorized without a new request for tender.

b) If a tenderer, who originally was selected, should have been excluded from procurement procedures, cf Article 79, paragraphs 1 and 2 of of the UR.

c) If a contract should not have been awarded to a tenderer in view of a serious violation of this Act, or of regulations issued according to the Act. This applies e.g. if it emerges after the awarding of a contract that the reasons for exclusion listed in Article 79, paragraphs 1 and 2 of of the UR apply to the tenderer.

1.2.10 Performance insurance

As a guarantee that the tenderer shall fulfil all his obligations to Purchaser with respect to this project, including as relates to the payment of delay compensation according to Section 1.2.8 penalties, he shall deliver a performance insurance to the Purchaser before signing the project contract. The performance insurance shall be issued by a bank accepted and verified by the Purchaser´s bank.

The performance insurance shall be 10% of the contract amount in section A *The System,* of the Tender Form, and shall remain unchanged for the duration of the project, it shall decrease to 4% of the contract amount when the project is taken over by the Purchaser and remain in effect for the next twelve months.

The performance insurance may not be reduced or cancelled without a written authorisation thereto from Purchaser. Such authorisation shall be issued within ten (10) days from when the final testing and inspection was successfully completed without any remarks made by the Purchaser regarding The System's performance.

Purchaser does not provide any particular insurance to tenderers for the project. The Tenderers shall bear all costs associated with the preparation and submission of his Tender, including visits, inspections, attending clarification and negotiation meetings and all other costs in relation to the Tender, and the Purchaser will in no case be responsible for, or pay for, any expenses or losses that may be incurred by any Tenderer in the preparation of his Tender, regardless of the conduct or outcome of the tendering process.

1.2.11 Warranty, service and maintenance

Tenderer is responsible for implementation of The System, installation of hardware and software, and for the complete system delivery. All hardware shall have a three year warranty from the day of delivery. The tender shall include in his offer all expenses and costs concerning warranty and maintenances for the hardware over the specified warranty period.

Tenderer shall guarantee The Purchaser access to service and maintenance for all hardware throughout the contract and warranty period.

Tenderer is responsible for providing and installing all software updates over the contract period.

Tenderer shall provide the Purchaser with access to a service desk to provide services to the Purchaser As described in section 2.11.

1.2.12 Assignation of rights

Tenderer's rights under the terms of this invitation to tender are non-assignable to any other parties and may not be pledged except with the consent of Purchaser.

1.2.13 Transfer of obligations – sub contractors

Tenderer shall not, without the approval of Purchaser, appoint any other party to take over or undertake any of the obligations in his place, in part or in whole. If tenderer assigns components to a sub-contractor, such assignments must be reported to Purchaser and will in no respect alter the contractual obligations of tenderer towards Purchaser.

1.2.14 Confidentiality

Purchaser may not under Article 42 of the UR disclose sensitive information forwarded by tenderer which they have designated as confidential. Confidential information is considered, but not limited to, information about operations, specific technical solutions, unit price, financial matters and business matters, and other such information that can harm the interests of the tenderer if access is given to such information. Purchaser may demand that a tenderer maintain confidentiality regarding such information during the procurement process and after it has been completed or cancelled.

A tenderer shall mark specifically those passages in the tender that are submitted as confidential matter. This will not affect the obligation incumbent upon Purchaser as a public entity to present information based on the freedom of information Act.

This obligation to maintain confidentiality recedes if other provisions of the act provide for an obligation to hand over documentation, e.g. the obligation to publish a public announcement on the awarding of a contract within the EEA, and disclose the participants and tenderers certain items as well as an obligation to give information to the Public Procurement Complaints Commission.

All employee of tenderer that will be involved on this project shall sign an NDA from Purchaser.

1.2.15 *Data ownership*

The Purchaser will retain ownership of all data inserted into or generated by the system in perpetuity. Purchaser will own all transaction data generated by the usage of The System. At any given time during the contract period Purchaser shall have access to all transaction data in an accessible and readable format.

1.2.16 *General reservations*

These procurement documents and contract documentation apply with respect to the purchasing and any information that Purchaser has provided regarding the intended contract, prior to the announcement of the request for to tender, have no formal meaning or applicability. Tenderers cannot base any rights on this towards Purchaser.

A notice of the acceptance of a tender and the selection of a tender does not provide a selected tenderer any rights.

The Purchaser can cancel the purchasing until a binding contract has been signed. The reasons can be i.e. that the Purchaser needs have changed, new technology requires other solutions than what the procurement documents provide for, or unforeseen expenses render it impossible for him to perform the purchasing.

The Purchaser reserves the right to reject all tenders that exceed the cost estimate or the budget authorizations of the Purchaser.

The Purchaser reserves the right to reject all tenders from a tenderer who has been found guilty of bribery, unlawful consultation, or violation of the competition law. If it emerges that the tenderer has obtained a contract because of such violations, Purchaser reserves the right to receive damages and in addition points out the provisions of competition law and of the penal code concerning fines and other sanctions for such violations.

The Purchaser reserves the right to reject all tenders from tenderer when there are substantial or continuing deficiencies in the performance of his tenderer regarding material requirements according to earlier public contracts that have resulted in the rescinding of a contract, claim for damages or other similar sanctions.

1.2.17 *Disputes*

Any disputes with respect to the project contained herein are to be referred to the District Court of Reykjavik

2 Technical specification

2.1 General requirement

The scope of work for this project is to design, build, test, and implement a Ticketing System for Strætó bs. Key components of the scope include:

- Provide an account-based, open-architecture contactless payment system that supports closed-loop, open payment, QR code and NFC-based mobile payment forms of fare media
- Contactless EMV payment capabilities based on Visa MTT and Mastercard Transit Solution guide with all necessary certifications for the Icelandic market.
- Implement a centralized back office that performs transaction processing, account management, customer service, device monitoring, maintenance management, data management and reporting, and financial settlement functions.
- Deploy customer and transit employee facing equipment including payment validators, driver console and mobile payment inspection units. The equipment shall be new and state of the art
- Provide full API's for 3rd parties with a complete access control and documentation as a part of the open-architecture concept. The Contractor shall agree to provide Strætó with a license to use and, as necessary, provide 3rd parties with the APIs in order to facilitate operation, maintenance, replacements and enhancements to the Ticketing System. The documentation shall specify in detail:
  - A functional description of the interface
  - All functions of the Interface with examples
  - All communication types with examples
  - Use cases with sample code
- Provide full and complete API's for the payment process for the Strætó website and app and electronic verification in the Strætó app.
- Train agency personnel to properly operate and maintain the furnished e-ticketing System
- Provide full-time system operations and maintenance services up until the successful completion of System acceptance.
- Provide software maintenance services during and following the warranty period
- Provide a hosting solution for all components of the Ticketing System
- Provide a Service Level Agreement for the System hardware and software components, upgrade plans and specialists support and development
- Set forward a software service, hosting and maintenance agreement

2.2 Project management, schedules, control and documentation

Contractor shall designate a responsible and experienced individual to serve as the project manager for the entire term for the project.

Removal or replacement of the PM by the Contractor requires prior approval by Strætó. The Contractor's request to remove or replace the PM must be made in writing and include the reason for removal or replacement. Strætó may ask for PM removal or replacement, with 1-month notice.

Contractor shall develop and submit within 30 days of NTP a master program schedule that identifies all program activities and milestones.

The listing of activities in the master program schedule shall be in sufficient granularity and detail to identify all predecessor and dependent activities, including the activities of other entities that impact the Contractor's delivery of the System.

Progress reviews shall be held at least on a monthly basis at either the Contractor's or Strætó facilities, or via live conference call as appropriate.

The Contractor shall provide documentation and operational manuals for all equipment, devices and software of the eFare System in electronic formats.

The Contractor shall provide full software user manuals in electronic formats and shall be able to provide full electrical illustrated parts catalogue in electronic formats on request.

The Contractor shall submit for Strætó's approval, a back-office architecture design document that provides both graphical and narrative descriptions of each software component of the back office. The back-office architecture design document shall include at a minimum the following:

- Each software component including functional description, purpose, Original Equipment Manufacturer (OEM), and version
- Interfaces and communication flows between components

2.3 General Architecture

The Contractor shall design and implement an account management, CRM, reporting and e-Fare processing system, known as The System. The System will manage transit accounts, calculate open and closed-loop fare payments (based on established business rules), and perform fare processing and validation at the time of payment and inspection.

The loading of fare value and execution of fare payments shall be performed by making use of transit accounts maintained within the System

Transit accounts will be accessed using fare media accepted by the eFare system, including agency-issued smartcards, third party-issued smartcards, limited-use smartcard fare media, and Near Field Communication (NFC)-equipped devices.

The fare media will serve as a token for accessing a customer account or anonymous account within The System, and no data should be written to the media when loading fare value or paying a fare.

Both closed-loop and open payments shall result in the creation or modification of a transit account within The System.

For closed-loop payments, fare value loaded by the customer shall be stored in a transit account and reduced as it is used for payment. When the customer pays with a season card (daily pass, monthly, yearly etc.), the fare is registered in the transit account.

All fare distribution and payment devices deployed as part of the eFare system shall be equipped with real-time communications to The System and the device monitoring system.

The communication interfaces and API's shall support the real-time loading of fare value through all distribution channels; processing of closed-loop fare payments onboard vehicles and fare inspection by agency staff.

The communication interfaces and API's shall support the real-time processing of open-loop fare payments onboard vehicles and fare inspection of open-loop media by agency staff.

The monitoring system shall provide real-time status of all devices and systems. The devices shall also maintain local event and error logs if communications are unavailable.

The lowest-latency connections possible shall be employed, using hardwired, cellular and Wi-Fi connections, as appropriate for each device. Any devices using cellular communications shall operate on a 3G/4G/LTE data network. The System shall support offline operation of all field devices to perform essential functions.

The System should be able to perform velocity check (i.e., the ability to check if the same medium is used in different location within an impossible timeframe). Velocity checks should be configurable in the System.

The System shall be scaled such that the total number of possible accounts and total concurrent use of accounts shall, at a minimum, support 200 percent of the 2018 ridership. Ridership in the year 2018 was 11,55 Million passengers.

The System should support ISK (Icelandic Króna) as the main payment currency.

2.3.1 Requirements one year from Delivery time of product

Transit accounts shall be accessed using bank-issued contactless credit and debit cards, and Smart devices with e-wallet capabilities

The System shall manage, batch, and submit open payment transactions to the payment gateway as necessary, when the open payment functionality goes live.

For open payment transactions, a transit account shall maintain a record of payments processed against the card being used and allow for the conferring of fare discounts and transfers, as defined by Strætó's fare policies.

2.4 Media

Contractor shall be able to provide compliant contactless fare media that will be accepted by the eFare system.

The Contractor shall be able to provide fully functional extended-use (plastic) and limited-use (paper) closed-loop fare media for issuance by Strætó.

The media shall be based on ISO-14443 and ISO 18092 (NFC) compliant formats.

All media formats shall be account-based and support the secure storage of a unique token used to access a transit account in The System, without the ability to write additional data to the media.

The transit account token stored on the media shall not be the media serial number (i.e., UID) or transit account number used within The System and should not be printed on the media or otherwise accessible using a non-eFare device.

Test cards shall be provided for each version of fare media, including closed-loop extended-use and limited-use (paper) media. Test Bar-codes (QR codes) should be easily available, both printed and refreshable in digital format for the payment app,

Contractor shall publish specifications for all card formats supported within the System, including all information necessary to generate required security keys. The card formats shall be fully owned by Strætó, including the right to distribute specifications to third parties for media production and to support multi-application smartcard implementations.

2.4.1 Extended-Use Fare Media

The extended-use closed-loop fare media shall have a visual numeric ID (Transit account token) that connects to the associated account. The customer and Strætó staff should be able to connect directly to the associated account in The System and the provided API. That number should not be the same as the UID or transit account number and the information only accessible to the Strætó staff and the customer logged in with rights to access the account associated with the specified card.

The card body shall be comprised of a composite PVC/PET material with card dimensions compliant with ISO 7810 ID-1. The card must be constructed of appropriate durable materials for a minimum useful life of 10 years.

Test cards shall be provided to adequately exercise all aspects of fare media and system performance through system acceptance. A minimum of 50 test cards shall be available for ad-hoc testing, with more available upon request.

All provided fare media shall support strong cryptography, such as TDES, Advanced Encryption Standard (AES) and RSA, and support offline cryptography as necessary.

2.4.2 Limited-Use Fare Media

Limited-use fare media shall be provided for the distribution of limited duration passes and/or stored value to infrequent customers. It should be in the form of a limited-use secure smartcard, such as the MIFARE Ultralight C Paper.

The eFare system shall support the issuance of pre-encoded limited-use media (i.e., account number encoded during media production), and the encoding of the limited-use media upon issuance by an eFare device in The System. An associated transit account shall be created within The System upon issuance of the media.

The System should support bulk uploads, using the visible ID of the cards, of fare types on limited used cards, for resale purposes. Strætó staff should be, for example, to issue a day pass to a card sequence from #1005001 – #1005051 and thereby issue 50-day cards on the cards with the same visual numeric codes.

The limited-use media shall be in the form of a limited-use secure smartcard, such as the MIFARE Ultralight C Paper with card dimensions compliant with ISO 7810 ID-1.

The physical ticket body shall be coated with an appropriate durable material for a minimum useful life (in use, not storage) of six (6) months.

Limited-use fare media, both NFC and 2D code based, shall be provided for testing of limited duration passes such as one-time fare, 10 trip tickets, 1-day tickets and 3-day tickets. Test cards shall be provided to adequately exercise all aspects of fare media and system performance through system acceptance. A minimum of 100 test cards shall be available for ad-hoc testing, with more available upon request.

2.4.3 MIFARE-Compatible Application

The Contractor shall develop an MIFARE-compatible transit application to support closed-loop fare payments.

The MIFARE application shall be compatible with all versions of the MIFARE family but the actual adapted media will be decided in cooperation with the Contractor.

The System shall allow use of third-party issued media. The goal is interconnectivity to other systems for payment and identification purposes. Compatible third-party media may include, but is not limited to:

- Transit employee and contractor ID badges
- Corporate employee ID badges
- School ID cards
- The Visit Reykjavík city card
- The ÍTR card (for swimming pools and more)

The provided fare media formats shall support alternative contactless form factors that can be read by the eFare validators. Alternative form factors may include, but are not limited

to, smart bracelets, smart watches, smart tags or stickers, and other compact formats such as key fobs or other wearables.

2.4.4 Fare Media

The System shall have a function to process media that can be properly identified with the help of the following recognition and scanning technologies:

- 2D codes (paper and rotating App tickets);
- NFC (smart Mifare cards, cEMV cards and other NFC solutions such as, but not limited to, NFC tokens (to be used in keyrings, armbands and such media and wearables) Apple Pay, Google Pay and Samsung Pay mobile accounts and other e-wallet solutions).

The System shall have a function to, depending on the data presentation format of the medium, produce and scan 2D codes, including but not limited to the following media:

- Mobile phone screens (rotating QR codes);
- Paper media of tickets

The System shall support smart contactless cards of ISO/IEC 14443 standard including but not limited to the following types of cards:

- Mifare Classic
- Mifare Plus
- Mifare DESFire
- Mifare Ultralight

The cards shall be configured in such a way that a POS could scan them using any card scanning equipment of the Mifare protocol.

The System shall have a function which makes it possible to automatically blacklist media in accordance with the regulations agreed with Strætó at project analysis and implementation stage. The System should also be able to cancel QR codes and any other published ticket media.

The transit account token stored on the media shall not be the media serial number (i.e., UID) or transit account number used within The System and shall not be printed on the media or otherwise accessible using a non-eFare device.

Contractor shall publish specifications for all card formats supported within the System, including all information necessary to generate required security keys. The card formats shall be fully owned by Strætó, including the right to distribute specifications to third parties for media production and to support multi-application smartcard implementations.

The eFare system shall support the issuance of pre-encoded limited-use media and the encoding of the limited-use media upon issuance by an eFare device. The limited-use media shall initialize on first use on the eFare validator.

2.4.5 Open Payment Architecture (cEMV)

The System shall be designed to accept open payment media (i.e., contactless bank cards and their mobile wallet equivalents) for the direct payment of transit fares wherever fares are paid. This includes validators installed onboard vehicles. The contractor shall integrate the cEMV solution and processes, based on the MTT model and the Mastercard equivalent. The live date of the cEMV function shall be no later than one year after the live date of the general system.

The requirements of the system and transaction flow necessary to support open payments include:

- The authorization of payments for transit fares using contactless bank cards at all points where fares are paid, including onboard and off-board vehicles, should the need arise for example with the upcoming BRT solution in the Capital area (Borgarlínan e. City line).
- Real-time communication with a payment processor for the purpose of authorizing open payment transactions
- Security protocols required for PCI-DSS 3.0 or higher compliance associated with the capture, storage, transmittal, and processing of bank card data

The solution, including all equipment and software and third party equipment necessary for any transaction, shall be certified end-to-end according to Icelandic law and regulations by the Tenderer including, but not limited to, EMV contactless Level 1 (hardware), 2 (software) and 3 (brand) certification, and the PCI-DSS 3.0 (as a minimum) certification.

All open payment fare transactions flowing through the eFare system will be processed by a PSP of Strætó's choice, either through the already contracted PSP by Strætó, or through another PSP, previously accepted by Strætó.

Open payments shall be accepted based on existing contactless bank card standards and protocols. The System shall accept ISO 14443 compliant credit or debit cards, including but not limited to the following association-branded formats:

- Visa payWave
- Master Card PayPass

The devices shall support any payment formats that comply with existing open payment standards, such as NFC (ISO 18092)-enabled phones with a mobile wallet application.

The System shall support payment using any contactless MasterCard, and Visa (EMV) compliant bank cards. The Contractor shall be responsible for ensuring compliance with all requirements associated with EMV payment acceptance in Iceland, as they are defined by the card associations and issuers, including support for Dynamic Data Authentication (DDA) and Combined Data Authentication (CDA) offline card authentication.

The eFare payment validators shall either be equipped with real-time communication to The System, which will determine whether to submit the transaction to the payment processor for authorization or provide authorization within the eFare system or provide the same functionality within the Payment validator itself.

The System shall support real-time fare calculation and online authorization of open payments and provide payment authorization within a configurable timeframe of the media being presented to the payment validator. If full authorization of an open payment has not been received within the required timeframe, The System shall issue a limited / offline authorization.

If payment authorization fails after a limited authorization has been issued, the payment shall be periodically re-presented to the payment processor for a configurable period. If a successful authorization is not received, the payment instrument shall be hotlisted, resulting in denial of subsequent use in the eFare system.

Failed open payments shall be tracked as a negative balance in a closed-loop transit account associated with the payment instrument. The instrument shall be removed from the hotlist if the customer resolves the issue and pays the outstanding balance.

The e-fare System shall accept (offline) open payments when the validators cannot communicate with the System in the pre-set timeframe. A valid fare payment signal shall be given, and enough card information to complete the transaction shall be securely stored

on the validator and transmitted for authorization as soon as the connection is restored as defined in the MTT and Mastercard standards.

In all cases where a full authorization is not available, the System should not provide any feedback to the rider or operator to indicate that a full authorization was not received.

2.5 Application Programming Interfaces (API)

Contractor shall develop and publish APIs that support all core system functions and enable access to these functions for any device or system, including legacy systems, that requires use of them. Devices or systems may make use of more than one API to support desired functionality.

Contractor shall publish full API specifications that document the process for sending messages over the interfaces between system components, and all messages that the interfaces support, including message description, format, and timing requirements.

Contractor shall be responsible for providing the following APIs as a minimum as part of the Open Architecture concept:

- Fare distribution
- Fare payment
- Fare inspection
- Transit account management
- Customer account management
- Device management
- CAD/AVL integration
- Payment (device/system to payment gateway)

Contractor shall deliver full access to all API's of the System for Strætó's evaluation.

Following implementation, the APIs shall become the property of, or fully licensed to, Strætó with the right to use and distribute the API specifications without further approval, license, or payment.

Contractor shall take the lead role in working collaboratively with third parties to use and adapt the APIs to integrate legacy systems with the eFare system.

2.5.1 Fare Distribution and Payment API

The fare distribution API shall support the passing of data between The System and distribution devices and systems, such as: Transit store Point of Sale (POS) systems, Customer Relationship Management (CRM) system, eFare websites, and the Strætó mobile application.

Products available for sale and the associated pricing shall be maintained in The System and sent to distribution devices/systems via the fare distribution API.

The fare distribution API shall allow any distribution device/system to initiate a sale of any available fare media or fare product.

The fare distribution API shall support the generation of transactions containing all required information regarding the sale, including agency, device/system ID, location, date/time, account number, product sold, payment due, and payment type. Transactions shall be processed by The System to allow for the full tracking of all sales.

The fare distribution API shall support the return of a confirmation of the actions taken by The System to complete the sale if the sale was successful, or a denial (with reason code) if the sale was unsuccessful.

2.6 Software requirements

The Fare policy and structure shall be defined in the System software components. It should have an account management and processing system as described below and Customer Relationship management functionality. It should be a central data management tool for all fare related information.

2.6.1 Fare Policy

The Contractor shall develop and implement all business rules necessary to support enforcement of the eFare policies.

Customers using the eFare system should be able to pay for the fare with a closed-loop payment.

Closed-loop payment will use Strætó or third-party issued fare media.

The System shall be able to produce and process single tickets in 2D format, such as the QR and AZTEC code format.

The System shall be able to handle activation on first use of all relevant products.

2.6.1.1 *Requirements one year from Delivery time of product*

Customers using the eFare system shall have the option of paying a fare with an open loop payment one year from go live of the general system.

2.6.2 Fare structure

Fares will be based on a flat fare structure (with a capping possibility) and period-based structure (such as year, month or 3-day passes)

Each boarding of media with flat fare price structure will be priced at a single fare for services being paid for, and the fare category associated with the payment account.

Fare payment using the eFare system will require a single tap of contactless fare media at the time of boarding with no tap-off. Customers will be expected to tap on at the time of boarding, even if a fare does not need to be paid.

Full fare will be the default category assigned to closed-loop transit accounts and will be associated with the default pricing charged by the System for the payment of closed-loop and open payment fares.

Full fare customers will be able to pay fares using stored value and by period subscriptions.

Transfers shall be supported for all payment media types in the e-Fare system.

The initial transfer periods (i.e., time period during which a boarding is considered a transfer) and rules regarding allowable transfers will be defined during implementation and shall be configurable within the System by Strætó.

2.6.2.1 *Requirements one year from Delivery time of product*

The System supports a complex zone fare structure to accommodate Strætó's fare structure in the rural areas and possible changes in the Strætó fare structure

Full fare customers will be able to pay fares using open payment media.

2.6.3 Reduced fare

The reduced fare category will be assigned to closed-loop transit accounts linked fare media that are issued to customers who qualify to pay reduced fares by virtue of for example age, for students, or people with disability.

Customers who qualify for reduced fares by virtue of a disability must go through Strætó's approval process and entered directly into The System in service centres or call centres or via. the Institutional authentication methods in the API before being issued personalized extended-use media linked to a closed-loop transit account designated as reduced fare. The System shall be able to receive confirmation of disability, educational status or other confirmations of identity that result in discounted fares via the API with the following information as a minimum, for individuals or in bulk:

- Kennitala (Social security number)
- Term (to and from)
- Type of discount requested
- Immediate Termination of discount

Unlimited number of reduced fare designations shall be supported in The System to enable the tracking of usage by different types of reduced fare customers, and unique fare options and pricing should they be required in the future. Reduced fare customers will be able to pay fares using stored value and with period subscriptions.

The System shall support the issuance of extended-use fare media that is linked to a reduced fare transit account and the addition or removal of a reduced fare designation for existing transit accounts.

When paying a fare using a transit account designated as reduced fare, a reduced fare (as defined by Strætó's 'fare policies) will automatically be charged.

Strætó shall be able to add and manipulate discounted fares and the discounted customers individually, or through a bulk process directly in The System and via the Systems API.

All discount Program functionality shall be available through the Systems API.

2.6.3.1 *Requirements one year from Delivery time of product*

The eFare system shall support the group sale of fare media and value to employers, schools, event and convention organizers, and social service organizations. All such handling should be available in the System API.

Fare products available to discounted customers (for example the disabled, students, youth and elderly) shall be able to include stored value that is available to the general public, as well as institutional fare products.

2.6.4 Fare Pricing

Service will be priced at a common base fare for each fare category,

Fare pricing for each fare category will be defined during implementation and shall be configurable within The System by the Strætó

The System shall support fare pricing based on the service type

The eFare system will support configurable time-based fare pricing for closed-loop and open payments fares. The System shall support peak/off-peak pricing weekday/weekend pricing and free-ride days and hours (e.g. free after 7.00 pm and Dec.31 only) by service type.

2.6.5 Fare Capping

Fare capping will establish a maximum fare value that a customer will be charged within a defined calendar period (e.g. day, week, month or year) The system administrator could for example set the cap for a day to 1.300 ISK for given account type/s. Fare capping shall

be supported for customers that pay fares using stored value in a closed-loop transit account.

Initially, two capping periods shall be supported by the eFare system: Calendar-day and calendar-month (reset at end of service day) but the fare system shall be configurable to support other capping periods, such as week or year. Unique full fare and reduced fare threshold values shall be supported for all capping periods.

The fare capping algorithm shall support configurable accumulators and threshold values based on the payment type and customer fare category and /or service type (e.g. local service, express service being accessed.

The System shall allow the configuration of when a maximum number of allowed rides is reached, the media shall be blocked from further use during the capping period.

The fare capping algorithm and threshold values will be defined during system implementation and shall be configurable within The System by Strætó.

2.6.5.1 *Requirements one year from Delivery time of product*

Fare capping shall be supported for customers using open payment media.

2.6.6 Fare Reciprocity

Fare Reciprocity functionality is required three years from Delivery time of product

The eFare system shall perform fare reciprocity calculations that determine the allocation of fare revenue among all stakeholders

Revenue allocation shall occur on a monthly basis.

2.6.7 Autoload

The Contractor-furnished eFare system shall include an autoload feature that enables the automated reloading of a transit account when the associated customer account is registered and linked to an accepted form of payment, including a credit or debit card.

The autoload feature shall support both threshold-based autoloads (reloading of value when a customer's account balance falls below an established minimum), and calendar-based autoloads (reloading of value on a customer- or system-designated date every month).

Autoload funding source information shall be stored within The System in a tokenized form or fully supported through the system API.

Once a funding source has been established, customers will be able to enable autoload using the customer websites (via API), through the customer call centre, and at in-person customer service centres.

2.6.8 MAAS - Request for information (not a requirement)

Information regarding the Systems support for integration with parking gates, bike lockers and similar equipment to enable the payment of e.g. parking and bike sharing fees using a closed-loop transit account is requested

Information regarding the Systems support for configurable parking- and bike sharing-specific business rules, including flat fees paid at entry, and time-based fees calculated between entry and exit taps is requested.

2.6.9 Account Management & Processing System

The primary component of the eFare back office shall be the functionality of the Account Management and Processing System (AMPS), which shall maintain all closed-loop transit

accounts, and perform fare calculation and validation for both open and closed-loop payments.

AMPS shall enable the following system functions:

- Issuance of closed-loop fare media (i.e., creation of a new transit account)
- Loading of value to closed-loop transit accounts (with immediate availability)
- Issuance and Maintenance of session-based fares - such as monthly subscriptions, 3-day subscriptions, one-time fares with QR codes or other media and all other products within The System.
- Maintenance of closed-loop transit account balances and transaction history
- Inquiry of closed-loop transit account balances and transaction history
- Fare calculation for both open and closed-loop fare payments
- Determination of which transactions require bank authorization
- Fare payment validation for both open and closed-loop fare payments

AMPS shall support the processing of closed-loop fare payments.

For closed-loop fare payments, AMPS shall maintain a transit account storing all closed-loop value loaded by the customer and deduct value from the account as it is used for payment. Fare processing shall be capable to occur in real-time for all payment types. Processing time shall be configurable but set to 300ms. by default.

When an authorisation is performed online, AMPS shall query or create the associated transit account, perform fare pricing, and submit the payment for authorization or update the account balance prior to providing an authorization or decline response to the fare payment device.

AMPS shall support the real-time loading of closed-loop fare value through all fare distribution channels. The loading of fare value shall always require a connection to AMPS. No loading of value to a transit account shall be permitted without an active connection to AMPS.

Payments shall be authorized prior to the loading of any value. Following payment authorization, AMPS shall update the account in real-time to allow for immediate use of the value by the customer.

User interface access to all elements of AMPS shall be controlled through a centrally managed user authentication and access control platform. Individual users or user groups shall have access configured to allow for standard business operations.

2.6.9.1 *Requirements one year from Delivery time of product*

The System shall support the function of closing and repaying the value on the customer account.

AMPS shall support the processing of open fare payments.

When accepting open payments, AMPS shall create a transit account that allows for the tracking of payments, payment aggregation.

2.6.10 Customer Relationship Management Functionality

The Contractor shall deploy a Customer Relationship Management (CRM) system, or functionality of the same level within The System, that allows for the central management of all customer ticketing data, order management and fulfilment, and the cradle-to-grave tracking of customer service incidents regarding all ticketing related issues as a minimum.

The tool shall be fully GDPR compliant according to Icelandic regulations and shall be maintained to fulfil the Data Protection regulations in Iceland during the lifetime of the System.

The tool shall be fully compliant with local and European policies for the handling of customer Personally Identifiable information.

The tool shall support the autoload feature in the System, where the customer is able to automatically load value on his account.

The tool shall serve as the repository for information on all customers applying for a reduced fare classification, their eligibility parameters, and media personalization information.

The tool shall allow customer service staff to create, view, and modify customer accounts, including, but not limited to:

- Creation of a new customer account (i.e., registration of an associated transit account) with or without an SSN (kennitala).
- Association of transit accounts to an existing customer account
- Modification of customer account registration data

The tool shall enable customer service staff to create, view, and modify closed-loop transit accounts, including, but not limited to:

- Creation of a new transit account (i.e., issuance of eFare media)
- Loading of eFare value
- Viewing of transaction history and fare calculation
- Modification of transit account balances through generation of an account adjustment or refund (for authorised personnel only)"

All actions resulting in a change to a customer or transit account shall be recorded / logged.

The tool shall support the association of multiple transit accounts with a single customer account for account management and the loading of value.

Access to the tool shall be password-controlled with the displayed information and allowed functions restricted based on centrally defined user-access privileges. Access to all elements of the CRM functionality shall be controlled through a centrally managed user authentication and access control platform.

Customer service incidents shall, when possible, be linked to a specific customer account when the account is registered.

2.6.11 Payment Gateways

Web and app payments will go through Strætó own applications. The System API shall be open to update any customer related information, product information, uploaded value and all other sales related information necessary for the System to operate.

2.6.11.1 *Requirements one year from Delivery time of product*

The contractor shall integrate the full cEMV solution and processes, based on the MTT model and the Mastercard equivalent, either through the already contracted PSP by Strætó, or through another PSP, previously accepted by Strætó.

The contractor is responsible for all security certifications, testing and implementation of the entire cEMV solution including hardware and software.

Contractor shall be responsible for demonstrating that the cEMV payment method is compliant to PCI-DSS 3.0 or higher, and for providing the necessary PCI-DSS testing and certification.

2.7 Fare Distribution

The Contractor shall develop an eFare system that supports the all fare distribution options detailed in this section. The eFare back office shall serve as the system of record and reporting for all fare media and value sales.

2.7.1 Retail

Contractor shall work with 3rd party retailers to enable integration with the eFare back office.

The eFare system shall support the sales of fares by QR codes through the systems API to 3rd party retail systems.

The Contractor shall provide APIs to support the integration of the Strætó's in-house POS system (LS1 from LS Retail ehf.) with the eFare back office and provide technical support for Strætó's integration of the existing POS system as part of the eFare implementation.

2.7.2 Call Centre

The Contractor shall furnish an eFare system that enables fare media sales and value loads, as well as account management and general customer support via a customer call centre.

The Contractor shall furnish a Customer Relationship Management (CRM) system, or similar functions within The System, that allows call centre staff to perform all necessary customer service functions - as described in chapter 2.6.10

2.7.3 Retail Sales / ordering system

The System should support sales of certain short-term products in the form of 2D codes through the API - to be printed from the retail sales terminals. These are for example 1 trip ticket, 10 trip tickets and 20 trip tickets both as full price tickets and discounted tickets, such as for children and senior citizens.

The System should support the upload of products (tickets and other products) to sequenced Limited use cards to be sold in retail stores. Strætó will manage the production and publication of such cards.

2.7.4 Websites and apps

The Contractor shall deliver full API for 3rd parties to integrate all payment and personal information functions of The System with Strætó's website and app to take care of purchases of all forms of tickets, log in to view and manage the user's own information.

The API shall deliver data to Strætó's website and app in such a manner that the customer will be able to perform as a minimum the following functions:

- Register a closed-loop transit account
- Purchase any eFare product registered in The System
- Load stored value to a closed-loop transit account
- Send tickets to another account (based on telephone number or e-mail)
- Enable autoload
- View transaction history
- Initiate a customer service request

The API needs to allow that during registration of personalised card on the website it will capture all necessary customer information and create a web account that requires the setting of an e-mail address, password and the Icelandic SSN (kennitala)

The API shall allow the website to support the linking of multiple transit accounts to a single web account. Registered customers shall be able to register new transit accounts under an existing web account and add a single funding source to support the loading of value to all associated transit accounts.

Registered customers will be required to log in using their email and password to access account management and loading features of the website.

Registered customers will be able to initiate a one-time load of stored value to their transit account using a credit or debit card. The website will support the selection of pre-defined values, as well as the entry of a custom value (subject to configurable minimum and maximum limits).

Registered customers will be able to enable and disable autoload of stored value. As part of the autoload setup process, the customer will select the amount of the autoload (pre-defined and custom values), type of autoload (threshold or periodic), and if periodic, the date on which the monthly autoload should occur.

New autoload setup will require the adding of a funding source in the form of a credit card or debit card). Funding source information shall be stored securely within The System in a tokenized form or fully supported through the System API.

All payments initiated via the website will be accepted using ecommerce best practices and processed through the payment gateway in a manner compliant with PCI-DSS 3.0 or higher.

When applicable, The System shall store all payment information in a tokenized form and serve securely to the API. The website will prompt customers when a payment is declined and allow entry of an alternate funding source. Failed payments shall be recorded in a separate credit/debit card exception file (with denial code) in The System.

If a payment authorization is not completed within a configurable time period, or is interrupted, the website will cancel the transaction and notify the customer. Any cancelled transactions shall be recorded in The System monitoring logs.

Registered customers shall be e-mailed a receipt originated in The System for all successfully completed sales, including the fulfilment of an autoload. Customers shall have the option of opting out of e-mail notifications.

Registered customers will be able to view prior transaction history. The transaction history shall be viewable and sortable on the website, and able to be exported in Excel formats.

The API shall allow the website to enable registered customers to report a card lost or stolen. Initiating this action shall immediately result in the associated fare media being blocked from further use. Registered customer and service staff should also be able to unblock the card.

The API data shall allow the website / app to be provided in multiple languages - Icelandic and English and at least 3 other languages.

The contractor shall cooperate with 3rd party software developers to adjust Strætó's website so it will be built using current web design and ecommerce best practices. The development tools and design for the website will be subject to review and approval during implementation. The Contractor shall work closely with Strætó and 3rd party developers and designers to develop an approved user interface design.

The API should support customers who possess unregistered extended-use media and limited-use media to be able to access Strætó website to determine transit account balances and apply funds to the account anonymously with a debit- or credit card transaction.

The Contractor shall provide API's to make it possible for a 3rd party and Strætó to design, test, and deploy the necessary functions in the Strætó app to support mobile contactless ticketing, conforming to requirements in this document.

The Contractor supplied API's shall support both visual ticket confirmation and 2D code based.

For compatible handsets (Smart devices), the mobile application shall support mobile ticketing and contactless payment using NFC including:

- Provisioning of a mobile payment credential linked to a unique closed-loop transit account
- Fare payment and inspection at all eFare devices
- Fare payment with mobile wallets, such as Apple Pay, Google Pay with possibilities to integrate to other well know wallets, such as AliPay and WeChat and local brands (for example the Landsbankinn and Íslandsbanki apps).

2.8 Devices and Infrastructure

2.8.1 Hosting

The contractor shall provide hosting services for all software components of the eFare system. The contractor shall be responsible for installation, configuration and testing of the hosted solution.

The hosting facilities shall be in the European Economic Area, including all hosting components, such as equipment for redundancy and backup.

All hosting operations shall be transparent to Strætó. Strætó will not be responsible for excessive hosting costs that are not required to operate the System at necessary performance level.

The Contractor shall be responsible for all back-office operations, monitoring and maintenance.

All hosted data shall be protected against loss or failure at a given hosting site. The hosted solution shall be equipped with the appropriate hardware, software and procedures to provide redundancy and meet all performance requirements. Load balancing, automated failover and data mirroring between multiple sites shall be provided as necessary.

The Contractor shall develop and submit a disaster recovery plan that describes data backup and recovery and ensures minimal data loss in the event of a catastrophic event or system failure.

The disaster recovery plan shall contain detailed procedures to be followed to restore the System to full operation following a disaster or failover event. The Contractor shall on a yearly basis demonstrate that the disaster recovery plan functions as expected.

The uptime of all components of the System, including hosting, shall be minimum 99.98% excluding necessary scheduled downtimes

Scheduled downtimes shall always take place during off-hours for the Public transportation system in Iceland and previously agreed with Strætó in each case at least a week before the downtime takes place.

The bandwidth and speed for each component shall be according to the needs of each user scenario. All reasonable effort shall be used to limit bottlenecks in the system, such as, but not limited to, insufficient Memory or CPU, IO capabilities, Power supply and bandwidth.

2.8.2 System Monitoring & Management Application

The Contractor shall develop and implement a system monitoring and management application that allows for real-time remote monitoring and control of all eFare devices and systems.

The system monitoring and management platform shall be accessible in real-time through desktop and mobile client software, or via an internet web browser. Web access may have limited functionality for security purposes.

User interface access to all elements of the system monitoring and management application shall be controlled through a centrally managed user authentication and access control platform. All accounts shall be password protected, and the displayed information and allowed functions shall be restricted based on centrally defined user-access privileges. All user interactions shall be logged.

The system monitoring and management application shall provide real-time status, events, alarms, and error codes for each fare collection device and system in both text and graphical format, delivered in The System through the API and by e-mail.

Component status information shall be provided (as applicable) for the bus driver screen, communication interfaces and validator.

The following status information shall be provided (as applicable) for the back office system: AMPS services (fare calculation engine, fare validation engine, and account manager), CRM system services, Financial clearing and settlement system services, payment gateway services, reporting system services, API services, and all other system services that impact daily operation.

Payment validator commands shall include reset device, out of service, shut down, power up, update software, resend transaction data, clear memory, maintenance mode, and reset for individual hardware components.

2.8.3 Reporting System

The Contractor shall deploy a reporting system for the generation of canned and customized reports. A reporting tool shall allow the viewing, running, and scheduling of predefined reports, with a querying interface to define and save custom reports.

Canned reports shall include, but are not limited to:

- Ridership reports
- Sales reports
- Revenue report
- Deferred revenue reports
- Financial settlement report
- Maintenance report
- Device and system performance reports
- Customer service reports
- Device errors and alerts
- System and device availability reports
- Deferred revenue aging report
- Customer trial balance

- Customer detail trial balance
- Customer detailed aging
- Retail report
- Student cards by municipalities
- Refund report

All canned reports are a subject to Strætó's approval.

The reporting system shall have capability to define custom reports. These reports shall be able to be shared across user types and accessed by all users of the reporting system.

Reports shall be available for export in several forms including but not limited to: Microsoft Excel (XLS), Microsoft Word (DOC), and comma separate value (CSV). All file formats shall include the same data and general layout where possible. Data files (XLS and CSV) shall be generated such that data can be extracted without formatting or graphic elements and can be imported into other third-party reporting without manipulation.

All report types shall be able to be scheduled and automatically delivered to one or multiple email addresses. Delivery to emails shall be able to be scheduled on a daily, weekly, or monthly basis and in any of the available file types.

Access to the reporting tool shall be controlled through a password-controlled interface. The execution and creation of reports shall be configurable by user type. User accounts shall be set up with custom access levels that define which reports can be viewed, and what fields can be queried for custom reports.

Contractor shall be responsible for delivering the canned reports and up to 5 custom reports to be defined and developed with The Customer during and after system implementation.

2.8.4 eFare Payment Validators

Contractor shall provide onboard payment validators intended for installation on a bus or streetcar

If validators are purchased from a third-party, the Contractor shall deliver the latest generation device manufactured by the OEM.

Validators shall support all common ISO-14443 (Type A and B), ISO 18092 (NFC), EMV, and closed-loop (e.g., the entire MIFARE product line) media formats, and provide expansion for the acceptance of user-defined formats.

Validators shall support a minimum of two (2) Secure Access Modules (SAMs) to facilitate acceptance of multiple fare media formats and the replacement of security keys, should compromise occur.

Validators shall accept the following fare media as a minimum:

- Agency-issued extended-use media
- Agency-issued limited-use media
- Third party-issued media
- 2D barcodes

Onboard validators shall be designed with an Ethernet port that enables connection to the onboard computer in the Strætó buses - both for internet access and data flow.

All onboard system shall include an embedded cellular communications interface that supports third generation (3G GSM) and fourth generation (4G) Long-Term Evolution (LTE) data networks on all major Icelandic carriers (Vodafone, Síminn, NOVA).

Onboard validators shall include a barcode reader for 2D barcodes as a minimum.

Validators should be able to transmit sounds according to validation status, such as for successful payment, unsuccessful payment, youth fare and other events, to be specified during implementation.

2.8.4.1 *Requirements one year from Delivery time of product*

Validators shall be EMV level 1 and 2 certified

Validators shall be ready to receive and accept payments from mobile wallets, including but not limited to Apple Pay and Google Pay. Validators should support integration to other mobile wallets.

Validators shall accept the following fare media:

- Bank-issued contactless credit and debit cards and their mobile wallet equivalents
- NFC-enabled mobile devices with an eFare payment application

2.8.4.2 *Requirements three years from Delivery time of product*

The Contractor shall provide offboard payment validators intended for outdoor, permanent installation at platforms. The number of these platform validators is uncertain.

The validators shall include Wi-Fi (802.11a/b/g/n) communications to enable integration with other systems, exchange of non-critical data at designated locations, and sharing of data connections on vehicles. These platform validators should in all cases support the same functionality as the onboard validators as a minimum.

2.8.5 Environment & Climate Tolerance

Onboard validators shall be

- Designed, built, and installed for the harsh, high shock and vibration operating environment in which this system component will operate
- Fully operational within 60 seconds of engine on, and operational until a Strætó configurable time after ignition off, subject to normal operating conditions
- Protected to prevent degradation from exposure to moisture or dust raised by interior cleaning

Normal operation of the fare collection equipment in this environment shall not in any way impair equipment performance or operational life.

The onboard system components provided by the Contractor shall be able to operate and not suffer any degradation in performance under the following environmental conditions:

- Storage temperature: -30° to +65°C
- Operating temperature: -20° to 50°C ambient
- The equipment should uphold IP30 according to the IEC standard 60529

Fare inspection devices shall be designed for installation and use in the operating environment in which the components are expected to operate. Normal operation of the equipment in local environment shall not in any way impair equipment performance. The equipment should uphold IP65 according to the IEC standard 60529 and EMV Level 2 certified.

2.8.5.1 *Requirements three years from Delivery time of product*

Platform validators shall be:

- Designed to be installed in the open environment of the Reykjavik, Iceland with no shelter provided over the equipment
- Uphold IP54 according to the IEC standard 60529

- Able to function during exposure to all weather conditions known to be present in the operational region

Normal operation of the equipment in this environment shall not in any way impair equipment performance or operational life.

The platform validators provided by the Contractor shall be able to operate and not suffer any degradation in performance under the following environmental conditions:

- Storage temperature: -30° to + 65°C
- Operating temperature: -20° to 30°C ambient
- Sunlight: none to full direct
- Atmospheric pollutants characteristic of the Reykjavík area, including salt, volcanic ash, dust and corrosive or base chemicals

2.8.6 Shock and vibration

System components shall be designed to withstand structure-borne stresses and vibrations caused by the passing other vehicles as well as emergency braking of fully loaded vehicle. Able to function during exposure to all normal conditions known to be present in the operational region.

Fare collection system components, including all interior-mounted components and assemblies, shall resist horizontal shocks of up to 6 g (where “g” is the earth’s gravitational constant or 9.81 meters per second squared) and in the vertical axis of up to 1.2 g for a duration of up to 12 ms. without permanent deformation or failure of the system components.

2.8.7 Power & Voltage Requirements

The Contractor shall design, supply, install, test, and commission all system elements necessary to provide the required electrical power to the Contractor-supplied components.

All fare collection system components shall be designed to operate with a plus or minus 10 percent fluctuation in line voltage without any damage or service interruption.

System components shall retain any and all information stored in non-volatile memory under any conditions of the power supply.

No condition occurring in the power source should cause any degradation to fare media being processed when the power condition occurs.

Onboard and platform validators shall be provided with an external power supply or conditioner that will allow the equipment to meet the following requirements:

- Over-voltage protection up to 0.5KV up to 10ms
- Current-limiting protection (values to be determined by vehicle and device specifications)""
- Operation with input voltages between 9Vdc and 36Vdc

If needed, the onboard and platform validators should include a maintenance free battery for protection against power fluctuations and outages.

The onboard system components shall be designed to operate reliably from the busses direct current power source without malfunction.

The onboard system components shall be protected against damage, loss or modification of data caused by:

- Voltage fluctuations

- Reverse polarity of the input voltage
- Temporary voltage variations
- Over-current draw

The onboard system components power supply shall include adequate filters and components to regulate the vehicle-supplied voltage and render it devoid of power spikes and noise. Provisions will include elimination of electronic interference caused by such items as fluorescent light power units, vehicle alternators, air conditioning units, radio communication units, and other accessories characteristic of the vehicle.

Power sensing shall be incorporated into onboard system components' power supplies to cause the devices to switch off automatically if the supply voltage increases or decreases to levels beyond the voltage tolerance.

2.8.8 Electrical Noise Requirements and grounding

The Contractor shall incorporate an approach to electromagnetic compatibility that will ensure the system components and subsystems will operate without being affected by or causing electromagnetic interference (EMI).

Protection shall be provided against radio frequency interference (RFI) emission sources, as well as internal conductive or inductive emissions.

Operation of the system components shall not be affected by the electromagnetic fields generated by traction power at distances as close as 6 meters, or by local high voltage power distribution lines at distances as close as 15 meters.

Operation of system components should not be adversely affected by station equipment such as lighting and communications equipment within close proximity to eFare system components.

Onboard system components should be unaffected by interference such as radiation from vehicle equipment, including radio, lights, electronic destination signs, air conditioners, and generators.

Onboard system components shall not emit measurable EMI or RFI that produces harmful interference with any other onboard electronic device or system.

All equipment enclosures, chassis, assemblies, panels, switch boxes, terminal boxes, and similar enclosures shall be grounded. Protective grounding shall be provided to ensure that all exposed metal on any supplied system components are connected to a common ground point.

2.8.9 *CAD / AVL integration*

The System shall always register the following data for each validation including, but not limited to:

- Calendar date (yyyy-mm-dd)
- Time of day (hh:mm:ss)
- Type of media
- Media ID
- The following information as supplied by Strætó´s passenger information system:
  - X coordinates
  - Stop ID
  - Trip ID
  - Line
  - Block name
  - Stop sequence number within blocks
  - Direction

The Contractor shall integrate to the onboard CAD / AVL system, either through online data transfer or directly to the onboard system.

The Contractor supplied driver console shall be able to display fare payment results transmitted from the eFare validator, including fare payment approval or denial, and in case of approval, fare product and fare category associated. The actual information displayed will be decided during implementation.

2.8.10 *Finish/Mounting*

Validators shall be rugged and function under environmental conditions including direct sunlight, dust/grit/sand, humidity and exposure to urban environment.

Validator housing shall be resistant to corrosion, abrasion, scratching, impacts, and vandalism.

Validator housing colour and finish shall be such that it minimizes reflection and is highly resistant to fading, cracking, and peeling

All validator corners shall be rounded, and there shall be no exposed bolt heads, nuts, sharp edges, or cracks on outside surfaces.

Validator displays shall be flush mounted in the housing.

An identification label inscribed with the validator serial number shall be permanently attached to the outside of each housing.

All required mounting hardware and brackets shall be provided by the Contractor.

A sample of each validator configuration and its mounting shall be demonstrated for each vehicle and platform type before installation.

Validator design, appearance and styling, and mounting will be subject to Strætó review and approval prior to implementation.

2.8.11 *Driver console*

The Contractor shall provide a touchscreen driver console that should be separate from the Validator.

The Console should connect to the Validator and show the driver relevant information on passenger payments such as "Successful" or "Unsuccessful" with reason codes.

Reason codes and other console interactions with the driver shall be specified with Strætó during implementation.

All required mounting hardware and brackets shall be provided by the Contractor.

2.8.12 Inspection Devices

The Contractor shall provide handheld fare inspection devices that enable fare enforcement personnel to inspect all media accepted within the eFare system and verify payment with an associated account.

The inspection devices shall be designed for mobile use and support real-time communications with The System for payment validation.

The handheld inspection device shall be portable and not unreasonably hinder an enforcement the inspector's ability to perform inspection and other possible security duties. The size and weight will be comparable to a standard touch screen mobile phone or handheld reader used in other commercial applications.

Inspection devices shall be rugged and function under environmental conditions including general exposure to outdoor urban environment.

Inspection devices shall include short- and long-range wireless communications, including NFC, cellular (3G GSM and 4G LTE), Wi-Fi (802.11 a/b/g/n), and Bluetooth v4.0 (BLE).

Inspection devices shall include wired communications via Universal Serial Bus (USB), or another serial communications protocol.

Inspection devices shall include an embedded global positioning system (GPS) receiver.

Battery life shall last at least one day of full inspection use. Standby times shall last considerably longer, but at least two (2) full days without regular inspection activity.

Portable power chargers for inspection devices shall be provided and enable charging via standard 240V AC power outlets.

Inspection devices shall be remotely configurable and managed through the system monitoring and management application. Inspection device software and configuration, including all eFare enforcement rules will be managed through this system.

The inspection devices shall support enforcement of closed-loop fare payments.

Fare inspection devices shall communicate with The System via a cellular or Wi-Fi network to validate that fare payment has occurred. When media is inspected, The System shall query the associated account in real-time and respond to the inspection device with fare payment status.

The fare payment status reported by the inspection device shall include the result (i.e., valid or no valid fare payment), and if a valid payment has been found, the time and date of payment, location, fare product used, product validity, amount paid, and fare category associated with the account.

All inspections shall generate inspection transactions for audit and traceability purposes.

Fare inspector login data, inspection route/location, and GPS coordinates shall be appended to all fare inspection transactions.

The System shall support the distribution of white lists to all fare inspection devices to speed up the inspection process and allow for inspection when communications are temporary unavailable.

The inspection device shall be able to notify the fare inspector when it is operating in an offline mode.

The inspection device user interface shall be based on industry accepted human interface design standards and best practices, and will consider ergonomics, human factors, and graphic design in development of the layout and interaction.

The inspection device shall require login by the fare inspector via manually entry, or by reading a contactless employee badge, if available. The login shall be validated against a list of valid IDs. Repeated login rejections shall lock the device until unlocked by centrally administered application.

Upon login, the inspection application shall require the fare inspector to enter the route or location where inspection is occurring. The inspector shall be able to modify the route or location without logging out of the application.

The fare inspection results shall be clearly presented on the inspection device to minimize confusion by inspectors and customers.

2.8.12.1 *Requirements one year from Delivery time of product*

The inspection devices shall support enforcement of open fare payments.

2.9 Installation and Maintenance

2.9.1 Installation

Contractor shall be responsible for delivery and installation of all fare collection system components in accordance with these specifications.

Contractor shall be responsible for all required testing and corrective actions demonstrating that installation and equipment operation are in compliance with the specifications.

Each installation shall be inspected and tested in accordance with the requirements in the QA and Testing section and shall be subject to Strætó's acceptance.

Contractor shall submit an Installation and Interface Plan for Strætó’s review and approval no later than one month prior to the first delivery of equipment. The installation and interface plan shall outline the processes and procedures, schedule, post installation testing details, and resources to be used for installation of the equipment.

The Contractor shall install all onboard validators and driver consoles on Strætó and contracted buses. The Contractor shall provide all required wiring and service loops, cabling, and hardware necessary to properly install and secure the equipment in its planned location. Bus types are specified in Appendix 2.

The Contractor shall connect Strætó's eFare equipment with the existing CAD/AVL systems, either through the internet or local connection to hardware on the bus, enabling capture of GIS data, route data and other relevant information required for confirmation and reporting to be specified by Strætó and The Contractor.

The Contractor shall install and test all fare inspection devices at locations specified by Strætó.

The Contractor shall install and test the back-office system and all components in the Contractor provided hosting centre.

Contractor shall comply with and be responsible for all regulatory requirements applicable to design, installation and construction, and testing, including applicable permits.

Any Contractor expenses for personnel travel associated with the delivery and installation of system components shall be included in system component installation costs.

Any holes that must be created in the vehicle that extend into bus flooring or through vehicle exterior shall be sealed using wiring grommets to the satisfaction of Strætó.

The mounting of the onboard validator and driver console shall be positioned such that it minimizes encroachment on passengers and does not obstruct the driver's field of vision and view, including the view of the front door, as approved by Strætó.

2.9.1.1 *Requirements three years from Delivery time of product*

The Contractor shall install and test all off-board / platform validators.

2.9.2 Maintenance

The Contractor shall give primary consideration to maintenance, troubleshooting, component removal, repair, replacement, and inspection in the design of all system components. The primary objective of the maintainability program is to minimize maintenance labour, material costs, and fare collection system downtime.

Contractor is responsible for any and all system maintenance and support prior to system acceptance.

System components shall utilize standard, commercially available hardware and components that maximize interchangeability, and allow for handling of most maintenance problems with minimal time and use of tools in the field.

All assemblies of a given type shall be identical, interchangeable and removable, designed to allow quick replacement of identical modules.

2.9.3 Maintenance Plan - onboard components

The Contractor shall provide a maintenance plan sufficiently detailed to permit Strætó to allocate manpower and resources to the maintenance and servicing of the onboard eFare collection system and will be scaled as necessary to reflect varied requirements over the anticipated service life of the system.

Preventive maintenance activities shall not require more than five (5) mins/device to perform and shall not be required more often than once every thirty (30) days or a set number of minimum transactions, whichever occurs first. Preventive maintenance activities shall include but are not limited to:

- Inspection of indicators
- Tightening of fasteners
- Housing maintenance
- Surface cleaning
- Prompting self-diagnostic programs

Upon completion of service actions, each component or device shall automatically perform a self-diagnostic check and ensure that all components are properly operating before resuming operations.

The device or component shall perform the same diagnostic testing (at minimum) at reset or power-up as after completion of service actions.

Device reset shall not be required for routine maintenance or required for normal revenue servicing.

The maintenance management system shall include a record and schedule of all planned and performed maintenance activities.

Maintainers in the field will have remote access to the maintenance management system, and be able to update and review maintenance plans, errors and alerts in real time.

2.9.4 *Spares & Itemized Price List*

The Contractor shall prepare and submit to Strætó a recommended list of spare modules and parts to support the installed field equipment.

This list shall:

- Be grouped by equipment, each module, part, and plug-in PC card assembly
- Provide complete ordering and procurement information for each item, or reference a catalogue for this information
- Contain at least the following information for each item:
  - Item name
  - description
  - rating (if applicable)
  - current price
  - original manufacturer's name
  - part number
  - revision number
  - drawing reference number

Items that are common to more than one equipment, module, or subassembly shall be suitably cross referenced.

Recommended quantities shall be provided based on expected usage or based on a percentage not to exceed 10 percent of the installed base.

2.10 Quality Assurance, Inspection, Testing and Training

2.10.1 *QA- general requirements*

The Contractor shall set forth quality assurance (QA) and control procedures in a QA and control plan and submit it to Strætó for approval.

The quality assurance and control plan shall include written descriptions of quality assurance and control policies, procedures, methods, and instructions, including the process and procedures that the Contractor will follow throughout software development and configuration changes.

The QA and control plan shall address all participating subcontractors and their relationships to the Contractor.

Strætó will, at its own discretion, perform QA monitoring of work done under these specifications, including monitoring of the Contractor’s or subcontractor’s QA activities.

The Contractor´s QA records shall be made available to Strætó upon request.

If damage, defect, error, or inaccuracy is found in any specified item or work, Strætó has the right to reject or to require correction to bring the item or work into conformance with Contract requirements.

The Contractor shall bear all costs incurred in correction rejected items or work and remove it from the worksite.

2.10.2 *Requirements for the System testing*

The Contractor shall prepare a plan on testing and testing scenarios and coordinate them with Strætó.

Testing plan shall cover all Contractor, supplier and subcontractor inspections and tests to be performed, including those performed under the Contractor’s QA plan.

The plan of testing shall include testing of ticket media (including different types of cards) and operation of hardware in the System.

Testing shall be carried out in accordance with agreed testing scenarios based on the testing plans prepared for the individual stages of the Project and full participation of the representatives of Strætó

During testing, the activity log (problems and inconsistencies) of observed errors and their statuses shall be Centrally accessible for all relevant project stakeholders.

A re-test shall be performed for all system components affected by adjustments resulting from testing, up to and including the entire eFare system if Strætó determines such is needed

2.10.3 Training

The Contractor shall provide a comprehensive program to educate, train, and teach personnel in all details of the eFare payment system enabling personnel to properly operate, service, and maintain the System and each of its components throughout its useful life.

When appropriate, training shall occur in the field or location of service. The Contractor shall allow Strætó bs. staff to shadow Contractor staff during warranty activities in order to gain a better understanding of how properly operate and maintain the eFare system.

The Contractor's training program shall include formal and informal instruction, working equipment, manuals, and diagrams as instructional tools.

All materials used in the programs, such as training jigs, fare media, manuals, simulators, and drawings, shall be of durable construction and shall become the property of Strætó bs upon completion of the training.

Training materials shall be updated as required during the course of instruction.

The Contractor shall assume that Strætó bs. staff does not have knowledge of any eFare system features. However, the Contractor may assume that maintenance personnel have the basic skills pertinent to their crafts.

Courses shall be limited to a maximum of eight (8) hours per day.

The Contractor may use installed revenue equipment or spare parts as training aids in lieu of mock-ups and for demonstration of and practical exercises in replacing, testing, disassembly, and assembly of equipment. However, the Contractor shall be responsible for ensuring that such parts are not damaged or modified in any way. In addition, these parts must pass re-inspection and acceptance tests after return to Strætó.

2.10.4 Training Program Plan

The Contractor shall submit a training program plan in accordance with the criteria outlined below.

The Contractor shall develop and submit for Strætó approval a narrative description that documents the design for training Strætó personnel.

Strætó staff to be trained includes IT and finance professionals, supervisors, maintenance and repair personnel, planners, field operations and command centre personnel, customer service and managers and trainers.

In addition to general training plan information the training program plan shall include at a minimum the following for each course:

- Identification and summary descriptions of all training courses including course lengths

- The methods of training to be used (e.g., lecture, online-course, hands-on, etc.)
- Learning objectives and learning outcomes
- The sequence of learning activities
- Targeted trainees for each course
- Maximum number of trainees per course
- Methods and criteria for evaluating performance, including an objective grading system to report progress of trainees during the training
- Resources required, such as equipment, shop space, video recorders, etc."

The training program plan shall also address the Contractor's approach for training Strætó trainers to deliver training subsequent to the Contractor's involvement. It shall describe the Contractor's approach, resources and hours required, and any training aids that might be included.

A training schedule shall be included in the Contractor's Training program plan. The schedule shall consider the sequence of training, hours of instruction, trainee availability and limitations on course sizes, and venue for the training, in cooperation with Strætó.

The Contractor shall propose the actual courses to be delivered to Strætó. The course curriculum shall include instruction of Strætó personnel in at least the following categories:

- Back office System Administration, Configuration, Operations and Maintenance.
- Financial Reporting and Reconciliation
- Fare Inspection Device Operations and Maintenance
- Train-the-Trainer – Onboard Validator Operations and Maintenance

2.10.5 Training Materials & Equipment

The Contractor shall provide all necessary training materials for delivery of each course discussed in the training program plan.

Strætó reserves the right to reproduce portions or all of the training materials for internal use. If the Contractor produces an update or new training aids (e.g., video recordings, manuals, etc.) within two (2) years following the completion of equipment installation, Strætó shall receive copies of the updated material for its sole use in Strætó training programs, at no cost to Strætó.

The Contractor shall provide onboard validator training units that enable students to receive hands-on equipment operation and maintenance instruction while in a classroom setting. The training units shall be powered by a standard 240v AC power source.

2.10.5.1 *Requirements three years from Delivery time of product*

The Contractor shall provide platform validator training units that enable students to receive hands-on equipment operation and maintenance instruction while in a classroom setting. The training units shall be powered by a standard 240v AC power source.

2.11 Service Level Agreement

The Contractor shall provide a Service Level Agreement (SLA) for services and maintenance of all System components – including hardware, software and hosting with the minimum following requirements. The SLA will be valid for 4 years initially, and Strætó can unilaterally renew it on a yearly basis after the initial period for the subsequent 6 years.

2.11.1 Operations

- Software maintenance, new releases and upgrades.

- > Maintenance of all software modules of the offered System.
- > Maintenance of all system API's
- > New releases of all software modules of the offered System
- > All necessary upgrades and updates necessary for daily operation of the System

2.11.2 Service desk

- ► 2nd level support for The System
- ► Hotline service desk for ad hoc requests and services.
- ► Service hours, as a minimum, 9am – 16pm GMT (Reykjavik)

2.11.3 Hosting

- ► Hosting and services of the complete offered solution as described in section 2.8.1

2.11.4 Development

A bucket of specialist hours per year with a pre-defined hourly rate shall be a part of the proposal. Strætó is not obligated to use the hours and will only pay for hours used. The hourly rate for the duration of the contract shall not exceed the offered rate. The offered rates shall be for the following specialist profiles:

- ► **Programmer** – hourly rate: 240 hours per year for 10 years
- ► **Technician** – hourly rate: 48 hours per year for 10 years
- ► **Trainer** – hourly rate: 16 hours per year for 10 years
- ► **Project manager** – hourly rate: 48 hours per year for 10 years
- ► **Other Specialist** – hourly rate: 48 hours per year for 10 years

Developments and changes shall always be subject to an Accepted offer and shall be charged on an hourly basis.

Incident Classification and Response Time

Urgency Code	Description	Response time
1	Business critical error Example: Strætó is unable to collect revenues through the System or publish fare media.	Immediate
2	Errors that interrupts critical functions. Example: Strætó is unable to use the CRM or change prices in the System.	Troubleshooting starts within 4 hours. Expected to be solved within 2 days.
3	Errors that interrupts non-critical functions. Example: Strætó is unable to pull reports from the System.	Troubleshooting starts within 8 hours. Expected to be solved within 1 week.
4	Errors that prevent optimal use of the software. Example: Repeatedly unresponsive of slow performance.	Solution agreed upon within 8 days. Expected to be solved within 1 month.
5	Minor or cosmetic errors.	Solution agreed upon within 8 days. Expected to be solved with next release.

2.11.5 Penalty clause

Upon breach of any of the provisions in the SLA and/or the written agreement, Contractor shall be liable to the Purchaser to pay a penalty which is immediately due from the day of breach 350 EUR for each day and each breach on which the breach continues up to 10% of the monthly contract amount in section B – SLA, of the Tender Form, each month, without prejudice to any other rights which the Purchaser may have by law or under the procurement documents and/or written agreement, such as the right of the Purchaser to demand specific performance of the violated provisions or to seek any injunction and/or damages, as well as to terminate the procurement and/or agreement, if the latter is still in effect.

Appendix 1 Tender Form

General information about the Tenderer

Company name _____

Address _____

Tel _____

E-mail _____

Contact person _____

Person responsible _____

Grand total price

Grand total price for A, B and C _____ EUR exclusive VAT

Signature

The undersigned confirms with his signature that this tender is based on information contained in the Tender Documents of August 2019, it's Appendices and attached documentation.

Place: _____ Date: _____

Signature

_____

Tender Content

Bidders shall completely fill out all parts of the Tender Form. All prices shall be in EUR.

Variant tenders are not permitted.

VAT shall not be included in price. VAT shall be paid according to Icelandic laws in effect at time of payment.

Tenders must be complete and submitted in the form specified in the chapter below and in compliance with all other instructions set out in this ITN and any associated documents. Failure to do so may render the tender non-compliant and subject to rejection.

A complete tender must comprise same tender form – see below.

A The System

The prices defined in the Tender form shall cover all costs and expenses associated with The System including, but not limited to, system setup, hardware, shipping, software, training, installation, internal project management, public tariffs, office and telephone costs, 3rd party licences, warranties, travel expenses and meetings. The system shall be delivered complete and operational.

A.1 Preparation, design and development

As described in chapters 2.3 and 2.4

Documentation of compliance: Please provide this information in a separate file and specify here below where the appropriate information can be found:

Name of reference file: _____

Chapter no. _____ Page no. _____

A.2 Project management

As described in chapter 2.2

Documentation of compliance: Please provide this information in a separate file and specify here below where the appropriate information can be found:

Name of reference file: _____

Chapter no. _____ Page no. _____

A.3 Software and implementation including EMV.

AMPS, CRM, reporting and monitoring tools and all other software components necessary to run the product described in this ITN. There shall be no extra charge for up to 300 vehicles on the system. The functionality is described in chapters 2.6, 2.7 and 2.8

Documentation of compliance: Please provide this information in a separate file and specify here below where the appropriate information can be found:

Name of reference file: _____

Chapter no. _____ Page no. _____

A.4 **Vehicle Hardware (including validators, driver console and potential onboard computer, mounting hardware and brackets)**

As described in 2.8.4, 2.8.5, 2.8.6, 2.8.7, 2.8.8, 2.8.9, 2.8.10 and 2.8.11

Documentation of compliance: Please provide this information in a separate file and specify here below where the appropriate information can be found:

Name of reference file: _____

Chapter no. _____ Page no. _____

A.5 **Inspection devices**

As described in chapter 2.8.12

Documentation of compliance: Please provide this information in a separate file and specify here below where the appropriate information can be found:

Name of reference file: _____

Chapter no. _____ Page no. _____

A.6 **Hardware installation (on buses)**

As described in 2.8.10 and 2.9

Documentation of compliance: Please provide this information in a separate file and specify here below where the appropriate information can be found:

Name of reference file: _____

Chapter no. _____ Page no. _____

A.7 **API's, Maintenance plan and Documentation**

As described in chapters 2.5, 2.7.4, 2.9.2, 2.9.3 and 2.9.4

Documentation of compliance: Please provide this information in a separate file and specify here below where the appropriate information can be found:

Name of reference file: _____

Chapter no. _____ Page no. _____

A.8 **QA, Testing (including test fare media) and Training**

As described in chapters 2.10.1, 2.10.2, 2.10.3, 2.10.4 and 2.10.5

Documentation of compliance: Please provide this information in a separate file and specify here below where the appropriate information can be found:

Name of reference file: _____

Chapter no. _____ Page no. _____

B SLA

B.1 Operation

The prices defined in the Tender form shall cover all costs associated with Operation of the system including, but not limited to internal project management, system updates, public tariffs, office and telephone costs, 3rd party licences.

Development and changes are charged for on a monthly basis.

Minimum requirements described in 2.11.1

Documentation of compliance: Please provide this information in a separate file and specify here below where the appropriate information can be found:

Name of reference file: _____

Chapter no. _____ Page no. _____

B.2 Service Desk

The prices defined in the Tender form shall cover all costs associated with Service desk including, but not limited to internal project management, public tariffs, office and telephone costs and 3rd party licences.

Development and changes are charged for on a monthly basis.

Minimum requirements described in 2.11.2

Documentation of compliance: Please provide this information in a separate file and specify here below where the appropriate information can be found:

Name of reference file: _____

Chapter no. _____ Page no. _____

B.3 Hosting

The prices defined in the Tender form shall cover all costs associated hosting of The System including, but not limited to internal project management, hardware and software upgrades, patching, backup, public tariffs, office and telephone costs and 3rd party licences.

Development and changes are charged for on a monthly basis.

Minimum requirements described in 2.8.1

Documentation of compliance: Please provide this information in a separate file and specify here below where the appropriate information can be found:

Name of reference file: _____

Chapter no. _____ Page no. _____

C Developments and changes

The prices defined in the Tender form shall cover all costs associated Development and changes including, but not limited to internal project management, hardware, public tariffs, office and telephone costs and 3rd party licences.

Development and changes are charged for on an hourly basis.

Minimum requirements described in 2.11.4

Documentation of compliance: Please provide this information in a separate file and specify here below where the appropriate information can be found:

Name of reference file: _____

Chapter no. _____ Page no. _____

Price list

No.	Item description	Unit	Quantity	Unit price	Total Price
A	**THE SYSTEM**				
A.1	Preparation, design and development	Lump sum	1		
A.2	Project management	Lump sum	1		
A.3	Software and implementation including EMV	Lump sum	1		
A.4	Vehicle Hardware (including validators, driver console and potential onboard computer, mounting hardware and brackets)	Units	159		
A.5	Inspection devices	Units	3		
A.6	Hardware installation (on buses)	Units	159		
A.7	API's, Maintenance plan and Documentation	Lump sum	1		
A.8	QA, Testing (including test fare media) and Training	Lump sum	1		

Grand total price for A (exclusive VAT)

No.	Item description	Unit	Quantity	Unit price	Years	Price
B	**Service level agreement, 10 years**					
B.1	Operation	Monthly rate	12		10	
B.2	Service Desk	Monthly rate	12		10	
B.3	Hosting	Monthly rate	12		10	
C	**Developments and changes**					
	Project Manager	Units	48		10	
	Specialist	Units	48		10	
	Technical staff	Units	48		10	
	Programmer	Units	240		10	
	Teaching	Units	16		10	

Grand total price for B and C (exclusive VAT)

Appendix 2 Vehicle overview

This list is a subject to change and will be revisited when the actual order is placed.

	Strætó	Hagvagnar	Kynnisferðir
Irisbus Crossway	**12**		
Irisbus-Agora	**5**		
Irisbus-Citelis	**8**		
Iveco Crossway	**29**	**24**	**20**
MERCEDES Citaro	**2**		
Scania CL 94	**7**		
Scania CL 94 Gas.	**2**		
Volvo B12	**1**		
Volvo B12BLE	**3**		
Volvo B7R	**2**		
Yutong SL12	**14**		
VDL Citea			**30**
Total	**85**	**24**	**50**
Bus grand total	**159**		

Appendix 3 Performance Security

PERFORMANCE SECURITY

Demand guarantee
(Insurance number)

„Name of insurance company or bank“, hereby declares that the **„insurance company or the bank“** guarantees Strætó bs., ID: 500501-3160 payment up to EUR. **„amount of insurance in digits “**, **"in letters"** as collateral for **„Name of the tenderer“,** in the performance of his contractual obligations as a tenderer in the performance of the work „Ticketing system for Public Transportation“ in compliance with the requirements of the tender documents, contract terms and the data listed there as contract documents, as well as an appendix to the contract.

The performance insurance shall be 10% of the agreement amount and shall remain unchanged for the duration of the project when it shall decrease to 4% of the agreement amount with the addition attachments to the agreement and shall thereafter remain in effect for twelve months. The performance insurance may not be reduced or cancelled without a written authorisation thereto from Strætó bs. Such authorisation shall be issued within ten (10) days from when the final inspection was completed. The Purchaser does not provide any particular insurance for the project.

Strætó bs., may demand **„Name of insurance company or bank“** or the payment of the insurance fund to some extent or in full, without prior court ruling, if it deems it necessary to complete the work or workpiece or improve the defects that have occurred on the contractor's work. Also, to pay for any kind of costs that the Purchaser incurs because of the contractor's default on the provisions of the contract and for repayment of overpaid claims.

Place, date, year

Name of insurance company or bank

Signature(s) and stamp

Nr. Í útboði	Lýsing	Einingar	Magn	Einingaverð	Heildarverð	Með virðisauka	ISK - mv. EUR = 137
A.1	Preparation, design and development	Lump sum	1	€ 20,000	€ 20,000	€ 20,000	2,766,000 kr
A.2	Project management	Lump sum	1	€ 230,000	€ 230,000	€ 230,000	31,809,000 kr
A.3	Software and implementation including EMV	Lump sum	1	€ 500,000	€ 500,000	€ 500,000	69,150,000 kr
A.4	Vehicle Hardware (including validators, driver console and potential onboard computer, mounting hardware and brackets)	Units	159	€ 4,500	€ 715,500	€ 715,500	98,953,650 kr
A.5	Inspection devices	Units	3	€ 900	€ 2,700	€ 2,700	373,410 kr
A.6	Hardware installation (on buses)	Units	159	€ 1,000	€ 159,000	€ 159,000	21,989,700 kr
A.7	API's, Maintenance plan and Documentation	Lump sum	1	€ 50,000	€ 50,000	€ 50,000	6,915,000 kr
A.8	QA, Testing (including test fare media) and Training	Lump sum	1	€ 50,000	€ 50,000	€ 50,000	6,915,000 kr
	Total				**€ 1,727,200**	**€ 1,727,200**	**238,871,760 kr**

Nr. Í útboði	Lýsing	Einingar	Magn	Einingaverð	Ár	Heildarverð	Með virðisauka	ISK - mv. EUR = 137
B.1	Operation	Monthly rate	12	€ 7,000	10	€ 840,000	€ 840,000	116,172,000 kr
B.2	Service Desk	Monthly rate	12	€ 2,000	10	€ 240,000	€ 240,000	33,192,000 kr
B.3	Hosting	Monthly rate	12	€ 3,000	10	€ 360,000	€ 360,000	49,788,000 kr
B.4	EMV	Monthly rate	12	€ 1,000	9	€ 108,000	€ 108,000	14,936,400 kr
	Total í heild					**€ 1,548,000**	**€ 1,548,000**	**€ 214,088,400**
	Total á ári að meðaltali					**€ 154,800**	**€ 154,800**	**€ 21,408,840**

Lýsing	Einingar	Magn	Einingaverð	Ár	Heildarverð	ISK - mv. EUR = 137
Project Manager	Units	48	€ 100	10	€ 48,000	6,638,400 kr
Specialist	Units	48	€ 140	10	€ 67,200	9,293,760 kr
Technical staff	Units	48	€ 100	10	€ 48,000	6,638,400 kr
Programmer	Units	240	€ 120	10	€ 288,000	39,830,400 kr
Teaching	Units	16	€ 100	10	€ 16,000	2,212,800 kr
Total í heild					**€ 467,200**	**64,613,760 kr**
Total á ári					**€ 46,720**	**6,461,376 kr**

Lýsing	Verð kr.	Verð EUR
Vinna við nýjan vef	15,000,000 kr	€ 108,460
Vinna við nýtt app	20,000,000 kr	€ 144,613
Buffer (fyrir alla liði)	15,000,000 kr	€ 108,460
Total	**50,000,000 kr**	**€ 361,533**

	ISK	EUR
Fjárfesting útboðs	238,871,760 kr	€ 1,727,200
Framendaþróun	35,000,000 kr	€ 253,073
Buffer	15,000,000 kr	€ 108,460
Heildarfjárfesting	288,871,760 kr	€ 2,088,733
Rekstur og þróun á ári	27,870,216 kr	€ 201,520

Evrugengi 138.3