

PROFESSIONAL CONSULTANT SERVICE
AGREEMENT

between

RB Rail AS
and
AECOM INOCSA SL

Agreement registration number

CEF¹ Contract No INEA/CEF/TRAN/M2016/1360716

8/2018-28
C 1.1.7

Dated 7 May 2018

¹ Grant Agreement under the Connecting Europe Facility (CEF) -Transport Sector Agreement No INEA/CEF/TRAN/M2016/1360716

TABLE OF CONTENTS

<i>GENERAL CONDITIONS</i>	3
<i>Section I. DEFINITIONS AND INTERPRETATION</i>	3
<i>Section II. ENGAGEMENT, OBJECTIVE AND SCOPE OF SERVICE</i>	4
<i>Section III. OBLIGATIONS OF SERVICE PROVIDER</i>	6
<i>Section IV. OBLIGATIONS OF PRINCIPAL</i>	10
<i>Section V. PERSONNEL AND REPRESENTATIVES</i>	10
<i>Section VI. SERVICE MEETINGS, REPORTING AND RISK REDUCTION</i>	11
<i>Section VII. COMMENCEMENT OF SERVICE, REMEDY OF DEFECTS AND ACCEPTANCE</i>	12
<i>Section VIII. TERMINATION</i>	14
<i>Section IX. INTELLECTUAL PROPERTY RIGHTS</i>	16
<i>Section X. CONFIDENTIALITY</i>	18
<i>Section XI. FORCE MAJEURE</i>	19
<i>Section XII. RIGHT TO AUDIT</i>	20
<i>SECTION XIII. ON-THE-SPOT VISITS</i>	20
<i>Section XIV. NOTICES AND COMMUNICATION</i>	20
<i>Section XV. MISCELLANEOUS PROVISIONS</i>	21
<i>SPECIAL CONDITIONS</i>	23
<i>Section XVI. PAYMENT</i>	23
<i>Section XVII. LIABILITY</i>	24
<i>Section XVIII. GOVERNING LAW AND RESOLUTION OF DISPUTES</i>	25
<i>Annex A: DEFINITIONS AND COMMON TERMS</i>	27
<i>Annex B: PROJECT OBJECTIVES</i>	31
<i>Annex C: SCOPE OF SERVICE (Technical specification)</i>	32
<i>Annex D: SERVICE SCHEDULE AND RATES</i>	104
<i>Annex E: KEY PERSONNEL</i>	107
<i>Annex F: LIST OF APPROVED SUB-CONTRACTORS</i>	150
<i>Annex G: PROVISIONAL COMPLETION CERTIFICATE</i>	151
<i>Annex H: PROVISIONAL ACCEPTANCE CERTIFICATE</i>	152
<i>Annex I: FINAL ACCEPTANCE CERTIFICATE</i>	153
<i>Annex J: REPRESENTATIVES</i>	154
<i>Annex K: TENDER OF THE SERVICE PROVIDER</i>	155
<i>Annex L: DECLARATION OF SERVICE PROVIDER</i>	170

PROFESSIONAL CONSULTANT SERVICE AGREEMENT

This PROFESSIONAL CONSULTANT SERVICE AGREEMENT (hereinafter, the "Agreement"), together with all Annexes hereto, is entered into in Riga, on 7 May of the year 2018 (hereinafter, the "Effective Date") by and between:

(1) **RB Rail AS**, a joint stock company registered in the Latvian Commercial Register under registration No 40103845025, having its registered address at Kr. **Valdemāra iela 8-7**, Riga, LV 1010, Latvia (hereinafter, the "Principal"), **represented by its Chairperson** of the Management Board Baiba Anda Rubesa and Management Board Member Kaspars Rokens, acting on the basis of the Power of Attorney No 9/2018-6 (dated 26/03/2018), on the one side,

and

(2) **AECOM INOCSA SL**, a limited liability company, registration No B82280785, organized and existing under laws of Spain (hereinafter, the "Service Provider"), having its registered address at C. ALFONSO XII 62, Madrid 28-MADRID, Spain, represented by the authorized person **Arnis Braiens Kākulis**, acting on the basis of the Power of Attorney (dated 14/04/2018).

WHEREAS:

(A) This Agreement is entered into within the framework of the Global Project which includes all activities undertaken by the respective beneficiaries and implementing bodies of the Republic of Estonia, the Republic of Latvia and the Republic of Lithuania in order to build, render operational and commercialize the Rail Baltica railway - a new fast conventional double track electrified railway line according TSI INF P2-F1 criteria and European standard gauge (1435mm) on the route from Tallinn through Pärnu-Riga-Panevezys-Kaunas to Lithuanian-Polish border, with the connection of Kaunas – Vilnius, and related railway infrastructure in accordance with the agreed route, technical parameters and time schedule;

(B) **The Principal has organised procurement procedure "DEVELOPMENT OF DETAILED BIM STRATEGY FOR RAIL BALTICA RAILWAY"** (identification No RBR 2018/3) (hereinafter, the "Procurement Procedure") whereby the tender proposal submitted by the Service Provider (hereinafter, the "Service Provider's Proposal") was selected as the winning bid;

(C) This Agreement is co-financed from the Connecting Europe Facility (CEF), CEF Contract No INEA/CEF/TRAN/ M2016/1360716, Activity 1.1.7, Action No: 2016-EU-TMC-0116-M,

GENERAL CONDITIONS

Section I. DEFINITIONS AND INTERPRETATION

1.1. *Defined Terms.* In this Agreement, unless the context requires otherwise, all defined terms shall have the meanings ascribed to such terms in accordance with Annex A (*Definitions and Common Terms*) entered into between the Parties on the Effective Date.

1.2. *Interpretation.*

- (a) The headings contained in the Agreement shall not be used in its interpretation.
- (b) References to the singular shall include references in the plural and vice versa, words denoting a gender shall include any other gender where the context requires, and words denoting natural persons shall include any other persons.
- (c) References to a treaty, directive, regulation, law or legislative provision shall be construed, at any particular time, as including a reference to any modification, extension or re-enactment of the respective treaty, directive, regulation, law or legislative provision at any time then in force and to all subordinate legislation enacted from time to time.

- (d) In the event there arises a conflict between provisions of the Agreement, the last provision to have been written chronologically shall have precedence.
- (e) Any reference in this Agreement to a person acting under the direction of another person shall not include any action that is taken in contravention of any Applicable Law or Standards, unless the relevant person can demonstrate that an explicit instruction or direction was given to take the relevant action.
- (f) Unless expressly stated to the contrary, any reference in this Agreement to the right of consent, approval or agreement shall be construed such that the relevant consent, approval or agreement shall not be unreasonably delayed or withheld. The Parties agree and acknowledge as follows:
 - (i) neither Party shall be required to seek or apply for any consent, approval or agreement by any Person which would place the respective Party in breach of any Applicable Law, Standards or Good Industry Practice; and
 - (ii) nothing in this Agreement shall require the Principal to give or procure the giving of any consent or approval which would be contrary to the protection, safety and efficient operation of the Railway and the Project.
- (g) **A reference to "writing" shall include an e-mail transmission and any means of reproducing words in a tangible and permanently visible form.**
- (h) **The words "include" and "including" are to be construed without limitation.**
- (i) **Unless indicated otherwise, all references to "days" shall mean calendar days.**
- (j) The words in this Agreement shall bear their natural meaning.

1.3. *Order of Precedence.* In the event of any discrepancy or inconsistency arising between the documents forming part of this Agreement, the following order of precedence shall apply:

- (a) this Agreement document;
- (b) Explanations (clarifications) of the procurement documentation;
- (c) Technical specifications (Scope of Service);
- (d) Clarifications of the Tender of the Service Provider;
- (e) Tender of the Service Provider;
- (f) Procurement documents with the annexes;
- (g) all other Annexes of the Agreement.

Section II. ENGAGEMENT, OBJECTIVE AND SCOPE OF SERVICE

- 2.1. *Engagement.* The Principal hereby engages the Service Provider to provide the Service for the purposes of the Project with the objective of ensuring provision and performance of all Works more fully identified in Annex C (*Scope of Service*) attached **to this Agreement (hereinafter, the "Scope of Service")** subject to the terms of this Agreement, and the Service Provider accepts such engagement.
- 2.2. *Objective.* The Service shall result in the performance of all Works identified in Annex C (*Scope of Service*) according to the terms of this Agreement and delivery to the Principal of the Deliverables according to the Service Schedule specified in Annex D (*Service Schedule and Rates*).
- 2.3. *Alteration Requests by Principal.* Notwithstanding any provisions in this Agreement to the contrary, whenever the Principal reasonably considers that an Alteration is necessary:
 - (a) to address, alleviate or comply with (as appropriate) a Mandatory Alteration; or
 - (b) to address the results of Survey Works, to the extent necessary to attain the purposes of the Project; or
 - (c) to address changes to the underlying assumptions set out in the Scope of Service,

the Principal shall send to the Service Provider a written notice requesting an Alteration to the Scope of Service **and/or Service Schedule (hereinafter, the "Alteration Request") to the extent that the Alteration is reasonable** in the circumstances. For the avoidance of any doubt, no Alteration shall be effective unless and until agreed in writing by both Parties.

2.4. *Alteration Requests by Service Provider.* Where the Service Provider reasonably considers that an Alteration is necessary:

- (a) to address, alleviate or comply with (as appropriate) a Mandatory Alteration; or
- (b) to address the results of Survey Works, to the extent necessary to attain the purposes of the Project; or
- (c) to address changes to the underlying assumptions set out in the Scope of Service,

the Service Provider shall be entitled to request the Principal to implement an Alteration in accordance with the applicable Laws of the Republic of Latvia.

2.5. *Certain Representations and Warranties by Parties.* Each Party represents and warrants to the other Party, as of the Effective Date, as follows:

- (a) it has entered into this Agreement with the aim of attaining all of the objectives and performing in all material respects all of the obligations and commitments herein set forth;
- (b) it has entered into this Agreement without having any intention or goal whatsoever to violate the Applicable Law, its own Articles of Association, other constitutional documents or agreements of any kind to which it is a party;
- (c) it is not bankrupt and is not the subject of insolvency or winding-up proceedings, where its assets are being administered by a liquidator or by the court, it is not in an arrangement with creditors, where its business activities are suspended or it is in any analogous situation arising from a similar procedure under the Laws of the country of incorporation of respective Party; and
- (d) it has entered into this Agreement of its own volition and in good faith.

2.6. *Certain Representations and Warranties by Service Provider.* The Service Provider represents and warrants to the Principal, as of the Effective Date, as follows:

- (a) it has all requisite qualification, skills and competence to provide the Service to the Principal on the terms and conditions of this Agreement which are no less favourable than the terms and conditions of service identified by the Service Provider in any document submitted by the Service Provider to **the Principal as part of the Procurement Procedure and on the terms of the Service Provider's Proposal** identified in accordance with Annex K (*Tender of the Service Provider*);
- (b) It holds all requisite licenses, permits, approvals and consents necessary to enable provision by the Service Provider of the Service according to the specifications contained in Annex C (Scope of Service);
- (c) it has all requisite ability to ensure the highest quality of the Service;
- (d) it will assign competent and duly qualified personnel to carry out the Works set out in this Agreement according to the highest professional standard and Good Industry Practice;
- (e) it is not deemed to be a person associated with the Principal for the purposes of Applicable Law;
- (f) **it is compliant with all of the requirements of the Service Provider's Declaration contained in Annex L (*Declaration of Service Provider*)** and will continue to be compliant with all such requirements during the term of this Agreement.

Section III. OBLIGATIONS OF SERVICE PROVIDER

- 3.1. *General Obligations.* The Service Provider shall, at all times during the term of this Agreement, act in good faith towards the Principal in respect of all matters under the Agreement. The Service Provider undertakes to perform or procure the performance of the Service in its entirety. The Service Provider shall develop and supplement the Scope of Service in consultation with the Principal with a view to achieving the objectives of the Project set out in Annex B (*Project Objectives*), including with respect to identifying the Service Milestones and other key dates, Deliverables, the underlying assumptions and any Necessary Consents. The Service Provider agrees with the Principal that it shall use all relevant knowledge obtained by the Service Provider in designing, building and maintaining public infrastructure networks having characteristics similar to the characteristics of the Project in the performance of its obligations under this Agreement. Specifically, the Service Provider undertakes to perform the Service in accordance with all of the following:
- (a) requirements of Applicable Law;
 - (b) Good Industry Practice;
 - (c) Legal Requirements and Standards as may be applicable from time to time;
 - (d) Necessary Consents; and
 - (e) the terms of this Agreement.
- 3.2. *Duty of Care and Exercise of Authority.* The Service Provider shall:
- (a) in performing its obligations under this Agreement, exercise reasonable professional skill, diligence and care as may be expected of a properly qualified and competent person carrying out services of a similar size, nature, type and complexity;
 - (b) ensure that all personnel engaged toward the Service are competent in accordance with relevant Standards and are qualified to perform their duties efficiently;
 - (c) ensure that all maps, drawings, plans, specifications, estimates, studies, computer files and other documents required to be prepared or submitted by the Service Provider under this Agreement conform to Good Industry Practice generally acceptable at the time of submission of such maps, drawings, plans, specifications, estimates, studies, computer files and documents;
 - (d) at all times during the term of this Agreement and in performing the Service, ascertain and comply with all Applicable Laws, Good Industry Practice and, to the extent applicable, conditions of any Necessary Consents;
 - (e) comply, where applicable, with any reasonable requirements of the Principal not otherwise provided for in this Agreement;
 - (f) ensure that all designs are performed, and that the design process is documented, in accordance with Good Industry Practice, and using standard industry quality control methodology;
 - (g) notify the Principal of any Defects in accordance with Clause 7.3 of this Agreement as soon as such Defects are identified by the Service Provider;
 - (h) whenever the Service includes the exercise of powers or performance of duties authorized or required pursuant to the terms of any contract entered into between the Principal and any third party, the Service Provider shall:
 - (i) act in accordance with the terms and conditions of the agreement entered into between the Principal and the relevant third party; provided, however, that the details of such powers and duties, to the extent not described pursuant to Annex D (*Scope of Service*) are acceptable to the Service Provider;
 - (ii) if authorized to certify, decide or exercise discretion, do so fairly between the Principal and third party not as an arbitrator but as an independent professional exercising its best skill and judgment; and

- (iii) to the extent so authorized, cause the obligations of any third party to be adjusted or modified, subject to obtaining the prior approval of the Principal to any adjustment or modification which can have a material effect on Costs, quality or time (except in any emergency when the Service Provider shall inform the Principal as soon as practicable).

3.3. *Maintenance of Records.* During the term of the Service and during ten (10) years from expiration or termination of this Agreement for any reason whatsoever, the Service Provider shall keep and maintain clear, adequate and accurate records and documentation evidencing, to the reasonable satisfaction of the Principal, each of the following:

- (a) the amount of time (rounded up to 30 minutes) actually spent by personnel of the Service Provider and personnel of each Approved Sub-Contractor toward performance of any of the Works forming part of the Service; and
- (b) the fact that the Service has been and is being carried out in accordance with Applicable Law and Good Industry Practice and, to the extent applicable, conditions of any Necessary Consents.

3.4. *Property of Principal.* Anything supplied by or paid for by the Principal for the use by the Service Provider toward provision of the Service under this Agreement shall constitute the property of the Principal and, to the extent practicable, shall be marked by the Service Provider as property of the Principal. To the extent the Service is completed or terminated, the Service Provider shall furnish inventories of whatever has not been consumed in the performance of the Service to the Principal and shall deliver such inventories in such manner and to such location(s) as designated by the Principal. For the avoidance of any doubt, such delivery shall not be forming part of the Scope of Service and the terms of the delivery shall be agreed between the Principal and the Service Provider separately.

3.5. *Reservation of Certain Approval Rights.* Nothing in this Agreement shall require the Principal to give or procure the giving of any consent or approval which would be contrary to or inconsistent with the interests of protection, safety and efficient operation of the Railway or the Project and the safety of persons or property.

3.6. *Acceptance Not a Waiver.* **The Principal's review, approval, acceptance, or payment with respect to any part of the Service provided by the Service Provider shall not be interpreted or construed to operate as a waiver of any rights or cause for action arising out of the Service Provider's performance of the Service under this Agreement.** The Service Provider shall remain liable to the Principal as allowed under this Agreement and under Applicable Law for any and all Costs and/or Damages caused by the **Service Provider's negligent** performance of any part of the Service furnished under this Agreement.

3.7. *Sub-Contracting.* In performing the Service in accordance with the Scope of Service and subject to the provisions of Clause 3.12, the Service Provider may use toward the Service only the Approved Sub-Contractors listed in Annex F (*List of Approved Sub-Contractors*), as such list may, from time to time, be modified or supplemented in agreement with the Principal and in accordance with the terms and subject to the criteria contained in the applicable public procurement laws of the Republic of Latvia.

For the avoidance of any doubt, no modification or supplementation of the list of Approved Sub-Contractors specified pursuant to Annex F (*List of Approved Sub-Contractors*) and made in accordance with this Clause 3.7 shall constitute an Alteration. Annex F shall specify the name, contact details and legal representative(s) of each Approved Sub-Contractor as of the Effective Date. The Service Provider shall have an obligation to notify the Principal in writing of any changes to Sub-Contractor data specified in Annex F occurring during the term of this Agreement and of the required information for any new sub-contractors which it may subsequently engage toward provision of the Service.

Pursuant to the Law of the Country applicable at the date of entry into effect of this Agreement, the Service Provider shall obtain prior written consent of the Principal for the replacement of a Sub-Contractor:

- (a) whose capacities the Service Provider has relied on during the selection or evaluation stages of the Procurement Procedure; or
- (b) who carries out at least 10% (ten per cent) of the total value (Contract Price) of the Services.

Review and evaluation of the replacement sub-contractors shall be carried out, and the consent or refusal to give consent shall be rendered by the Principal in accordance with the applicable Law of the Republic of Latvia in the area of public procurement.

The Service Provider shall replace the sub-Contractor which, during the effectiveness of this Agreement, meets any of the compulsory grounds for exclusion of tenderers (or sub-contractors) that were verified during the Procurement Procedure.

- 3.8. *Responsibility for Performance by Sub-Contractors.* The Service Provider shall retain the complete responsibility for the proper performance of all of its obligations under this Agreement, and any act, failure to act, breach or negligence on the part of its Approved Sub-Contractors shall, for the purposes of this Agreement, be deemed to be the act, failure to act, breach or negligence of the Service Provider.
- 3.9. *Obligations of Service Provider on Termination.* In the event of issue or receipt of a notice of termination of the Agreement under Clause 8.1, the Service Provider shall:
- (a) take immediate steps to bring an end to the performance of the Service in an orderly manner;
 - (b) make arrangements to minimize the expenditure under this Agreement as rapidly as possible; and
 - (c) pass to the Principal a complete set of any documents, manuals or other information that the Principal may require in connection with the Project and the Railway and which, at the time of termination, are in the possession or under the control of the Service Provider.
- 3.10. *Attendance of Meetings.* To the extent necessary to ensure smooth and efficient provision of the Service, the **Service Provider shall according to the Annex C (Scope of Services) or at the Principal's request, hold and/or** attend meetings with any Persons.
- 3.11. *No Material Interference.* The Service Provider agrees that non-Principal activities undertaken by the Service **Provider will be managed so as not to materially interfere with the Service Provider's obligations to the** Principal under this Agreement.
- 3.12. *No Conflicting Activity.* **Except with the Principal's knowledge and express written permission, the Service** Provider shall not engage in any activity, or accept any employment, other agreement, interest, or contribution that would reasonably **appear to compromise the Service Provider's professional judgment and** performance with respect to the Service and/or the Project. In performing the Service, the Service Provider shall take all necessary measures to prevent any situation where the impartial and objective implementation of the Service is compromised for reasons involving economic interest, political or national affinity, family or emotional ties or any other shared interest.
- 3.13. *Certain Negative Covenants.* In carrying out the Service, the Service Provider undertakes not to procure goods or services of any kind from any Person meeting any of the following criteria:
- (a) the Person who is a member of the Management Board or Supervisory Board of an Approved Sub-Contractor or procurator of an Approved Sub-Contractor, or is authorized to represent or act on behalf of an Approved Sub-Contractor with respect to any activity related to any subsidiary company of such Approved Sub-Contractor, and such Person has been accused of commitment of any of the following criminal offences pursuant to an order issued by a public prosecutor or was found to be guilty of commitment of any of the following criminal offences in accordance with a court judgment that has entered into legal force, is non-disputable and non-appealable:
 - (i) accepting a bribe, giving of a bribe, misappropriation of a bribe, intermediation toward giving or taking of a bribe, acceptance of a prohibited benefit or commercial bribing;
 - (ii) fraud, misappropriation of funds or money laundering;
 - (iii) tax evasion or evasion of payments equivalent to tax;
 - (iv) terrorism, financing of terrorism, instigation of acts of terrorism, terrorist threats or recruitment and training of a person with the aim of committing acts of terrorism;
 - (b) the Person has, by decision of a competent authority or judgment of a court which has entered into legal force and is non-disputable and non-appealable, been found guilty of violation of labour law in any of the following manners:
 - (i) employment of one or more citizens or nationals of countries who are not citizens or nationals of a Member State of the European Union and are residing in the territory of a Member State of the European Union unlawfully;
 - (ii) employment of one or more persons without having entered into written employment agreement with such persons, or without having submitted an employee declaration with

respect to such persons within a period of time stipulated in accordance with applicable laws and regulations applicable to persons that enter into salaried employment;

- (c) the Person who, by decision of a competent authority or in accordance with judgment of a competent court which has entered into legal force, is non-disputable and non-appealable, has been held guilty of violation of applicable rules of competition law manifested as a vertical agreement aimed at restricting the ability of one or more purchasers to determine the resale price, or a horizontal cartel agreement, with the exception of instances where the relevant authority, upon having established the fact of violation of applicable rules of competition law, has discharged the candidate or participant in a tender offer from imposition of a fine or has reduced the amount of fine as a part of co-operation leniency programme;
- (d) the Person who has insolvency proceedings initiated against it (except in the circumstances where a bailout or a similar set of measures are applied within the insolvency proceedings and are aimed at preventing the bankruptcy and restoring the debtor back to solvency, in which case the Service Provider shall evaluate the possibility of participation by such Person in performing the Service), economic activity of the Person has been suspended or discontinued, bankruptcy proceedings have been initiated against the Person or the Person is subject to a liquidation;
- (e) the Person has unpaid tax indebtedness in the country where the Procurement Procedure is organised or in the country where the Person is registered or permanently residing as a tax payer, including the indebtedness with respect to State social insurance contributions, in the total amount exceeding EUR 150 in each individual country; in such case, the Service Provider can, within its sole discretion, prompt the Approved Sub-Contractor to pay or discharge all outstanding tax indebtedness within 10 (ten) Working Days and, upon such payment or discharge, allow the Person to continue performance of the Service; and
- (f) any of the above-mentioned criteria shall apply to all members of a group of persons if the Person is a group of persons.

3.14. *Visibility Requirements.* At all times during provision of the Service, the Service Provider undertakes to comply with each of the following requirements:

- (a) any report, brochure, document or information related to the Service provided by the Service Provider to the Principal or any other Person, or which the Service Provider makes publicly available shall include each of the following:
 - (i) a funding statement which indicates that the Service is financed from CEF funds substantially in the following form: **"Rail Baltica is co-financed by the European Union's Connecting Europe Facility"**;
 - (ii) with respect to printed materials, a disclaimer releasing the European Union from liability with respect to any contents of any distributed materials substantially in the form as follows: **"The sole responsibility of this publication lies with the author. The European Union is not responsible for any use that may be made of the information contained therein"**. The disclaimer in all official languages of the European Union can be viewed on the website <https://ec.europa.eu/inea/connecting-europe-facility/cef-energy/beneficiaries-info-point/publicity-guidelines-logos>; and
 - (iii) the flag of the Council of Europe and the European Union.
- (b) the requirements set forth in Clauses 3.14(a)(i) and 3.14(a)(iii) of this Agreement can be complied with by means of utilizing the following logo:



Co-financed by the European Union
Connecting Europe Facility

in the event the Service Provider decides to utilize the above logo, the Service Provider shall ensure that the individual elements forming part of the logo are not separated (the logo shall be utilized as a single unit) and sufficient free space is ensured around the logo; and

- (c) in order to comply with the latest applicable visibility requirements established by the European Union, the Service Provider shall regularly monitor changes to visibility requirements; as of the Effective Date, the visibility requirements are available for review on the webpage <https://ec.europa.eu/inea/connecting-europe-facility/cef-energy/beneficiaries-info-point/publicity-guidelines-logos>.

Section IV. OBLIGATIONS OF PRINCIPAL

- 4.1. *Acting in Good Faith and Supply of Information.* At all times during the term of this Agreement, the Principal undertakes to act in good faith toward the Service Provider in respect of all matters under this Agreement. The Principal shall, so as not to delay the Service and within a reasonable time, supply to the Service Provider free of cost all information in the power of the Principal to obtain which pertains to the Service, the Project and the Railway. The Principal shall, free of any Costs to the Service Provider, to the extent not explicitly stated otherwise in this Agreement, comply with all of its obligations under this Agreement, including with respect to carrying out any action or providing any information identified and specifically requested by the Service Provider, as reasonably necessary to enable the Service Provider to progress the Service. Information or instructions provided to the Service Provider by or on behalf of the Principal in connection with the Railway or the Project shall be prepared and given in such a diligent and professional manner and with such clarity, in such detail and in as timely manner as is necessary to enable the Service Provider to comply with its obligations under this Agreement.
- 4.2. *Decisions by Principal.* On all matters properly referred to it by the Service Provider in writing the Principal shall give its decision in writing so as not to delay the Service and within a reasonable time.
- 4.3. *Assistance and Cooperation by Principal.* In each country of the Railway and in respect of the Service Provider, its personnel and dependents, as the case may be, the Principal shall have an obligation to do all in its power to reasonably assist the Service Provider and reasonably cooperate with the Service Provider with respect to each of the following matters:
 - (a) providing unobstructed access wherever access is required for purposes of enabling, establishing or providing the Service;and
 - (b) providing access to other organizations to enable collection of information which is to be obtained by the Service Provider.
- 4.4. *No Material Interference.* The Principal agrees that non-Service Provider activities undertaken by the Principal will be managed so as not to **materially interfere with the Principal's obligations to the Service Provider under this Agreement.**

Section V. PERSONNEL AND REPRESENTATIVES

- 5.1. *Supply of Personnel.* The personnel who are designated by the Service Provider shall be fit for their respective assignments, and their qualifications shall be acceptable to the Principal.
- 5.2. *Representatives.* Each Party shall appoint an officer, employee or individual to serve as its representative toward supply or receipt of the Service with full authority to act on its behalf in connection with this **Agreement (hereinafter, the "Representative")**, the initial Representatives having been identified in accordance with Annex J (*Representatives*). **Any restriction placed by either Party on its Representative's** authority shall be notified to the other Party in writing in order to be effective. The Representatives may delegate their authority by notice in writing specifying the identity of the delegate and specifying the scope of authority so delegated. In addition to the appointment of a Representative in accordance with this Clause 5.2, to the extent required by the Principal, the Service Provider shall designate an individual to liaise with the Representative of the Principal in each country where the Project is implemented.

- 5.3. *Changes in Personnel.* To the extent necessary to replace any person among personnel or Representative of either Party engaged toward provision or receipt of the Service, the Party responsible for the appointment of such person shall immediately arrange for replacement of the appointed person by another person of comparable competence. The costs of such replacement shall be borne by the Party responsible for the appointment, except that if the replacement is requested by the other Party,
- (a) such request shall be made in writing and state the reason for the request; and
 - (b) the Party making the request shall bear the costs of replacement, unless misconduct or inability to perform is satisfactorily established as the reason for the replacement.
- 5.4. *Supplemental Personnel.* To the extent necessity arises to supplement the personnel of the Service Provider engaged toward provision of the Service with additional personnel, the Service Provider shall immediately arrange for engagement of such supplemental personnel. The costs of such engagement shall be borne by the Service Provider. For the avoidance of any doubt, the engagement of supplemental personnel under this Clause 5.4 shall not require approval by the Principal.

Section VI. SERVICE MEETINGS, REPORTING AND RISK REDUCTION

- 6.1. *Service Meetings.* The Service Provider shall arrange project's communication's planning meetings on weekly, monthly and quarterly bases (or more frequently, to the extent mutually agreed by the Parties) as described in Annex C (Scope of Services), at which appropriate personnel of the Service Provider and the Principal and the Representatives of each Party shall be present. Service Provider shall record all meetings (also online meetings) between Parties and prepare meeting reports within 5 working days after each meeting. All meeting reports shall be agreed with Principal.
- 6.2. *Reporting.* The Service Provider shall, in a format and at intervals to be agreed with the Principal:
- (a) provide the Principal with regular reports and status updates on the progress of the Works.
 - (b) report on any changes to the Scope of Service, Service Schedule and Estimated Costs, which the Service Provider considers may be needed in order to fulfil the objectives set out in the Scope of Service and Service Schedule; and
 - (c) use reasonable endeavours to provide any other information and status updates as may be reasonably requested by the Principal at any time.
- 6.3. *Early Warnings.* Each Party undertakes to give an early warning by notifying the other Party as soon as such Party becomes aware of any matter that is capable of producing any of the following effects:
- (a) delay any Service Milestone or date of supply of any Deliverable specified in accordance with Annex C (Scope of Service) or
 - (b) impair the usefulness of the Service to the Service Provider.

Notwithstanding the above, the Service Provider may give an early warning by notifying the Principal of any other matter which the Service Provider deems to be necessary. The Principal shall enter each early warning into the Risk Register.

- 6.4. *Risk Reduction Meetings.* Either Party may instruct the other Party to attend a risk reduction meeting at which appropriate personnel of each Party and, to the extent practicable, the Representatives of each Party, shall be present, in order for those who attend to co-operate with respect to any of following matters:
- (a) making and considering proposals for how the effect of the risks registered with the Risk Register can be avoided or reduced;
 - (b) deciding on the course of action which will be taken and which Party, in accordance with this Agreement, will take the relevant course of action; and
 - (c) deciding which risks have now been avoided or have passed and can be removed from the Risk Register.

- 6.5. *Risk Register Revisions.* The Principal shall be responsible for revising the Risk Register to record the decisions made at each risk reduction meeting and issuing the revised Risk Register to the Service Provider. In the event a decision requires a modification to be made to the Scope of Service specified in accordance with Annex C (*Scope of Service*), the Principal shall request an Alteration to the Scope of Service to be made in accordance with Clause 2.3 at the same time as the Principal issues the revised Risk Register.
- 6.6. *Obligation to Act Pursuant to Principal's Comments.* The Service Provider shall have due regard to any comments expressed by the Principal in connection with any report or at any meeting, and shall provide reasons to the Principal where it does not take into account any such comments or representations.
- 6.7. *Ambiguities and Inconsistencies.* Either Party shall notify the other Party as soon as it becomes aware of any ambiguity or inconsistency in or between the documents forming part of this Agreement or inconsistency in such documents and comments made by the Principal under Clause 6.5. The Principal shall have the absolute and exclusive discretion in resolving any such ambiguity or inconsistency.

Section VII. COMMENCEMENT OF SERVICE, REMEDY OF DEFECTS AND ACCEPTANCE

- 7.1. *Service Commencement.* The Service Provider shall not commence provision of the Service until Service Start Date specified in accordance with Annex D (*Service Schedule and Rates*) and shall ensure that each Service Milestone identified in the Service Schedule is met by the date specified in the Service Schedule and each Deliverable is supplied to the Principal, at such location and such manner as designated by the Principal, on or before each relevant Service Milestone. The Service Provider shall progress the Service to completion with due diligence having due regard to any applicable Service Milestones and any other key dates for the performance of the Service set out in accordance with Annex D (*Service Schedule and Rates*), as may be amended from time to time with the consent of the Principal or in accordance with this Agreement.
- 7.2. *Impediments and Delays.* In the event the Service, or any part thereof, is impeded or delayed by the Principal or any third party engaged by the Principal so as to increase the duration of the Service or any of the applicable Service Milestones:
- (a) the Service Provider shall inform the Principal of the circumstances and probable effects of such impediment or delay upon the Service Schedule; and
 - (b) the duration of the Service shall be increased and any Service Milestone(s) affected by the impediment or delay shall be extended accordingly.
- 7.3. *Defects and Defects Date.* Until the Defects Date specified in accordance with Annex D (*Service Schedule and Rates*) the Principal shall notify the Service Provider of any Defects of any kind as soon as Defects are identified by the Principal and the Service Provider shall have an obligation to notify the Principal of any Defects of any kind as soon as Defects are identified by the Service Provider. Upon discovery of any Defects, or upon receipt by the Service Provider of a notification of Defects from the Principal, the Service Provider shall have seven (7) calendar days to **remedy the Defects, irrespective of the nature of such Defects (hereinafter, the "Cure Period")**. In the event of inability or failure by the Service Provider to remedy the Defects within the Cure Period, the Principal shall be entitled, in the sole and exclusive discretion of the Principal, to do any of the following:
- (a) allow the Service Provider an additional time period for remedying the Defects, such time period to be determined in the sole discretion of the Principal;
 - (b) remedy the Defects, irrespective of the extent or nature of the Defects, at own cost of the Principal (including by means of relying on the services of a third Person) and demand reimbursement by the Service Provider of Costs incurred by the Principal as a result of having to pay other Persons toward carrying out any work or action;
 - (c) terminate the Agreement according to Clause 8.1; or
 - (d) remedy the Defects, irrespective of the extent or nature of the Defects, in accordance with Clause 7.3(b) and terminate the Agreement pursuant to Clause 8.1.

For the avoidance of any doubt, the application of the Cure Period under this Clause 7.3 shall be without prejudice to and shall not relieve the Service Provider from the obligation to pay any contractual penalty in accordance with the provisions of Clause 17.2 or to pay Damages in accordance with the provisions Clause 17.3 of this Agreement.

- 7.4. *Completion of Service and Provisional Completion Certificate.* Meeting of a Service Milestone or supply of a Deliverable occurs whenever the Service Provider has completed all of the Works which the Service Provider has undertaken to perform according to the Annex C (*Scope of Service*) and Annex D (*Service Schedule and Rates*) by the relevant Service Milestone. On meeting a Service Milestone and/or producing a Deliverable (including all Documentation forming part of the Deliverable) constituting all or an identifiable part of the Service, the Service Provider shall issue to the Principal a Provisional Completion Certificate substantially in the form of Annex G (*Provisional Completion Certificate*) (**hereinafter, the “Provisional Completion Certificate”**). **The Provisional Completion Certificate shall include the Deliverable and adequate supporting documentation relevant to the Service Milestone attained and/or Deliverable completed.**
- 7.5. *Objection Notice and Provisional Acceptance Certificate.* In the event the Principal objects to the issuance of a Provisional Completion Certificate, it shall give notice to the Service Provider setting out in reasonable detail **Defects or reasons for the objection (hereinafter, the “Objection Notice”) within reasonable time following receipt of the Provisional Completion Certificate.** In the event no reasons for objection to the Provisional Completion Certificate exist, the Principal shall issue, within reasonable time following receipt of the Provisional Completion Certificate, a Certificate of Provisional Acceptance in the form of Annex H (*Provisional Acceptance Certificate*) (**hereinafter, the “Provisional Acceptance Certificate”**) or sign Provisional Completion Certificate. Subject to Clause 3.6 of this Agreement, the date of the Provisional Acceptance Certificate shall **constitute “Completion Date” with respect to the relevant Service Milestone and/or Deliverable.** The Principal shall not unreasonably withhold or delay issuance of a Provisional Acceptance Certificate. The Provisional Acceptance Certificate may have annexed to it a list of any outstanding Defects or deficiencies to be corrected by the Service Provider.
- 7.6. *Completion of Service Following Receipt of Objection Notice.* In the event of receipt by the Service Provider of an Objection Notice in accordance with Clause 7.5, the Service Provider shall:
- (a) take due account of all Defects, irrespective of their extent or nature, and other matters raised in the Objection Notice;
 - (b) as soon as reasonably practicable, correct such Defects and deficiencies, irrespective of their extent or nature, and complete the Works indicated in the Objection Notice so as to comply in all material respects with the requirements of this Agreement; and
 - (c) issue to the Principal a second Provisional Completion Certificate substantially in the form of Annex G (*Provisional Completion Certificate*).

The second Provisional Completion Certificate issued in accordance with Clause 7.6(c) shall include the Deliverable and adequate supporting documentation relevant to the Service Milestone attained and/or Deliverable completed. In the event no reasons for objection to the second Provisional Completion Certificate exist, the Principal shall, within reasonable time following receipt of the second Provisional Completion Certificate, issue a Certificate of Provisional Acceptance in the form of Annex H (*Provisional Acceptance Certificate*) and, subject to the provisions of Clauses 3.6 and 8.1(b) of this Agreement, the date of the **Provisional Acceptance Certificate shall constitute “Completion Date” with respect to the relevant Service Milestone and/or Deliverable.** In the event the Principal objects to the issuance of a Provisional Completion Certificate, it shall give second Objection Notice to the Service Provider setting out in reasonable detail Defects or reasons for the objection within reasonable time following receipt of the second Provisional Completion Certificate. For the avoidance of any doubt, the giving by the Principal of any Objection Notice under Clause 7.5 or second Objection Notice under this Clause 7.6 shall be without prejudice to and shall not relieve the Service Provider from the obligation to pay any contractual penalty in accordance with the provisions of Clause 17.2 or to pay Damages in accordance with the provisions Clause 17.3 of this Agreement.

- 7.7. *Final Acceptance.* Final acceptance of the Service shall occur upon remedying by the Service Provider of all Defects notified by the Principal to the Service Provider in accordance with Clause 7.3, irrespective of the extent or nature of such Defects. Final acceptance shall be evidenced by means of the Principal issuing and both Parties attaching their signatures to the Final Acceptance Certificate substantially in the form of Annex I (*Final Acceptance Certificate*) (**hereinafter, the “Final Acceptance Certificate”**). **In the event the Principal objects to the issuance of the Final Acceptance Certificate, no later than on the Defects Date, the Principal shall give notice to the Service Provider setting out in reasonable detail all Defects which remain un-remedied, or reason(s) for refusal to issue the Final Acceptance Certificate. The date of the Final Acceptance Certificate shall constitute the “Final Acceptance Date” with respect to the Service. The Principal shall not unreasonably withhold or delay issuance of a Final Acceptance Certificate.**

Section VIII. TERMINATION

- 8.1. *Termination for Material Breach.* Subject to the provisions of Clause 8.2, either Party shall be entitled to terminate this Agreement upon giving a written notice of termination to the other Party in the event of material breach by the other Party of any of its obligations under this Agreement. The written notice of termination shall contain an itemized description of the breach. For the purposes of this Clause 8.1 an event of material breach shall include any of the following:
- (a) commitment by a Party of any persistent or material breach of this Agreement (which shall include failure to pay an amount of at least EUR 3,000 due to the other Party or perform any part of the Service valued at least EUR 3,000) and, in the event of a breach which is capable of remedy, failure to remedy that breach within;
 - (b) failure by the Service Provider to duly address any of the matters raised in the second Objection Notice given by the Principal in accordance with Clause 7.6;
 - (c) failure by any Deliverable to conform to any of the material requirements to such Deliverable contained in Annex C (*Scope of Services*) and/or Annex D (Service Schedule and Rates), provided that such failure is not capable of being remedied during the Cure Period; or
 - (d) failure by the Principal to make any payment to the Service Provider in accordance with this Agreement within at least fourteen (14) Working Days from the date of payment falling due;
 - (e) any of the representations or warranties given by either Party under Clause 2.5 or any of the representations or warranties given by the Service Provider under Clause 2.6 proving to be untrue; or
 - (f) breach by the Service Provider of any of the representations or warranties contained in Clause 9.6 or breach by the Service Provider of the undertaking contained in Clause 9.10.
- 8.2. *Corrective Period.* In the event of breach by either Party of its obligations under this Agreement, the non-breaching Party shall allow the breaching Party fourteen (7) days for corrective action or submission of a **corrective action plan (hereinafter, the "Corrective Period")**. The Corrective Period shall be counted from the date of receipt by the breaching Party of a written notice of breach. Should no satisfactory corrective action be taken or acceptable corrective action plan provided by the breaching Party, the non-breaching Party shall have the right to terminate the Agreement. It is acknowledged and agreed by the Parties that the provisions of this Clause 8.2. shall not apply with respect to any of the events enumerated in accordance with Clause 8.5. In addition and for the avoidance of any doubt, the application of the Corrective Period under this Clause 8.2 shall be without prejudice to and shall not relieve either Party from the obligation to pay any contractual penalty in accordance with the provisions of Clause 17.2 or to pay Damages incurred by the other Party in accordance with the provisions of Clause 17.3. of this Agreement.
- 8.3. *Alteration Not Material Breach.* It is agreed and acknowledged by the Parties that, for the purposes of Clause 8.1, no Alteration agreed by the Parties shall constitute a **"material breach"**, **provided that such Alteration is** objectively justified and indispensable to attain objectives of the Project, is carried out in accordance with applicable public procurement Laws of the Republic of Latvia and relates to any of the following matters:
- (a) modification of the terms and conditions of this Agreement in a manner altering the terms and conditions set forth in documents forming part of the Procurement Procedure, provided that necessity of such modification is due to no fault of the Service Provider;
 - or
 - (b) substitution of a supplier or Approved Sub-Contractor selected during the Procurement Procedure with another supplier or sub-contractor in accordance with applicable public procurement Laws of the Republic of Latvia.
- 8.4. *Right to Terminate Immediately.* Notwithstanding anything to the contrary contained in this Agreement, a Party may terminate this Agreement immediately upon giving the other Party a written notice of termination explaining, in reasonable detail, the reason for termination upon occurrence of any of the following:
- (a) breach by the other Party of Clause 15.7;
 - (b) an event of Force Majeure has been continuing during more than sixty (60) days;

- (c) the other Party had passed a resolution for winding-up or liquidation (other than in order to amalgamate or reconstruct);
- (d) breach by the Service Provider of the confidentiality undertakings contained in Section X;
- (e) the other Party is unable to pay its debts and has presented a petition for voluntary bankruptcy;
- (f) the other Party had a bankruptcy order issued against it;
- (g) the other Party has a provisional receiver or administrative receiver appointed over the whole or a substantial part of its undertaking or assets;
- (h) liquidation proceedings have been initiated with respect to the other Party or the other Party is declared insolvent;
- (i) the making by the other Party of a proposal for a voluntary arrangement with creditors; or
- (j) the occurrence of any event analogous to the events enumerated under Clauses 8.4 (e) – (i) under the law of any jurisdiction to which the other **Party's assets and undertaking are subject**.

8.4.A **Principal's Right to Terminate Immediately.** The Principal may terminate this Agreement immediately upon giving the other Party a written notice of termination explaining, in reasonable detail, the reason for termination, if the Principal does not sign the Contract No 2016-EU-TMC-0116-M with the European Commission. In such a case, the Principal shall pay the Contractor the fees in respect of the services provided under this Agreement up to the date of the notification of the termination of this Agreement and the Principal is not obliged to pay contractual or any other penalty or damages to the Contractor.

8.5. **Right to Advance to Completion.** In the event the Service Provider fails to fulfil any of its obligations, or fails to cure any breach in accordance with Clause 8.2., and the Agreement is terminated by the Principal, the Principal may advance the Service to completion by employing the services of other professional service supplier(s) or by other means available to the Principal. The Service Provider shall be liable to the Principal for any and all additional costs incurred due to failure by the Service Provider to perform. The rights and remedies available to the Principal set forth in accordance with this Clause 8.5 shall be in addition to any and all other rights and remedies available under Applicable Law.

8.6. **Consequences of Termination.** Upon expiration or termination of this Agreement, the obligations of the Parties set forth in this Agreement shall cease, except with respect to the following:

- (a) any obligations arising as a result of any antecedent breach of this Agreement or any accrued rights; and
- (b) the provisions stipulated in accordance with Clauses 3.3, 7.3, 8.7, 9.6, 9.7, 9.8, 9.9, 9.11, 9.12, 15.5, 15.7, 15.8, 15.9, 17.1, 17.3, 17.5, 17.6, 17.7, and Sections X, XII, XIV and XVIII which shall survive the termination or expiry of this Agreement and continue in full force and effect along with any other Clauses of or Annexes hereof which are necessary to give effect to the clauses specifically identified in this Clause 8.6(b).

8.7. **Partial Acceptance.** Notwithstanding anything in this Agreement to the contrary including, without limitation, the provisions of Clauses 7.5, 7.6 and 7.7 and in the event of termination of this Agreement, the Principal shall have the right, in the sole discretion of the Principal, to partially accept any Works, part of Works or part of the **Service delivered to the Principal under this Agreement (hereinafter, the "Right of Partial Acceptance")**. The Principal shall notify the Service Provider of its intention to exercise the Right of Partial Acceptance in the termination notice given in accordance with Clause 8.1, Clause 8.4 or Clause 8.4 A of this Agreement, specifying, in reasonable detail, the Works, part of Works or part of the Service which the Principal would like to partially accept. In the event of receipt of such notice, the Service Provider shall reasonably cooperate with the Principal in order to ascertain transfer to the Principal of ownership in the result(s) of such Works, part of Works or part of the Service and determination of the amount of consideration payable by the Principal.

8.8. **Principal's Obligation to Pay.** Subject to the provisions of Clause 8.7 and except in the event of termination by the Principal occurring as a result of violation by the Service Provider of Clause 15.7, in the event this Agreement is terminated for any reason prior to completion of the Service, the Principal shall have an obligation to pay the Service Provider the following:

- (a) the Costs incurred by the Service Provider up to the date of termination; and
- (b) except where termination is due to negligence of the Service Provider, breach by the Service Provider, insolvency of the Service Provider or a Force Majeure Event under Section XI:
 - (i) an amount equal to the costs reasonably and properly incurred by the Service Provider as a result of or in connection with such termination; and

- (ii) such additional amount as is required to put the Service Provider in the same after tax position (taking into account the amount of any relief, allowance, deduction, set-off or credit relating to tax available to the Service Provider in respect of the payment received) as it would have been in if the payment had not been a taxable receipt in the hands of the Service Provider.
- 8.9. *No Obligation to Pay Costs Incurred Prior to Acceptance.* Notwithstanding anything set forth in this Agreement to the contrary including, without limitation, in accordance with Clause 8.7, the Principal shall have no obligation to pay any of the Costs incurred by the Service Provider with respect to any Works or the Service (or part of any Works or the Service) not deemed as having been accepted by the Principal in accordance with Clauses 7.5, 7.6 or 7.7 of this Agreement.
- 8.10. *No Prejudice to Other Rights.* The right to terminate this Agreement shall be without prejudice to any other right of either Party which has accrued prior to or as a result of such termination or to any remedy available to either Party under the terms of this Agreement or in accordance with Applicable Law.

Section IX. INTELLECTUAL PROPERTY RIGHTS

- 9.1. *Principal as Sole Proprietor.* All Documentation forming part of the Deliverables developed under this Agreement is and shall become the property of the Principal regardless of whether the Service or Deliverable is produced or finally accepted. It is acknowledged and agreed by the Parties that the Principal is permitted to reproduce the drawings and distribute the prints in connection with the use or disposition of the Documentation without incurring obligation to pay any royalties or additional compensation whatsoever to the Service Provider.
- 9.2. *Intellectual Property in Documentation.* The Service Provider represents and warrants that it owns all Intellectual Property in all Documentation deliverable by or on behalf of the Service Provider under this Agreement and that, to the extent any Intellectual Property in any Documentation is not owned by the Service Provider, it has obtained all requisite consents from owner(s) of all Intellectual Property in the Documentation to fulfil all of the obligations undertaken by the Service Provider under this Agreement and has fully discharged all obligations with respect to payment of any royalties or fees.
- 9.3. *Transfer of Ownership to Principal.* The Principal shall acquire legal title to and ownership in the Intellectual Property in all Documentation deliverable to the Principal under this Agreement as of the moment of delivery by the Service Provider to the Principal of the Provisional Completion Certificate, together with the Deliverable and Documentation forming part of the Deliverable, in accordance with Clause 7.4 of this Agreement; provided, however, that the Principal has paid the Service Fee or other consideration payable under the terms of this Agreement with respect to the relevant part of the Service or Deliverable. For the avoidance of any doubt, such title and ownership shall confer upon the Principal, without limitation, each of the following:
 - (a) the right to reproduce the Documentation, or any part thereof, and distribute copies of the Documentation or any part thereof;
 - (b) the right to modify, amend and supplement the Documentation, or any part thereof;
 - (c) the right to licence the Documentation, or any part thereof, for use by others; and
 - (d) the right to transfer ownership in the Documentation, or any part thereof, to others.
- 9.4. *Grant of Limited License to Service Provider.* Upon acceptance by the Principal of any Deliverable and Documentation forming part of any Deliverable in accordance with Clause 7.4, the Principal shall be deemed to have granted the Service Provider an irrevocable and exclusive licence to reproduce, modify and distribute copies of any Documentation forming part of any Deliverable for the purposes of the Service and the Project, subject to the following restrictions:
 - (a) the license shall apply during the term of this Agreement only;
 - (b) the permitted use shall only cover the right to reproduce, modify and distribute the Documentation, or any part thereof, for the purposes of performing, implementing or modifying the Service; and
 - (c) the Documentation, or any part thereof, shall not, without the prior consent by the Principal, be distributed or communicated to any third party for purposes other than those permitted in accordance with this Clause 9.4.

The license in accordance with this Clause 9.4 shall be deemed to have been granted to the Service Provider as of the Completion Date.

- 9.5. *No Additional Royalty.* It is acknowledged and agreed by the Parties that consideration for the transfer of ownership in the Intellectual Property shall be forming part of Service Fee and no additional royalty, fee or other consideration of any kind shall be payable by the Principal to the Service Provider or any third party in consideration of the transfer of ownership in the Intellectual Property in any Documentation.
- 9.6. *No Infringement.* The Service Provider represents and warrants to the Principal that no Documentation deliverable to the Principal under the terms of this Agreement will infringe any existing Intellectual Property of any third party. In the event any of the representations or warranties contained in this Section IX prove to be untrue or inaccurate, the Service Provider undertakes, at its own cost and expense, to defend and settle any claim raised by any third party alleging infringement of Intellectual Property in the Documentation. The foregoing undertaking by the Service Provider shall apply subject to the following conditions:
- (a) the Principal shall notify the Service Provider, without undue delay, of any third party claim alleging infringement of any Intellectual Property in any Documentation;
 - (b) the Principal refrains from admitting liability under any third party claim or acting on the account of such claim without prior approval by the Service Provider; and
 - (c) the exclusive control over any legal proceeding or settlement related any third party claim shall be exercised by the Service Provider; provided, however, that the Principal shall render the Service Provider all reasonable assistance toward such proceeding or settlement, at the cost and expense of the Service Provider.
- 9.7. *Infringement Proceedings.* In the event the Principal is a party to legal proceedings involving allegations of infringement of any Intellectual Property in the Documentation of any third party, the Service Provider shall keep the Principal fully informed of all aspects relevant to the legal proceedings and the Principal shall have the right, at its own cost, to be represented in the legal proceedings by separate counsel. In the event the Service Provider fails to act against claims alleging infringement of any Intellectual Property in the Documentation of any third party within reasonable time but, in any event, within twenty (20) days of having been notified of such claims, the Principal shall have the right to assume legal defence against claims alleging infringement of Intellectual Property and shall be entitled to reimbursement by the Service Provider of reasonable costs and expenses incurred toward such defence.
- 9.8. *Continued Use.* In the event a court of competent jurisdiction resolves in a binding judgment that the Documentation, or any part thereof, infringe Intellectual Property of any third party, the Service Provider shall, at its own cost and expense, procure for the Principal the right of continued use of the Documentation, or part thereof infringing Intellectual Property of a third party.
- 9.9. *License in Intellectual Property of Service Provider.* The Service Provider hereby grants the Principal an irrevocable and non-exclusive license to use, reproduce, modify and/or enhance any Intellectual Property of the Service Provider, provided and to the extent Intellectual Property of the Service Provider is used by the Principal for the purposes of the Railway and/or the Project. It is agreed and acknowledged by the Parties that the license fee for the grant of license in accordance with this Clause 9.9 forms part of Service Fee and such license shall continue to be valid irrespective of expiration of this Agreement following completion of the Service or termination of this Agreement for any reason.
- 9.10. *Obligation to Procure Intellectual Property Rights.* Where the Service Provider is not the legal owner of any relevant Intellectual Property of the Service Provider, the Service Provider shall use reasonable endeavours to procure for the Principal the rights specified in accordance with Clause 9.9.
- 9.11. *Obligation to Indemnify with Respect to Uses Other Than for the Purpose.* The Principal shall defend and indemnify the Service Provider from and against any and all Damages arising from the use by the Principal of any Intellectual Property of the Service Provider other than for the purposes of the Railway and/or the Project.
- 9.12. *Indemnification by the Service Provider.* The Service Provider shall defend and indemnify the Principal from and against any and all Damages arising from the use by the Principal of any Intellectual Property of the Service Provider, to the extent use by the Principal is within the scope of the license granted to the Principal in accordance with Clause 9.9.

Section X. CONFIDENTIALITY

- 10.1. *Confidential Information.* "Confidential Information" means in relation to the Principal all information of a confidential nature relating to the Principal and its Affiliates which is supplied by the Principal (whether before or after the Effective Date) to the Service Provider, either in writing, orally or in any other form and includes all analyses, compilations, notes, studies, computer files, memoranda and other documents which contain or otherwise reflect or are derived from such information, but excludes information which:
- (a) the Principal confirms in writing is not required to be treated as confidential; or
 - (b) the Service Provider can show that the Confidential Information was in its possession or known to it (by being in its use or being recorded in its files or computers or other recording media) prior to receipt from the Principal and was not previously acquired by the Service Provider from the Principal under an obligation of confidence; or
 - (c) was developed by or for the Service Provider at any time independently of this Agreement.
- 10.2. *Undertakings with Respect to Confidential Information.* Subject to the provisions of Clauses 10.1 and 10.3, the Service Provider shall:
- (a) at all times keep confidential all Confidential Information received by it and shall not disclose such Confidential Information to any other Person; and
 - (b) procure that its Affiliates and the respective officers of the Service Provider and its Affiliates as well as their employees and agents shall keep confidential and not disclose to any Person any Confidential Information, except with the prior written consent of the Party to which such Confidential Information relates.
- 10.3. *Permitted Disclosures.* Notwithstanding anything to the contrary set forth in accordance with Clauses 10.1 and 10.2, the Service Provider shall, without the prior written consent of the Principal, be entitled to disclose Confidential Information:
- (a) that is reasonably required by the Service Provider in the performance of its obligations pursuant to this Agreement, including the disclosure of any Confidential Information to any employee, contractor, agent, officer, sub-contractor (of any tier) or adviser to the extent necessary to enable the Service Provider to perform its obligations under this Agreement;
 - (b) to enable a determination to be made pursuant to Section XIX;
 - (c) to its lenders or their professional advisers, any rating agencies, or its insurance advisers but only to the extent reasonably necessary to enable a decision to be taken on the proposal;
 - (d) to the extent required by Applicable Law or pursuant to an order of any court of competent jurisdiction, any parliamentary obligation or the rules of any stock exchange or governmental or regulatory authority having the force of law;
 - (e) to register or record any Necessary Consents and to effect any property registration that may be required;
 - (f) in order to fulfil its license obligations or assist in the planning or execution of other maintenance, renewal or enhancement projects; or
 - (g) to the extent Confidential Information has become available to the public other than as a result of any breach of an obligation of confidence; provided that any such disclosure is made in good faith.
- 10.4. *Obligation of Confidentiality Pertinent to Recipients of Confidential Information.* Whenever disclosure is permitted to be made pursuant to Clause 10.3, the Service Provider shall require that the recipient of Confidential Information be subject to the same obligation of confidentiality as that contained in this Agreement.
- 10.5. *Certain Obligations on Termination of Agreement.* If this Agreement is terminated for whatsoever reason, the Service Provider shall have an obligation to do all of the following:

- (a) return to the Principal all of the Confidential Information then within the possession or control of the Service Provider; or
 - (b) destroy such Confidential Information using a secure and confidential method of destruction.
- 10.6. *No Press Release by Service Provider.* Save as required by Applicable Law, the Service Provider shall not issue any press release in relation to the matters contemplated under this Agreement without the prior written consent of the Principal (such not to be unreasonably withheld or delayed) as to both the content and the timing of the issue of the press release.
- 10.7. *Right to Publish.* For the avoidance of doubt, the Principal and any of the Beneficiaries and Implementing Bodies shall have the right to publish any of the documents, information or data provided by the Service Provider to the Principal during provision of the Service.
- 10.8. *Remedies.* The Parties acknowledge and agree that a breach of the provisions of this Section X may cause the owner of Confidential Information to suffer irreparable damage that could not be adequately remedied by an action at law. Accordingly, the Service Provider agrees that the owner of Confidential Information that is disclosed in breach of Clauses 10.2, 10.4 or 10.6 may be entitled to specific performance of those provisions to enjoin a breach or attempted breach thereof and to any other remedy, including, inter alia, damages and injunctive relief, awarded by a court of competent jurisdiction.

Section XI. FORCE MAJEURE

- 11.1. *Effects of Force Majeure.* Subject to the requirements set forth in accordance with Clauses 11.2 and 11.3, each Party shall be relieved from liability for nonperformance of its obligations under this Agreement (other than any obligation to pay) to the extent that the Party is not able to perform such obligations due to a Force Majeure Event.
- 11.2. *Action Upon Becoming Aware of Force Majeure.* Each Party shall at all times, following the occurrence of a Force Majeure Event:
 - (a) take reasonable steps to prevent and mitigate the consequences of such an event upon the performance of its obligations under this Agreement;
 - (b) resume performance of its obligations affected by the Force Majeure Event as soon as practicable and use reasonable endeavours in accordance with Good Industry Practice to remedy its failure to perform; and
 - (c) not be relieved from liability under this Agreement to the extent that it is not able to perform, or has not in fact performed, its obligations under this Agreement due to any failure to comply with its obligations under Clause 11.1.
- 11.3. *Notification Requirements.* Upon the occurrence of a Force Majeure Event, the affected Party shall notify the other Party as soon as reasonably practicable and in any event within three (3) Working Days of it becoming aware of the relevant Force Majeure Event. Such notification shall give sufficient details to identify the particular event claimed to be a Force Majeure Event and shall contain detailed information relating to the failure to perform (or delay in performing), including the date of occurrence of the Force Majeure Event, the effect of the Force Majeure Event on the ability of the affected Party to perform, the action being taken in accordance with Clause 11.2 and an estimate of the period of time required to overcome the Force Majeure Event. The affected Party shall provide the other Party with any further information it receives or becomes aware of which relates to the Force Majeure Event and provide an update on the estimate of the period of time required to overcome its effects.
- 11.4. *Notification of Resumed Performance.* The affected Party shall notify the other Party as soon as practicable once the performance of its affected obligations can be resumed (performance to continue on the terms existing immediately prior to the occurrence of the Force Majeure Event).
- 11.5. *Mitigation of Effects of Force Majeure.* As soon as practicable after the notification specified pursuant to Clause 11.3, the Parties shall use reasonable endeavours to agree appropriate terms or modifications to the Scope of Service and Service Schedule to mitigate the effects of the Force Majeure Event and to facilitate the continued performance of this Agreement.

Section XII. RIGHT TO AUDIT

- 12.1. *Right to Audit.* Notwithstanding anything to the contrary set forth in this Agreement including, without limitation, the rights and obligations of the Parties stipulated in accordance with Section VI, the Principal itself, a reputable outside independent body or expert engaged and authorized by the Principal shall be entitled to inspect and/or audit the Service Provider to ensure compliance with the terms of this Agreement, including inspecting and/or auditing:
- (a) the performance of any aspect of the Service; and/or
 - (b) any documentation, including all payrolls, accounts of the Service Provider and/or other records used in or related to the performance of the Services.
- 12.2. *Obligation to Assist.* The Service Provider shall provide all reasonable assistance to the Principal or the independent body authorized by the Principal in carrying out any inspection or audit pursuant to this Section XII. The Principal shall be responsible for its own costs, or the costs incurred by the outside independent body designated by the Principal, incurred toward carrying out such inspection or audit, unless, in the case of any such audit, that audit reveals that the Service Provider is not compliant with the terms of this Agreement, in which case the Service Provider shall reimburse the Principal for all of its additional reasonable costs incurred, provided such non-compliance is material.
- 12.3. *Survival of Termination.* The rights and obligations of the Parties set forth in accordance with this Section XII shall survive expiration or termination of this Agreement for any reason and shall continue to apply during ten (10) years following expiration or termination of this Agreement.

SECTION XIII. ON-THE-SPOT VISITS

- 13.1. *Right to perform On-the-Spot visits.* By submitting a written notice five (5) Working Days in advance, but at the same time reserving the right of an unannounced on-the-spot visit without an advance notice, the Principal may carry out on-the-spot visits to the sites and premises where the activities implemented within the Agreement are or were carried out.
- 13.2. *Personnel involved.* On-the-spot visits may be carried out either directly by authorised staff or representatives of the Principal or by any other outside body or third party authorised to do so on behalf of the Principal. Information provided and collected in the framework of on-the-spot visits shall be treated on confidential basis. The Principal shall ensure that any authorised outside body or third party shall be bound by the same confidentiality obligations.
- 13.3. *Access to the information.* Service Provider shall provide to the performer of the on-the-spot visit or any other authorised outside body or third party access to all the information and documents, including information and documents in electronic format, which is requested by the authorised staff of the performer of the on-the-spot visit or any other authorised outside body or third party for the performance of an on-the-spot visit and which relates to the implementation of the Agreement, as well as shall allow the authorised staff of the performer of the on-the-spot visit or any other authorised outside body or third party the copying of the information and documents, with due respect to the confidentiality obligation.
- 13.4. *OLAF checks and inspections.* By virtue of Council Regulation (Euratom, EC) No 2185/961 of 11 November 1996 concerning on-the-spot checks and inspections carried out by the Commission in order to protect the European Communities' financial interests against fraud and other irregularities and Regulation (EU) No 883/20132 of the European Parliament and the Council of 11 September 2013 concerning investigations conducted by the European Anti-Fraud Office (OLAF), OLAF may also carry out on-the-spot checks and inspections in accordance with the procedures laid down by European Union law for the protection of the financial interests of the European Union against fraud and other irregularities. Where appropriate, OLAF findings may lead to criminal prosecution under national law.

Section XIV. NOTICES AND COMMUNICATION

- 14.1. *Notices.* All notices and other communications made or required to be given pursuant to this Agreement shall be in writing and shall be deemed given if delivered personally or by facsimile transmission (if receipt is confirmed by the facsimile operator of the recipient), or delivered by overnight courier service, or mailed by registered or certified mail (return receipt requested), postage prepaid, to the Parties at the following addresses (or at such other address for a Party as shall be specified by like notice):

- (a) to the Principal: RB Rail AS
Kr. Valdemāra iela 8-7, Rīga, LV-1010
Latvija
- (b) to the Service Provider: AECOM INOCSA SL
Calle Alfonso XII 62, Madrid 28014
Spain

14.2. *Changes in Address.* Either Party shall be entitled to change its address for purposes of this Section XIV by notice to the other Party. A notice of a change of address shall be effective only upon receipt thereof.

Section XV. MISCELLANEOUS PROVISIONS

- 15.1. *Capacity.* Each Party warrants to the other Party that it has full power and authority to enter into and perform this Agreement, and the person signing this Agreement on its behalf has been duly authorized and empowered to enter into such agreement. Each Party further acknowledges that it has read this Agreement, understands it and agrees to be bound by it.
- 15.2. *Changes in Legislation.* If, after the Effective Date, the Costs or duration of the Service is altered as a result of changes in or additions to the regulations in any country in which the Service is to be performed, the agreed Service Fee and time for completion shall be adjusted accordingly.
- 15.3. *Independent Contractors.* Nothing in this Agreement shall create a partnership, association or joint venture or establish a relationship of principal and agent between the Parties. Neither Party shall have any authority (unless expressly conferred in writing by virtue of this Agreement or otherwise and not revoked) to bind the other Party as its agent or otherwise.
- 15.4. *Assignability.* The Service Provider shall not without the prior written consent of the Principal assign any of the rights or benefits from the Agreement, provided that the consent by the Principal shall not be unreasonably withheld or delayed. Neither Party shall assign any of the obligations under the Agreement without the prior written consent of the other Party; provided, however, that the Principal shall be entitled, at any time, to assign any of the rights under this Agreement to any of the Beneficiaries or Implementing Bodies without consent of the Service Provider.
- 15.5. *Severability.* If any provision of this Agreement shall be held to be illegal, invalid, void or unenforceable under Applicable Laws of any jurisdiction, the legality, validity and enforceability of the remainder of this Agreement in that jurisdiction shall not be affected, and the legality, validity and enforceability of the whole of this Agreement shall not be affected in any other jurisdiction.
- 15.6. *Waivers.* No waiver by either Party of any default by the other Party in the performance of any of the provisions of this Agreement shall operate or be construed as a waiver of any other or further default, irrespective of the character of such default. No failure or delay by either Party in exercising any of its rights, power or privileges under this Agreement shall operate as a waiver thereof, nor shall any single or partial exercise by that Party of any right, power or privilege preclude any further exercise thereof or the exercise of any other right, power or privilege.
- 15.7. *Conflict of Interest, Corruption and Fraud.* Notwithstanding any penalties that may be enforced against the Service Provider under Applicable Law of the country of the project, or of other jurisdictions, the Principal will be entitled to terminate the Agreement in accordance with Clause 8.4 and the Service Provider shall be deemed to have breached Clause 3.13 of the Agreement, if it is shown that the Service Provider is guilty of:
 - (a) offering, giving, receiving or soliciting anything of value with a view to influencing the behaviour or action of anyone, whether a public official or otherwise, directly or indirectly in the selection process or in the conduct of the Agreement; or
 - (b) misrepresentation of facts in order to influence a selection process or the execution of a contract to the detriment of the Principal, including the use of collusive practices intended to stifle or reduce the benefits of free and open competition.
- 15.8. *Entire Agreement.* This Agreement, and all of the Annexes A to L hereto, constitute the entire agreement between the Parties relating to the subject matter hereof and supersedes and extinguishes all and any prior and

contemporaneous drafts, undertakings, representations, warranties and arrangements of any nature, whether in writing or oral, relating to such subject matter. Each Party acknowledges that it has not been induced to enter into this Agreement by any representation, warranty or undertaking not expressly incorporated herein.

- 15.9. *Amendments and Variations.* No amendment to or variation of this Agreement shall be effective unless made in writing and signed by duly authorized representatives of both Parties. The Agreement can be amended in compliance with the provisions of Article 61 of the Public Procurement Law of the Republic of Latvia, including but not limited to the provisions of point 5 of Section 2 of Article 61.
- 15.10. *Execution.* This Agreement may be executed in two counterparts which, taken together, shall constitute one and the same instrument.

SPECIAL CONDITIONS

Section XVI. PAYMENT

- 16.1. *Service Fee.* In consideration of the Service performed pursuant to this Agreement, the Principal shall pay the Service Provider a remuneration in the total amount set forth in Annex D (*Service Schedule and Rates*) **(hereinafter, "Service Fee") which shall be split and paid after completion of particular Milestone** and handing over of the relevant Deliverable as stipulated in Annex D and after Deliverable is confirmed by the Principal and the Service Provider by signing the acceptance act. It is acknowledged and agreed by the Parties that Service Fee shall include all Costs and expenses, incurred by the Service Provider and Approved Sub-Contractors toward carrying out the Service. For the avoidance of any doubt, Service Fee specified in accordance with this Clause 16.1 shall exclude value added tax that will be charged at the rate applicable in accordance with Applicable Law at the time of invoicing.
- 16.2. *Invoicing.* Following Completion Date for appropriate part of Service (Work package (WP) 1, WP 2 and WP 3), the Service Provider shall deliver to the Principal an invoice containing a reasonably detailed breakdown and any supporting information in respect of Costs incurred by the Service Provider during the respective period of the Service. In the event the Principal objects to payment of any amount claimed by the Service Provider in the invoice, notice to this effect shall be given by the Principal to the Service Provider not later than seven (7) Working Days before the due date for payment under this Clause 16.2. The notice of objection shall state the amount to be withheld, the grounds for withholding the payment and the basis on which that amount is calculated. Unless such notice of objection has been made by the Principal, the amount to be paid is that stated in the invoice which shall become due and payable in accordance with this Clause 16.2. For the avoidance of any doubt, the Principal shall not be required to pay any amount under this Agreement with respect to any part of the Service that has not been accepted by the Principal in accordance with Clauses 7.4, 7.5 or 7.6 of this Agreement.
- 16.3. *Payment.* Subject to the provisions of Clause 16.1., all payments by the Principal to the Service Provider shall be made without set-off, retention, counterclaim, abatement or other deduction of any kind and shall be paid thirty (30) Working Days after the date of issue of the invoice. For the avoidance of any doubt, the Principal shall not be required to pay any amount with respect to any invoice in the absence of a Provisional Completion Certificate duly signed by the Principal or, with respect to the final payment of Service Fee to be effected under this Agreement, the Final Acceptance Certificate duly signed by both Parties. All payments by the Principal shall be deemed as having been completed on the date of transfer of funds to the bank account of the Service Provider specified in the invoice.
- 16.4. *Costs and Commissions.* Each Party shall bear its own costs, fees, commissions and expenses incurred in connection with the transfer of any funds under this Agreement to the other Party.
- 16.5. *Compliance with Tax Obligations in Spain.* It is acknowledged and agreed by the Parties that the amount of the Service Fee shall include all taxes and duties payable by the Service Provider in the consequence of provision of the Service. The Service Provider shall, at the sole cost and expense of the Service Provider, comply with the obligation to pay all taxes and duties relevant to provision of the Service in Spain and in accordance with Applicable Law. In addition, the Service Provider shall assume all risks associated with the payment or obligation to pay such taxes and duties, if any. The Service Provider assumes all risks associated with the possible increase in the amount of the Service Fee arising as a result of the obligation of having to pay any such taxes or duties.
- 16.6. *Invoice.* The Service Provider's invoices shall contain the following The Service Provider's details and details about the Agreement:

Service Provider	AECOM INOCSA SL
Registration No	B82280785
VAT payer's No or and indication that The Service provider is not a VAT payer	B82280785
Address (street, house, area, country, postcode)	Calle Alfonso XII 62, Madrid 28014 MADRID, Spain
Name of Bank (legal name)	
Bank SWIFT Code	
Bank IBAN Account No	
Subject:	For provideing services according to the Agreement on Development of detailed BIM Strategy for Rail Baltica railway No 8/2018-28 (CEF Contract No INEA/CEF/TRAN/ M2016/1360716 Acitivity No 1.1.7), Activity manager Raitis Bušmanis

- 16.7. The Service provider shall send the invoice to the Principal electronically to the following e-mail address: invoices@railbaltica.org. The Principal shall review the invoice to verify whether it contains all necessary requisites.

Section XVII. LIABILITY

- 17.1. *Liability of the Parties.* The Service Provider shall be liable to compensate Damages incurred by the Principal arising out of or in connection with this Agreement and pay contractual penalty set forth in accordance with Clause 17.2 if a breach of any of the obligations of the Service Provider under this Agreement is established against the Service Provider. The Principal shall be liable to pay the contractual penalty set forth in accordance with Clause 17.2 if a breach of payment obligations of the Principal under this Agreement is established against the Principal.
- 17.2. *Contractual Penalty.* In the event of failure by the Service Provider to meet any Service Milestone and/or supply any Deliverable, the Service Provider shall be liable to pay to the Principal a penalty of zero point zero one percent (0.01%) of the amount of Service Fee payable under this Agreement with respect to the relevant Service period for each day of delay with meeting any of the Service Milestones and/or supplying any of the Deliverables set forth in accordance with Annex D (*Service Schedule and Rates*); provided, however, that the total amount of penalty payable by the Service Provider under this Clause 17.2 for the relevant Works, as specified according to Annex D (*Service Schedule and Rates*) shall not exceed ten percent (10%) of the total amount of Service Fee payable in consideration of such Works. In the event of failure by the Principal to pay any amount in accordance with Clause 16.5., the Principal shall be liable to pay to the Service Provider a penalty of zero point zero one percent (0.01%) of the amount of the amount invoiced for each day of delay with meeting the payment obligation; provided, however, that the total amount of penalty payable by the Principal under this Clause 17.2 shall not exceed ten percent (10%) of the total amount remaining unpaid under the relevant invoice.
- 17.3. *Compensation for Damages.* Notwithstanding of and without prejudice to any contractual penalty payable in accordance with Clause 17.2 and subject to the provisions of Clause 17.5, in the event it is established that either Party is liable to the other Party with respect to any breach of its respective obligations under this Agreement, the liable Party shall compensate the other Party for any Damages incurred as a result of such breach, subject to the following terms:
- (a) the amount of compensation shall be limited to the amount of reasonably foreseeable Damages suffered as a result of the breach(es), but not otherwise;

- (b) in any event, the amount of compensation shall be limited to the amount specified in accordance with Clause 17.6;
 - (c) if either Party is considered to be liable jointly with third parties to the other, the proportion of compensation payable by the liable Party shall be limited to that proportion of liability which is attributable to the breach by the liable Party.
- 17.4. *Attribution of Damages.* Any Damages suffered by either Party shall, for the purposes of Clause 17.3, be **reduced to the extent that the Damages are caused by or contributed to by the other Party's own negligence** or breach of its obligations under this Agreement.
- 17.5. *Limitation of Liability.* Notwithstanding anything to the contrary set forth in this Agreement, in no circumstances shall the Service Provider or the Principal be liable to one another for any loss of production, loss of profit, loss of revenue, loss of contract, liability incurred under other agreements (with the exception of costs paid by the Principal to contractors appointed by the Principal in relation to the Service or the Project) or any indirect or consequential loss arising out of or in connection with this Agreement.
- 17.6. *Liability Cap.* Subject to the provisions of Clause 17.7, the maximum aggregate liability of each Party to the other Party for any reason arising under, or in connection with, this Agreement or the Project including but not limited to breach of agreement, or for breach of Applicable Law shall not exceed an amount equal to EUR 200 000. Notwithstanding the above limitation, where, in respect of the same event, a Party recovers any amount of money under an insurance policy, it shall pay such amounts to the other Party. Each Party shall use reasonable endeavours to make such recovery under any insurance policy (which shall include an obligation to make and diligently pursue a claim but shall not include an obligation upon the Party to take legal action).
- 17.7. *Non-Applicability of Liability Cap.* The provisions of Clause 17.6 shall not apply to Damages incurred by either Party as a result of:
 - (a) any liability in respect of death or personal injury resulting from a negligent act or omission or breach of statutory duty by the liable Party or any employee of the liable Party;
 - (b) the fraud, fraudulent misrepresentation, reckless misconduct or gross negligence of the liable Party or, in the case of the Service Provider, any Approved Sub-Contractor of the Service Provider; and/or
 - (c) infringement of any Intellectual Property of a third party.

Section XVIII. GOVERNING LAW AND RESOLUTION OF DISPUTES

- 18.1. *Governing Law.* This Agreement shall be governed by and construed in accordance with the law of the Republic of Latvia.
- 18.2. *Resolution by Amicable Means.* The Parties shall first attempt to settle any dispute, controversy or claim arising out of or relating to this Agreement by way of amicable negotiations.
- 18.3. *Venue for Resolution of Disputes.* Should the Parties fail to agree by means of amicable negotiations within the time period of thirty (30) days from the date of serving of the respective written complaint to the other Party, the Parties shall submit all their disputes arising out of or in connection with this Agreement to the exclusive jurisdiction of the courts of the Republic of Latvia. The Parties hereby represent and warrant that the English language is understandable for both Parties in accordance with Article 8(1)(a) of the Regulation (EC) No 1393/2007 of the European Parliament and of the Council of 13 November 2007 on the service in the Member States of judicial and extrajudicial documents in civil or commercial matters (service of documents), and repealing Council Regulation (EC) No 1348/2000.

Signed by:

For and on behalf of the Principal:

Baiba Anda Rubesa,

Chairperson of the Management Board

Kaspars Rokens,

Member of the Management Board

Signed by:

For and on behalf of the Service Provider:

Arnis Braiens Kākulis

Authorized person

Annex A: DEFINITIONS AND COMMON TERMS

The following capitalized terms shall be ascribed the following meaning for the purposes of the Agreement:

- (a) **"Affiliate", in relation to any company:**
 - (i) a company which is either a holding company or a subsidiary of such company; or
 - (ii) a company which is a subsidiary of a holding company of which such company is also a subsidiary.
- (b) **"Agreement", this Agreement** between the Parties, together with all Annexes thereto.
- (c) **"Alteration", any material change to the Scope of Service, Service Schedule or Service Milestone** which is not the result of the ordinary process of developing the scope and detail of the Project.
- (d) **"Alteration Request", as defined in accordance with Clause 2.3** of the Agreement.
- (e) **"Applicable Law" or "Law", any legislative act, regulation, decree, order, ordinance, statute, treaty, directive, judgment, or other legislative measure.** For the avoidance of any doubt, the term **"Applicable Law" shall include any legislative act or directive relevant to public procurement.**
- (f) **"Approved Sub-Contractor", any person or organization listed pursuant to Annex F (*List of Approved Sub-Contractors*),** which is in a contractual relationship with the Service Provider to provide a part of the Service.
- (g) **"Beneficiary/Beneficiaries", any of the following bodies:**
 - (i) the Ministry of Economic Affairs and Communications of the Republic of Estonia;
 - (ii) the Ministry of Transport of the Republic of Latvia; and
 - (iii) The Ministry of Transport and Communications of the Republic of Lithuania.
- (h) **"Change in Standards", the coming into effect** of a CEF Standard and Grant Agreement Standard or of any amendment thereto, or of a Service Provider Standard or of any amendment thereto, with which the Service Provider is obliged to comply.
- (i) **"Completion Date", as defined in accordance with Clause 7.5 or 7.6,** as appropriate.
- (j) **"Confidential Information", as defined in accordance with Clause 10.1** of the Agreement.
- (k) **"Costs", direct costs reasonably incurred in relation to the Project or any act or series of acts required** under the Agreement. Specifically, Costs shall include any of the following:
 - (i) costs of all materials and supplies forming part of the Service, including transportation and storage expenses (discounts for cash or prompt payments will not reduce these costs);
 - (ii) salaries for personnel in the direct employ of the Service Provider in the performance of the Service or relating to the Service;
 - (iii) **salaries of the Service Provider's employees for the time that they spend in connection with the Service;**
 - (iv) payments to Sub-Contractors for work relating to the Service;
 - (v) costs of all employee benefits and taxes for items such as social security and other benefits for the labor and employees;
 - (vi) costs, including transportation and maintenance, of equipment and hand tools not owned by workmen employed by the Service Provider which are employed or consumed toward the Service;
 - (vii) payments for rental charges for machinery, equipment, facilities and tools used in connection with the Service, and payments for installations, repairs, replacements, dismantling, removal, lubrication, transportation and delivery of those rental items;

- (viii) other transportation costs incurred in connection with the Service;
 - (ix) that portion attributable to this Agreement of premiums for insurance that is required by this Agreement or by law to be obtained or maintained by the Service Provider;
 - (x) sales, use, gross receipts or other taxes related to the Service, imposed by any governmental authority, to the extent that the Service Provider is responsible for such taxes;
 - (xi) fees payable with respect to any Necessary Consents, permit fees, licenses or tests that the Service Provider is required to obtain or reasonably obtains to carry out the Service;
 - (xii) costs of long-distance telephone calls, telephone service at the site and postage relating to the Service;
 - (xiii) costs associated with any Alteration as to which the Service Provider is entitled to payment hereunder;
 - (xiv) costs of any data processing services used in connection with the performance of the work required under this Agreement; and
 - (xv) losses and expenses, not compensated by insurance, sustained by the Service Provider in connection with the work under this Agreement, provided they resulted from causes other than the fault or neglect of the Service Provider.
- (l) **"Cure Period", as defined in accordance with Clause 7.3.**
 - (m) **"Corrective Period", as defined in accordance with Clause 8.2**
 - (n) **"Damages", any claim, damage, demand, loss, expense or liability incurred by the relevant Party or Person.**
 - (o) **"Defects Date", a date specified in accordance with Annex D (Service Schedule and Rates) by which date the Principal and Service Provider is obliged to notify each Deficiency in the Service.**
 - (p) **"Deliverables", any information, notes, material, drawings (including drawings in 3D model), records, computer files, documents and/or other items which the Service Provider is required to deliver to the Principal as part of the Service, as further specified pursuant to Annex D (*Service Schedule and Rates*)**
 - (q) **"Documentation", all records, correspondence, and computer files of the Service Provider, its employees, engineers, and consultants pertaining to the Project.**
 - (r) **"Effective Date", as first above specified in the Preamble to this Agreement.**
 - (s) **"Estimated Costs", the estimate of the Services Part I as set out in Annex C (*Scope of Service*), updated from time to time in accordance with this Agreement.**
 - (t) **"EUR" and "euro", the official currency of the eurozone, officially known as the Eurozone.**
 - (u) **"Fee", as defined in accordance with Clause 16.**
 - (v) **"Final Acceptance Date", as defined in accordance with Clause 7.7.**
 - (w) **"Force Majeure Event", any of the following events:**
 - (i) an act of the public enemy or war (declared or undeclared), threat of war, revolution, riot, insurrection, civil commotion, demonstration or sabotage;
 - (ii) an act of vandalism or accidental damage or destruction of machinery, equipment, track or other infrastructure;
 - (iii) a natural disaster or phenomena, including extreme weather or environmental conditions (such as lightning, earthquake, hurricane, storm, fire, flood, drought or accumulation of snow or ice);
 - (iv) nuclear, chemical or biological contamination;

- (v) pressure waves caused by devices travelling at supersonic speeds; and/or
- (vi) strike, lockout or other industrial action other than involving the Service Provider or the Principal.
- (cc) "Good Industry Practice", in relation to the performance of any activity to which this standard is applied, the exercise of that degree of skill, diligence, prudence and foresight as would reasonably be expected to be exercised by a properly qualified and competent person engaged in carrying out works or services of a similar size, nature, scope, type and complexity, complying with Applicable Law, applicable Standards and published codes of practice.
- (dd) "Implementing Body/Implementing Bodies", any of the following bodies:
 - (h) "Rail Baltic Estonia" OU, a company organized and existing under Estonian law;
 - (ii) SIA "Eiropas dzelzceļa līnijas", a company organized and existing under Latvian law;
 - (iii) UAB „Rail Baltica statyba”, a company organized and existing under Lithuanian law.
- (ee) "Intellectual Property", all intellectual property rights in any part of the world in respect of any documentation, data, material or information provided by the Service Provider to the Principal, including any patent, patent application, registered design, registered design application, utility model, discovery, invention, process, formula, specification, copyright (including all neighbouring rights, rights in computer software and database and topography rights), know-how or unregistered design right.
- (ff) "Intellectual Property of Service Provider", all Intellectual Property owned or licensed to the Service Provider with a right to sub-license.
- (gg) "Legal Requirements", any of the following:
 - (i) enactment to the extent that it applies to a Party; and
 - (ii) any interpretation of law, or finding, contained in any judgement given by a court or tribunal of competent jurisdiction with respect to which the period for making an appeal has expired which requires any legal requirement falling within sub-paragraphs (i) or (ii) above to have effect in a way which is different to that in which it previously had effect.
- (hh) "Mandatory Alteration", any Alteration necessitated by:
 - (i) any Specific Change in Law; and/or
 - (ii) any Change in Standards for safety reasons.
- (ii) "Necessary Consents", all approvals, permissions, consents, licenses, certificates, registrations and authorizations (whether statutory or otherwise), which may be required from time to time for the purposes of carrying out the Project.
- (jj) "Objection Notice", as defined in accordance with Clause 7.5.
- (kk) "Party" and "Parties", the Principal and the Service Provider and include the respective successors in title, permitted assigns and permitted transferees of the Parties.
- (ll) "Person" shall include any natural person, company, body corporate, government, state or agency of a state or any association or partnership (whether or not having separate legal personality) or two or more of the foregoing.
- (mm) "Procurement Procedure", as defined in accordance with Recital (B) of the Agreement.
- (nn) "Project", development of a 1,435 mm standard gauge railway line in the Rail Baltica (RB) corridor through Estonia, Latvia and Lithuania aimed at eliminating the technical bottleneck due to the gauge differences (1,520 mm vs. the EU standard of 1,435 mm).
- (oo) "Provisional Acceptance Certificate", as defined in accordance with Clause 7.5
- (pp) "Provisional Completion Certificate", as defined in accordance with Clause 7.5.

- (qq) **"Principal"**, the company RB Rail AS, as further specified in the Preamble of this Agreement, which employs the services of the Service Provider, and legal successors to the Service Provider and permitted assignees of the Service Provider.
- (rr) **"Railway"**, new fast conventional double track electrified railway line with the maximum design speed of 240 km/h and European standard gauge (1,435 mm) on the Route
- (ss) **"Representative"**, the person appointed by each Party in accordance with Clause 5.2 to manage the performance of any work or delivery of any service under this Agreement.
- (tt) **"Right of Partial Acceptance"**, as defined in accordance with Clause 8.7.
- (uu) **"Risk Register"**, a ledger of risks which the Principal or the Service Provider has notified as an early warning matter; it includes a description of the risk and a description of the actions which need to be taken in order to avoid or reduce the risk.
- (vv) **"Service"**, the entirety of Works to be performed by the Service Provider in accordance with the Agreement;
- (ww) **"Service Milestone"**, the date for delivery of one or more Deliverables, as set out in accordance with Annex D (*Service Schedule and Rates*);
- (xx) **"Service Provider"**, the company AECOM INOCSA SL, as further specified in the Preamble of this Agreement, which is employed by the Principal as an independent professional contractor to perform the Service, and legal successors to the Principal and permitted assignees of the Principal.
- (yy) **"Service Provider's Proposal"**, as defined in accordance with Recital (B) of the Agreement.
- (zz) **"Service Start Date"**, as specified in accordance with Annex D (*Service Schedule and Rates*).
- (aaa) **"Standards"**, CEF Standards and Grant Agreement Standards.
- (bbb) **"Survey Works"**, any in-the-field/on-the-spot survey (intrusive or non-intrusive), inspection, examination or testing necessary to ensure any part of the Service.
- (ccc) **"Working Day"**, any day (other than Saturday or Sunday) on which Latvijas Banka (Central Bank of Latvia) is open for conduct of business.
- (ddd) **"Works"**, all works, activities, steps and actions, in any form, performed by the Service Provider under this Agreement for the attainment of the objectives of the Service and/or the Project.

Annex B: PROJECT OBJECTIVES

The Project is a part of the pre-identified, cross-border "Rail Baltica" project connecting the three Baltic States with Central Europe along the North Sea - Baltic Corridor. The aim of the Project is to develop a new, EU gauge double-track electrified railway line to eliminate the technical bottleneck due to the gauge differences (1520 mm vs. EU 1435 mm) matching the requirements of the TSI INF traffic codes P2/F1, as of 2015.

The Project includes technical designs, assessments and studies, land acquisition, project implementation support measures, preliminary construction works, supervision, communication and PR tasks.

The aim of the Project is to implement all the necessary preparatory activities including, without limitations, technical designs, building permits, land acquisition, to commence construction works of the Railway and to prepare for the main construction phases of the Railway line. The activities of the Project are envisaged to be performed on multiple sites in Estonia, Latvia and Lithuania.

The main objectives of the phase of the Project contemplated under the Agreement are the following:

- preparation of the technical design of the track and railway related structures in full compliance with agreed TSI INF traffic codes P2/F1 (design speed of up to 240 km/h for passenger traffic and up to 120 km/h for freight traffic, axle load 22,5 t and length of freight train from 740 m to 1050 m) and the relevant EU and domestic legislations;
- technical consultancy for designs vis-à-vis the technical requirements;
- completion of the Railway route related studies to ensure a successful implementation of the project;
- planning of the land acquisition activities alongside the planned Railway route and land acquisition;
- construction of a new Railway line on Tallinn - EE/LV border, Phase I - embankment and grade-level crossings, to complete the preliminary works for the Railway superstructure;
- construction of Ülemiste and Pärnu passenger terminals, Riga Central Railway junction and related civil structures and Riga International Airport RB passenger station civil structures and junction to complete the preliminary works for the Railway superstructure;
- construction of a Railway connection between Riga Central Station and Riga International Airport;
- construction of a section of the new railway line Kaunas (RRT)- Panevezys - Lithuania/Latvia state border (Phase I, approximately 3 km single track);
- implementation of a communication plan in order to keep stakeholders and the public informed of the progress of the project;
- supervision of works to ensure that the construction is in compliance with technical design; and
- contribution to the implementation of the North Sea-Baltic Core Network Corridor and the development of the EU internal market.

In addition, it is a prerequisite that all compulsory assessments be duly completed and approved by the competent authorities according to Applicable Law and in line with requirements of relevant EU legislation prior to commencement of the physical intervention.

Annex C: SCOPE OF SERVICE (Technical specification)

Rail Baltica

Terms of Reference

for

The Development and Support of a Detailed BIM Strategy

Version P2

Table of Contents

1	<i>Executive Summary</i>	36
2	<i>Introduction</i>	36
2.1	<i>The Requirement</i>	36
2.2	<i>The Deliverables</i>	37
3	<i>Rail Baltica Global Project Background</i>	42
3.1	<i>Rail Baltica Global Project Outline</i>	42
3.1.1	Project Delivery and Contracting Parties	43
4	<i>BIM Strategy Framework</i>	44
4.1	<i>Detailed BIM Strategy Implementation and Support</i>	44
4.2	<i>Strategic Objectives</i>	45
5	<i>Delivery Proposals and Milestones</i>	46
5.1	<i>Delivery Schedule</i>	46
5.2	<i>Project Kick-Off Meeting</i>	46
5.3	<i>Proposals for Working with Rail Baltica BIM Team</i>	46
5.4	<i>Issues, Dependencies and Schedule Constraints</i>	46
6	<i>Detailed Deliverables</i>	47
6.1	<i>Requirements and Impact Analysis</i>	47
6.1.1	Stakeholder Workshops	47
6.1.2	Approval Processes	48
	<i>NOTE - BIM model, data and documents approvals</i>	48
6.1.3	Impact Analysis and Final Detailed BIM Strategy	48
6.2	<i>Language</i>	48
6.3	<i>BIM Timeline Process Development</i>	49
6.4	<i>Information Requirements</i>	49
6.4.1	Asset Information	49
6.4.2	Project Information	50
6.4.3	Level of Information Development	50
6.5	<i>Information Exchange</i>	50
6.6	<i>Exchange Content</i>	51
6.7	<i>Exchange Formats</i>	51
6.7.1	Model exchange Formats	51
6.7.2	Data Exchange Formats and Schema	51
6.7.3	Other File Formats	52
6.8	<i>Common Data Environment (CDE)</i>	52
6.8.1	Roles and Responsibilities	52

6.8.2	CDE Hierarchy Supply Chain to Rail Baltica	53
6.8.3	The CDE Process	53
6.8.4	Rail Baltica CDE	54
6.8.5	Rail Baltica CDE Coordination and Approval Process	55
6.9	<i>BIM Manual</i>	55
6.9.1	BIM Modelling Standards	56
6.9.2	Tables of File Formats.....	56
6.9.3	CAD Standards for Drawings and CAD Models	56
6.10	<i>Support</i>	56
6.11	<i>Technology Design and Procurement</i>	56
6.11.1	Common Data Environment (CDE) System	57
6.11.2	Asset Register	57
6.12	<i>ToR for Technology Procurement</i>	58
	<i>Annex 2.1. – BIM Strategy Framework Document</i>	59

1 Executive Summary

Having developed a BIM Strategy Framework which set out the goals and parameters for the implementation and use of Building Information Management (BIM) on the Rail Baltica Project a “Detailed BIM Strategy” needs to be produced that develops the “BIM Strategy Framework” into detailed plans, standards, processes and technologies. It includes requirements for workshops to capture and analyse of cross project stakeholder needs, detailing of approval processes, detailing of stage by stage information requirement for delivered assets and project management, information exchange standards, information exchange formats, stage by stage information content, the processes and standards for a ‘Common Data Environment’ (CDE), the production of a project BIM Manual, a requirement for ongoing support, training and the design specification for the technologies to support the Project Common Data Environment.

2 Introduction

This document sets out the terms of reference for a project to develop a “Detailed BIM Strategy” for the delivery of the Rail Baltica Global Project based on a previously commissioned “BIM Strategy Framework”. The goals for this are set out in the requirement below.

2.1 The Requirement

Rail Baltica wish to realise the potential benefits of a digital approach to design, construction and operation of the Rail Baltica Project by using Building Information Management (BIM) delivery processes and standards. In order to do this, using the previously developed “BIM Strategy Framework” document (Annex 2.1.) as a base, they require the development of a “Detailed BIM Strategy”, which includes BIM Processes, BIM Standards and the Design of Supporting Technology systems to manage the data throughout the project and create information ready for handover into operational management.

The “Detailed BIM Strategy” support and deliver the results of the designs in accordance with the “Design Guidelines” for Rail Baltica.

2.2 The Deliverables

The “Detailed BIM Strategy” must deliver, but not be limited to the content in the table below.

Headline deliverables for the project are described below and detailed later in the document:

Deliverable		Description	Notes, references
A Requirements and Impact Analysis		A requirements analysis drawn from the “BIM Strategy Framework” and stakeholder workshops with an impact analysis and final strategy recommendations	ToR 6.1; BSF 7 BSF 4
	Stakeholder Workshops	A series of stakeholder workshops and discussions to ascertain and agree the final detailed strategic approach	ToR 6.1.1
	Approval Processes	Global and Local Approval processes	ToR 6.1.2; BSF 2.4.4, 7
	Impact Analysis and Final “Detailed BIM Strategy”	Requirements Analysis and impact assessment should be made of the costs, risks and benefits associated with the “BIM Strategy Framework”	ToR 6.1.3
	Language requirements	The Rail Baltica Global Project delivers infrastructure to three different countries and suitable delivery languages should be incorporated into the standards for deliverables	ToR 6.2; BSF 2.4.5
BIM Time Line ‘Plan of Work’		BIM Process development together with a stage by stage plan of work for deliverables and documentation.	ToR 6.3; BSF 8.1.4
	Table of Plan of Work Stages	To define clear deliverable stages aligned to the Rail Baltica deliverable and construction stages for each asset.	ToR 6.3; BSF 8.1.4
	Table of Work Schedules	Should provide the baseline for all project deliverables	ToR 6.3
Information Requirements		Information requirements at each stage of the Plan of Work for each project and discipline.	ToR 6.4; BSF 6
	Table of Asset Information dictionary	Asset type data dictionary is produced tabulating each type of asset. Information required at each Plan of Work Delivery Stage for that asset type.	ToR 6.4.1; BSF 2.4.6, 6.1, 6.2, 7.6-7.9,
	Table of Project Information	Information required to coordinate and approve project delivery.	ToR 6.4.2; BSF 6.3, 7.5, 7.13

	Table of Level of Information Development	Tabulation of level of information development for reach asset type stage by stage. It should be noted that at each stage different discipline (Architecture, Structural, Services and Civil) deliveries require different detail and content depending on the contracted delivery process. Hence each type of asset and each type of discipline delivery should be considered individually when developing tables	ToR 6.4.3; BSF 7.10
Information Exchange Requirements		An information exchange set of requirements including exchange contents and file formats.	ToR 6.5; BSF 7
	Table of Exchange content	Should be drawn from the Information Requirements tabulated above for each asset type stage by stage	ToR 6.6; BSF 7, 8.1.5
	Table of Exchange formats for each asset type	Using as far as possible “Open” formats leaving the supply chain to develop and create information for exchange using tools that fit in with their own skills and expertise. Including the file formats for each asset type.	ToR 6.7.1, 6.7.2, 6.9.2; BSF 8.4, 8.4.1-8.4.3
	Recommendations for file conversion process	File conversion process on exchange and information sharing	ToR 6.7.1, 6.7.2; BSF 8.4.1
	Table of other file types	Delivered file formats including drawings, CAD, reports, spreadsheets, photographs, video and point cloud information. Recommend and tabulate formats and software versions	ToR 6.7.3; BSF 8.4.2, 8.4.3, 8.5.5
Common Data Environment Design		Definition of a Common Data Environment and all its accompanying standards.	ToR 6.8; BSF 8.5, 11.1
	Table of Roles and Responsibilities	The roles and responsibilities for the CDE and its operation, including information creation, delivery, coordination and issue resolution	ToR 6.8.1; BSF 2.3, 8.1.5, 9.1
	Table of BIM team size and skills for RB Rail	Recommendations on the team size and skills required for the Rail Baltica Global BIM team	ToR 6.8.1; BSF 2.3.1
	Table of pre-delivery process and information content completeness	Pre-delivery CDE process, coordination and clash detection criteria	ToR 6.8.2; BSF 8.1.4, 8.2, 8.5, 11.1
	Table of delivery process and	Delivery process to CDE, coordination and clash detection criteria should	ToR 6.8.2;

information content completeness		BSF 7.1, 8.1.4, 8.2-8.5, 11.1
Table of validation/verification process for the delivered information	Description of the validation/verification process with responsibilities; Set of quality controls for information exchange and a compliance plan for achieving these. This should include content validation and verification	ToR 6.8.2, 6.8.4; BSF 11.1
Table of Information Swim Lanes	Capture review processes, clash prevention processes, approvals, information state changes, permissions for use, and security issues	ToR 6.8.3; BSF 8.5
Table of CDE Process for Each Asset Type at each Project Stage	CDE processes should detail the definitive steps and actions of how data flow is to be coordinated tracing the development of information through from creation, review, coordination, revision and version control, stepping through state control, purpose of information use, visibility, edit and viewing control	ToR 6.8.3; BSF 8.5.2-8.5.5, 11.1
Table of Folder Structures	Folder structure that reflects the ontology of information delivery across each project	ToR 6.8.4; BSF 8.5.4
Table of File Naming Conventions	File naming to reflect the content and source of each delivery file	ToR 6.8.4; BSF 8.5.5
Table of File Metadata	Meta data that supports the use purpose and security of each file	ToR 6.8.4; BSF 8.5.5
Table of Process Controls	A full set of controls taking files through sharing, coordination, review, approval for published use and file archiving	ToR 6.8.4; BSF 8, 8.5.2
Table of Revision and Version Control process	Methods for version control and revision status	BSF 8.5.2, 8.5.5
Table of State Change process	State change processes for each file	ToR 6.8.4; BSF 8.5.5
Table of Access Control process	Access control matrices for each project and each state	ToR 6.8.4; BSF 8.5.6
Table of Security Controls process	The security requirements for each asset/file type and each project stage should be reviewed against global security criteria	ToR 6.8.4; BSF 8.5.6
Tables for BIM coordination control process	BIM coordination control using online BIM review meetings and BIM coordination rooms. This should include recommended schedules for BIM review meetings.	ToR 6.8.5; BSF 5, 11.1

		This should include hardware and software solution recommendations for BIM coordination rooms	
BIM Manual		“Detailed BIM Strategy” should bring together the output and document the results in a structured (possibly online) BIM Manual	ToR 6.9
	BIM Modelling Standards	Detailed guidelines for model construction for each contract, asset type and each stage of delivery	ToR 6.9.1; BSF 7.13
	Tables of File Formats	Tabulation of the file exchange formats, including the version number of the format definition, developed for models, data and supporting documents against contract, discipline and asset type	ToR 6.9.2; BSF 8.4, 8.4.1-8.4.3
	CAD Standards for Drawings and CAD Models	Must include: Drawing and Model referencing procedures Line-types Text and Dimensioning Annotations Layers/Levels Drawing Templates	ToR 6.9.3; BSF 8.4.1, 8.4.3
Ongoing Support		Support proposals including education, training, ongoing support and best practice exchange support.	ToR 6.10; BSF 9.2
	Ongoing Consultancy Support for First Year	Support for questions and supplemental additions	ToR 6.10; BSF 9.2
	BIM General Education Material	the production of material that can be used by Rail Baltica to educate their stakeholders on the use and benefits of BIM	ToR 6.10; BSF 9.2
	Training Material for Detail Users	Should define what kind of training is necessary for the RB Rail and other National Implementation bodies to effectively use the chosen BIM management system, CDE and other software. Assess what kind of training is necessary for the supplier representatives in order to use the CDE and other solutions. Include different discipline representatives, e.g. architects, designers, contractors, estimators, field managers and supervisors, etc. might have a need for specific training	ToR 6.10; BSF 9.2

	Cross Project Best and Emerging Practice Sharing	A mechanism for ongoing sharing of best practice across the project including novel approaches, new technologies and cross project education	ToR 6.10; BSF 9.2
	Supporting Technology Design	A technology design for a CDE and supporting databases including functional and non-functional requirements, a solutions architecture and recommended solutions.	ToR 6.11; BSF 11
	Common Data Environment (CDE) System	Systems Architecture, System Functional requirements, Systems Non-Functional requirements, Recommended Solutions	ToR 6.11.1; BSF 11.1
	Asset Register	Systems Architecture, System Functional requirements, Systems Non-Functional requirements, Recommended Solutions	ToR 6.11.2; BSF 11.2,
	Other required solutions	Describes and analyses other required solutions for project's coordination and management.	
	Terms of Reference for Technology Procurement	A ToR for procurement and implementation.	ToR 6.12
	Table of criteria for the technology procurement	Criteria for software solution packages that RB Rail can use for Global Project Management and local Implementers	ToR 6.12

Abbreviations used in the table:

ToR – “Terms of Reference for The Development and Support of a Detailed BIM Strategy” document

BSF – “BIM Strategy Framework” document (Annex 2.1.)

CDE – Common Data Environment

3 Rail Baltica Global Project Background

The Rail Baltica Global Project has been planned for a number of years. Having received regulatory and financial approval for the conceptual alignment and corridor it has now reached the stage of detail design and construction.

The “BIM Strategy Framework” is designed to set out proposals for the use of ‘Digital Engineering’ during the period of detail design, construction, supervision and handover into operation of the railway.

3.1 Rail Baltica Global Project Outline

Rail Baltica is a new ‘fast conventional’ mixed traffic railway line linking Kaunas in Lithuania, Riga in Latvia and Tallinn in Estonia, and an extension to Vilnius from Kaunas. With a total line length of electrified double track, ERTMS L2 signalling and built to European standards and gauge, meeting their ‘Technical specifications for interoperability’ with a maximum design speed of 240kph for passenger trains and 120kph for freight trains.

Jointly funded by the European and the participating country authorities it will have multimodal terminals, located at Muuga in Salaspils in Latvia, Kaunas and in Lithuania, plus seven railway passenger stations located at Tallin, Riga Central, Riga Airport, Panevezys, Kaunas and Vilnius plus connection between Kaunas and Vilnius Airports.



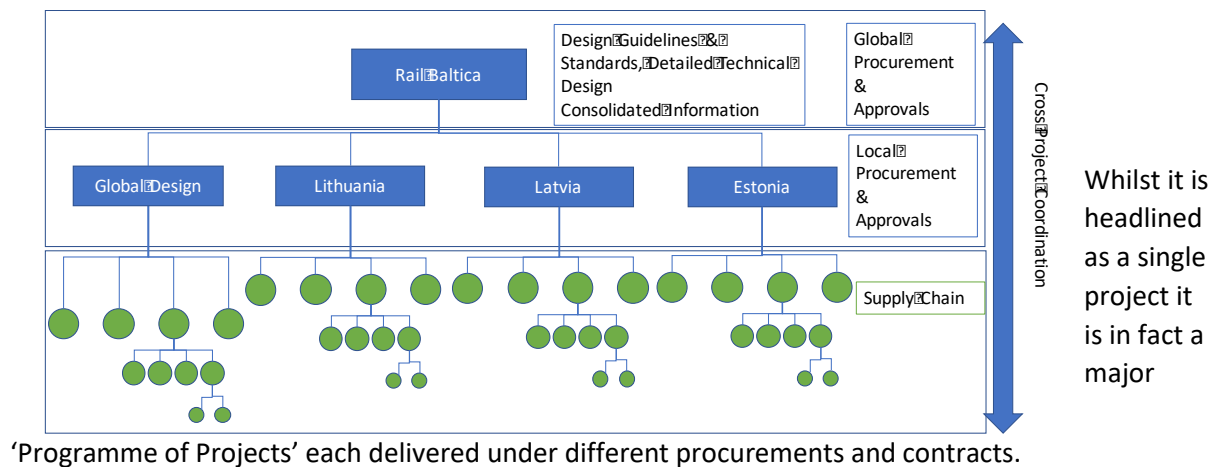
Union
railway

Estonia,
Vilnius

Parnu,

3.1.1 PROJECT DELIVERY AND CONTRACTING PARTIES

The project will be coordinated by RB Rail and constructed locally by local country based Implementing Bodies. The organisation of responsibilities is broadly set out in the diagram below:



Coordinated at the centre, with global and local approval mechanisms, but constructed locally.

Detailed organisational roles and responsibilities along with full approval rights, security rights and routings will need to be developed during development of detailed standards.

• RB RAIL

Is the central coordination organisation that has been established to implement Rail Baltica. It is jointly owned in equal shares by SIA Eiropas dzelzceļa līnijas in Latvia, UAB Rail Baltica statyba in Lithuania and OU Rail Baltic Estonia in Estonia. Headquartered in Riga Latvia it has established branches in Lithuania and Estonia in order to ensure better project coordination process with the beneficiaries and implementing bodies.

RB Rail's main responsibilities are the design, construction, supervision and marketing of the railway. It also deals with the European Union submitting financing proposals for the Rail Baltica Global Project on behalf of the beneficiaries.

It serves as the central purchasing body for all parties for the procurement of studies, plans, designs for the global project, sub-systems (Control, Command, Signalling and Electrification, raw materials, key components and cross border track sections.

• BENEFICIARIES

The Rail Baltica Global Project is being implemented by the Baltic States, whose three ministries are responsible for the transport sector in their related countries. They are:

- Ministry of Transport and Communications of the Republic of Lithuania
- Ministry of Transport of the Republic of Latvia

- Ministry of Economic Affairs and Communications of the Republic of Estonia
- **IMPLEMENTING BODIES**
Rail Baltica Global Project's national implementing bodies in Estonia, Latvia and Lithuania are responsible for implementing and constructing the project in their respective countries.

3.1.1..1 Estonia

Rail Baltica Estonia and the Estonian Technical Regulatory Authority

3.1.1..2 Latvia

SIA Eiropas Dzelzcela linjas (EDZL)

3.1.1..3 Lithuania

UAB Rail Baltica statyba and JSC Lietuvos gelezinkeliai

4 BIM Strategy Framework

In order to do this, RB Rail have undertaken the development of a "BIM Strategy Framework" that outlines the intended approach together with recommended methods, standards, processes and protocols.

The framework sets out strategic objectives together with the processes, standards, methods and protocols for delivering BIM information and its sharing, coordination and approval. It is based on a federated file delivery process collecting and coordinating information in a Common Data Environment (CDE).

Whilst it is designed as to meet generic BIM requirements it has been specifically tuned and developed with a rail project in mind taking into account the very diverse nature of such a project. It has drawn from experience on other large rail projects.

It has been designed as a basis for development into a detailed strategy and set of BIM standards for use in the delivery of the Rail Baltica Global Projects. Including, design, construction and supervision for each.

It has been designed to cover an Information Led approach to BIM including not only 3D Models but the associated asset information. It provides a foundation that will require further analysis and final agreement on the overall policies and objectives to be adopted in the "BIM Strategy Framework" that this document refers to.

A copy of the "BIM Strategy Framework" is attached to this ToR at Annex 2.1. for reference.

4.1 Detailed BIM Strategy Implementation and Support

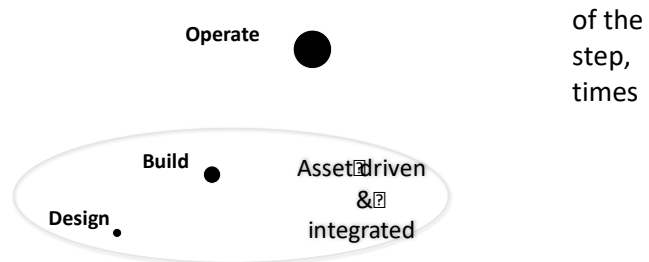
The strategy now needs detailing and implementing. These Terms of Reference (ToR) set out the requirements for delivery of that "Detailed BIM Strategy" and its implementation and support.

The requirements and deliverables set out in this ToR should be read and interpreted with reference to the “BIM Strategy Framework” which defines the terms processes and standards required.

4.2 Strategic Objectives

The “BIM Strategy Framework” sets out the following objectives:

- A life cycle centric approach to information delivery and use.
- Using BIM to create virtual assets prior to construction and translating those virtual assets into physical assets. In other words, to build the railway twice – once as data and once physically eliminating potential issues before construction and capture vital information during the process.
- Capture relevant information through the life cycle project programme, from step to stage to stage, but use it many throughout the process, reducing duplication of effort and maximising its use in analysis, procurement and eventual operation.
- To extend the use of BIM beyond 3D models to include wider information attributes, functional requirements, asset information together with linked documentation such as drawings, photographs, videos and related information sets.
- To capture operational and asset management information during the design and build process ready for handover to operators, asset managers and users once complete.
- Enable cross project information sharing and coordination.
- Developing a set of common shared asset object types.
- Encourage and support the design and construction supply chain to use BIM tools and technology in design, construction and supervision of the railway. With the specific aim of improved cross project coordination, removing errors early in the design process, reducing Requests for Information (RFI) between contracted parties, better quality and trustworthiness of deliverables.
- To encourage the supply chain to use the best technology to achieve the information requirements thus not restricting them to specific design tools. Supporting the use of non-proprietary open file formats as deliverables rather than proprietary BIM model formats. Or where not possible using tools developed by software vendors that can accommodate and share output from multiple sources including Open formats.
- To implement technology that supports these objectives recognising the evolving nature of BIM and related technology.



5 Delivery Proposals and Milestones

The following proposals for delivery should be provided in response to this ToR:

5.1 Delivery Schedule

Please find the Service Schedule in the Annex D of “Draft Contract” (Annex 6 of Regulation).

Those tendering against this ToR should respond with their proposed schedule of time, milestones for each deliverable and the effort involved in making the detailed project plans which will be confirmed and detailed at tender award.

5.2 Project Kick-Off Meeting

A proposal for an agenda and content for a project kick-off meeting will be required by the responding tenderer.

5.3 Proposals for Working with Rail Baltica BIM Team

It is expected that the “Detailed BIM Strategy” and Standards will be developed alongside the RB Rail’s BIM Managers. Tender response proposals are therefore required on how interacting with and supporting the RB Rail’s BIM Team will be conducted.

5.4 Issues, Dependencies and Schedule Constraints

Any foreseen dependencies and schedule constraints should be outlined in the tender response together with mitigation proposals.

6 Detailed Deliverables

This section expands on the required deliverables and sets out specific requirements for the “Detailed BIM Strategy”. It should build on the principles set out in the “BIM Strategy Framework” and defines how the solutions implemented for the Rail Baltica Project will work together, who will use them and the extents of their use.

The solutions proposed are based on a Common Data Environment approach linking models with asset information.

The linked information approach is designed to support not only the coordination of 3D models avoiding clashes and construction issues but also to provide a basis to support solutions that link models with delivery schedules (commonly known as 4D modelling), linking to cost databases (commonly known as 5D modelling) and providing asset information to operators at project completion (commonly known as 6D modelling). It has the advantage of being capable of linking to external work breakdown structures (WBS) and cost breakdown structures (CBS) and not building that information in to complex BIM models. It provides a basis for contractors to do their own 4D and 5D procurement and construction recipe modelling independently without interference from Rail Baltica but also to report against Rail Baltica WBS and CBS. The process set out in the “BIM Strategy Framework” is designed to continuously capture and hand forward information for eventual asset management.

The following details the deliverables that will be required from the successful tenderer:

6.1 Requirements and Impact Analysis

The “BIM Strategy Framework” sets out the general objectives and requirements. However, it has been recognised that these should be measured against specific requirements for the Rail Baltica stakeholders and their benefits calibrated against cost and effectiveness to agree final strategies. Therefore, a requirements analysis, impact analysis and resolution stage has been included in the “Detailed BIM strategy” project.

The following should be included in this deliverable stage:

6.1.1 STAKEHOLDER WORKSHOPS

A series of stakeholder workshops and discussions to ascertain and agree the final detailed strategic approach. These workshops should include:

- Industry Maturity – a measure of the maturity of the supply chain in delivering BIM including local variations and supplier’s processes.
- Standards and emerging BIM practices for each local region.
- Local Standards and Practices – listing & inclusion of laws regulations and norms for all three Baltic States. The governing laws, regulations and norms of all three Baltic States (Estonia, Latvia, and Lithuania) must be taken into account.
- Design Codes – Global design codes and any National annexes to design codes of practice which will normally be associated to Eurocodes.

6.1.2 APPROVAL PROCESSES

Taking into account the outcomes of workshops listing and detailing of:

- Global Approval Processes – processes that impact the approval of Rail Baltica Global Project deliverables.
- Local Approval Processes – additional processes for approval of project deliverables to meet local planning, regulation and laws for approval of Rail Baltica Global Project deliverables.

NOTE - BIM model, data and documents approvals

BIM models, data and documents need to be agreed and approved with RB Rail and National Implementing bodies. The CDE must have an option to grant access also to Rail Baltica Global Project's Beneficiaries. Other National or government authorities does not have an obligation or capabilities to have access to CDE for this project.

To agree and get approval by all relevant authorities for the project documentation, the national laws and regulations must be followed.

RB Rail nor any of the National Implementing bodies has no responsibility to assist the suppliers with this process.

6.1.3 IMPACT ANALYSIS AND FINAL DETAILED BIM STRATEGY

Taking into account the discoveries during the Requirements Analysis and impact assessment should be made of the costs, risks and benefits associated with the "BIM Strategy Framework".

The outcome of this assessment to be an agreed in the final "Detailed BIM Strategy" with clear indication of the adopted policies and BIM content.

6.2 Language

The primary language for the "Detailed BIM Strategy" documentation should be English.

The Rail Baltica Global Project delivers infrastructure to three different countries and suitable delivery languages should be incorporated into the standards for deliverables.

For Rail Baltica Global Project deliverables the following language conventions should be used:

- Primary Language for models and overall documentation – English
- Local project language – for local project deliverables and approvals
- Second language for projects that cross country borders.

Special characters and letters used in all three Baltic state languages (ž, š, č, ā, ä, ū, ē, ģ, ē, ģ, ī, ū, ū, ģ, ģ, ģ, ū, ū) must be excluded when naming files and folders. Only Latin alphabet characters and allowed characters for Windows based systems for file and folder naming are allowed.

Drawing annotation and document naming for local approvals must permit the use of local characters.

6.3 BIM Timeline Process Development

The Plan of Work Timeline is described in the “BIM Strategy Framework” as the ‘When’ for delivery and sets out the stages for project delivery decision and approvals.

In order to define clear deliverable stages which are consistent across the Global Project and local implementations a set of common Plan of Work Stages should be developed and agreed.

These Plan of Work Schedules should provide the baseline for all project deliverables. Hence their context against each type of contract and the associated deliverable information should be tabulated.

This should provide the framework for information requirements content at each stage and the required level of development of that information.

6.4 Information Requirements

Information requirements should be developed to meet Asset Information and Project Information delivery. These information requirements need to meet the needs of both the global project approvals and the local approvals as well as collect information for eventual asset management.

6.4.1 ASSET INFORMATION

To support this, it is proposed that an asset type data dictionary is produced tabulating each type of asset to be delivered and the information required at each Plan of Work Delivery Stage for that asset type.

This dictionary should follow the Asset Hierarchy principles set out in the “BIM Strategy Framework”. Hence asset types include Primary Assets, Secondary Assets, Assemblies, Components and Products.

The asset dictionary should use on an agreed object classification system based on the principles of ISO 12006-2:2015. Taking into account discoveries made during the analysis phase.

The following table gives guidelines as to dictionary tabulation.

Asset Type	Asset Description	Classification	Functionality	Attributes
Name of Type	Description of asset	Classification	Function of Asset	Attributes to be captured at each delivery stage

The asset data dictionary should be capable of mapping to multiply language naming strategies for asset type and attributes.

It should be noted that an asset type can have more than one classification.

6.4.2 PROJECT INFORMATION

Similarly, information required to coordinate and approve project delivery is required and tabulating.

6.4.3 LEVEL OF INFORMATION DEVELOPMENT

Tabulation of level of information development for reach asset type stage by stage. It should be noted that at each stage different discipline (Architecture, Structural, Services and Civil) deliveries require different detail and content depending on the contracted delivery process. Hence each type of asset and each type of discipline delivery should be considered individually when developing tables

A detailed description of each LoD and LoI must be include in the “Detailed BIM Strategy”

At each stage of the project delivery the level of information development should be included in the asset type data dictionary tabulation and the project information tabulation.

Level of Development (LoD) - Level of development includes the level within the asset hierarchy, the geometric detail included (Level of Detail), the accuracy of information required and the attribute information (Level of Information) expected at each delivery stage. It should be noted that depending on the contract, the discipline and the type of asset being described this may differ in content.

Tabulation must clearly define what must be delivered at each stage of the project for each discipline (noting that different LoD’s may be required at each stage for different disciplines)

6.5 Information Exchange

BIM delivery approval and coordination is based on data exchanges between the Rail Baltica Global Project supply chain and RB Rail and its Implementing bodies.

Using a Common Data Environment for capturing approving and coordinating these exchanges and making them available across the project for information sharing.

6.6 Exchange Content

Exchange content should be drawn from the Information Requirements tabulated above for each asset type stage by stage.

6.7 Exchange Formats

The “BIM Strategy Framework” recommends that in the Rail Baltica Global Project the information exchange and capture is done using as far as possible “Open” (non-proprietary) file formats leaving the supply chain to develop and create information for exchange using tools that fit in with their own skills and expertise.

This requires suppliers of information to convert their deliveries into a format approved by RB Rail and acceptable to the project CDE also that they share that information in the CDE with other suppliers where permissions are granted.

The “Detailed BIM Strategy” should take the recommended format principles outlined in the “BIM Strategy Framework” and develop them into detailed exchange formats. Taking into account the findings in the Requirements Analysis stage and the tenderers own experience in Rail Project information delivery.

The “Detailed BIM Strategy” should consider whether and how native model files are captured and archived.

6.7.1 MODEL EXCHANGE FORMATS

The “Detailed BIM Strategy” should:

- Recommend File Format and tabulate for Exchange for each asset type
- Recommended file conversion process on exchange and information sharing.
- As built model formats. These may include during and after construction scanned files that can be inserted into the CDE and compared to the digital design intent models.

The “Detailed BIM Strategy” should consider the value of the additional delivery of native proprietary BIM formats as a backup and should advise on software version control criteria.

6.7.2 DATA EXCHANGE FORMATS AND SCHEMA

The “BIM Strategy Framework” recommends delivery of asset information attributes in a separate but extracted from and linked to version of model files. It makes this recommendation to avoid the need for RB Rail to deal with proprietary BIM file formats.

Ideally this will be a format that can be extracted from proprietary BIM Models and/or be completed as forms by delivery contractors.

Data delivered should align with the asset type data dictionary naming and attribute requirements and act as the tool for instantiation of the asset into the project asset register.

Recommendation should include:

- File format
- File schema and relationships.

6.7.3 OTHER FILE FORMATS

Other files that are part of delivered including drawings, CAD, reports, spreadsheets, photographs, video and point cloud information.

Recommend and tabulate formats and software versions

6.8 Common Data Environment (CDE)

The exchange, control, sharing and coordinating of delivered information will depend on a Common Data Environment (CDE) which, supported by technology, provides the process and mechanisms for BIM information. The CDE process is outlined in the “BIM Strategy Framework” which sets out principles of collaboration and the various states of control required.

The Common Data environment is the essential core of the BIM Strategy. It must be designed for and be capable of managing all the information and data related to the planning, design, construction, supervision, operations and maintenance of the whole of the Rail Baltica Global Project.

The CDE will contain information in shareable, useable format from previous Rail Baltic Project Stages. The “Detailed BIM Strategy” should review existing file formats and make recommendations for standards to be adopted.

6.8.1 ROLES AND RESPONSIBILITIES

The CDE and its operation depends on defined roles and responsibilities.

The “Detailed BIM Strategy” should tabulate the necessary Roles and Responsibilities to be assigned in the CDE process including those of information creation, delivery, coordination and issue resolution.

Roles and responsibilities should be defined for the Supply Chain, Rail Baltica Global and local implementers.

RB Rail will appoint an Information manager whose role will be to oversee and facilitate the CDE process. The “Detailed BIM Strategy” should itemise those responsibilities.

As a role requirement and descriptor should be itemised each organisation using the CDE should appoint a BIM coordinator.

Advice should be given on the team size and skills required for the Rail Baltica Global BIM team.

6.8.2 CDE HIERARCHY SUPPLY CHAIN TO RAIL BALTICA

The “BIM Strategy Framework” recommends that the Rail Baltica CDE be implemented as a cascade system. That is each delivery supply chain lead develops and utilises their own CDE tools and process providing information exchanges to the Rail Baltica CDE. This approach necessitates that the supply chain lead carries out its own coordination and clash prevention process and shares information into the Rail Baltica CDE with the correct file names, file suitability codes, revision code and other meta data.

Pre-delivery CDE process, coordination and clash detection criteria should be tabulated in the “Detailed BIM Strategy”.

The delivery process and information content completeness and validation/verification process should be tabulated in the “Detailed BIM Strategy”.

6.8.3 THE CDE PROCESS

The “Detailed BIM Strategy” and Standards should tabulate the process in detail to include

- Information Swim Lanes for each project capturing review processes, clash prevention processes, approvals, information state changes, permissions for use, and security issues.
- Full CDE Process for Each Asset Type at each Project Stage

These CDE processes should detail the definitive steps and actions of how data flow is to be coordinated tracing the development of information through from creation, review, coordination, revision and version control, stepping through state control, purpose of information use, visibility, edit and viewing control.

Presentation of files to the Rail Baltica CDE is designed for coordination of different disciplines and contributors. This coordination process includes review of content, content compatibility and integrity and clash prevention.

Clash detection rules should include tolerances and accuracy of clash detection for each type of asset and stage of delivery.

It is proposed that clash prevention process is built into the CDE process and that suppliers carry out their own clash prevention before submission to the global Rail Baltica CDE.

This implies that the suppliers will create and manage their own CDE environments. Definition of rules for coordination and clash prevention expected from the supply chain CDE should be explicitly stated in the “Detailed BIM Strategy”.

Further coordination will take place when files are presented to the Rail Baltica CDE.

Commented Coordination files including those showing clashes should be recorded in the CDE process.

The post review correction process should be detailed in the CDE swim lane.

6.8.4 RAIL BALTICA CDE

The “Detailed BIM Strategy” should develop and tabulate the following CDE criteria:

- Folder Structure – a folder structure that reflects the ontology of information delivery across each project. NOTE File / Folder Naming
 - File and folder naming rules and descriptions must be established based on the recommendations in the Rail Baltica “BIM Strategy Framework”.
 - Folders for each discipline, stage and phase of the project must be categorized accordingly based on the BEP.
- File Naming Conventions – file naming to reflect the content and source of each delivery file.
- File Metadata – Meta data that supports the use purpose and security of each file.
- Process Controls – a full set of controls taking files through sharing, coordination, review, approval for published use and file archiving.
- Revision and Version Control – tabulated methods for version control and revision status
- State Change – tabulated state change processes for each file
- Access Control – Access control matrices for each project and each state.
- Quality Controls – a tabulated set of quality controls for information exchange and a compliance plan for achieving these. This should include content validation and verification.
- Security Controls – The security requirements for each asset/file type and each project stage should be reviewed against global security criteria and tabulated.

Some information may be contained in file naming structures such as revision controls and file use purpose. In fact, many successful solutions have used this approach. However, others use file metadata held in databases. The contents are itemised separately here to make eventual technology solution choice more open.

This information is critical to the use and operation of the CDE process and its persistence throughout the process is essential. This has particular meaning when information is passed between systems (CDEs) and when information is published as documents.

It is therefore recommended that rules are included that can identify any published/ printed document by including the file name at some point as text within the document. Consideration should be given to using further identification using Bar Code which can link back to the CDE file validation that the file represents the latest version of information and its use purpose.

6.8.5 RAIL BALTICA CDE COORDINATION AND APPROVAL PROCESS

The “Detailed BIM Strategy” should produce a methodology for BIM coordination control using online BIM review meetings and BIM coordination rooms.

The frequency of such meeting will depend on the type and stage of the information being coordinated and be controlled by project managers. However, the “Detailed BIM Strategy” should make recommendations on such frequencies.

Proposals should be given to the hardware and software set up of such review process rooms. This should include cost considerations. Whilst it is appreciated that there are many current developments in this area a base line solution using common desktop technology should be anticipated. Further Augmented Reality and specialist viewing apparatus may be added later built on the basis of this open file availability.

Note the “BIM Strategy Framework” assumes common, federated file formats and is designed to facilitate this review process. Solutions should therefore avoid any further file conversions or manipulations into specialist files before review.

6.9 BIM Manual

The “Detailed BIM Strategy” should bring together the output from the above steps and document the results in a structured (possibly online) BIM Manual.

Contents of which should include:

- Principles and Goals -The principles of the “Detailed BIM Strategy” and the Objectives and Goals that Rail Baltica wish to achieve.
- Suppliers Competency Framework
- Suppliers Technical Systems Questionnaires
- Suppliers CDE Processes
- Tabulated Information Delivery Requirements against Disciplines, Projects and Stage by Stage
- BIM Execution Plan (BEP) Templates describing the concept and content of the BEP, which explains proposals on how the information requirements will be delivered by the designer and contractor.
- Information Delivery Plans and Templates. Describes the detailed delivery plan for models and their information. Often called the Model Information Delivery Plan. Will include the delivery and the responsibility for delivery.
- CDE processes - The design principles of the Rail Baltica CDE
- CDE Use – Protocols for the use of the Rail Baltica CDE including

6.9.1 BIM MODELLING STANDARDS

Tabulated detailed guidelines for model construction for each contract, asset type and each stage of delivery.

Should include the information required for spatial coordination - units to be used for modelling, the grids and origins for project information and relationship of local grids to that origin, what map projects are to be used in graphic presentation.

6.9.2 TABLES OF FILE FORMATS

Tabulation of the file exchange formats, including the version number of the format definition, developed for models, data and supporting documents against contract, discipline and asset type.

6.9.3 CAD STANDARDS FOR DRAWINGS AND CAD MODELS

Including:

- Drawing and Model referencing procedures
- Line-types
- Text and Dimensioning
- Annotations
- Layers/Levels
- Drawing Templates

6.10 Support

The following should be included in the “Detailed BIM Strategy” and Standards deliverables:

- Ongoing Consultancy Support for First Year – support for questions and supplemental additions and update of the “Detailed BIM Strategy” and all of the support material accordingly.
- BIM General Education Material – the production of material that can be used by Rail Baltica to educate their stakeholders on the use and benefits of BIM.
- Training Material for Detail Users – the production of training material for detailed users of the systems – including videos and FAQs.
 - Should define what kind of training is necessary for the RB Rail and other National Implementation bodies to effectively use the chosen BIM management system, CDE and other software (if required).
 - Assess what kind of training is necessary for the supplier representatives in order to use the CDE and other solutions (if required).
 - Include different discipline representatives, e.g. architects, designers, contractors, estimators, field managers and supervisors, etc. might have a need for specific training.
- Cross Project Best and Emerging Practice Sharing – a mechanism for ongoing sharing of best practice across the project including novel approaches, new technologies and cross project education.

6.11 Technology Design and Procurement

A design and recommended solution for the technology to support the BIM information delivery, sharing, coordination review and approvals

6.11.1 COMMON DATA ENVIRONMENT (CDE) SYSTEM

A design and recommended technology for the delivery of the Rail Baltica CDE defined in the “Detailed BIM Strategy”.

The CDE should be based on a set of cloud based technologies capable of local global and local synchronisation. Ideally it should ensure that information is distributed effectively to each user location but available globally.

Communication should be login and password controlled and connected via internet connection.

The CDE must be capable of using and distributing individually granted access rights based on project role and responsibilities and file status.

Management of access rights must respect the rules of the CDE process and be simply managed using access matrices.

The solution should have secure client software available on users local devices for access to the CDE.

Design should include:

- Systems Architecture – an architectural design for the proposed system including information desktop integration, servers, information distribution, connectivity and synchronisation.
- System Functional requirements – the functional requirements that deliver the detailed CDE process.
- Systems Non-Functional requirements – system capacity, communication capacity, performance, security, resilience and availability.
- Recommended Solutions – potential technology solutions with itemising strengths and weaknesses.

6.11.2 ASSET REGISTER

- Systems Architecture - an architectural design for the proposed system including information desktop integration, servers, information distribution, connectivity and synchronisation.
- System Functional requirements the functional requirements that deliver an instantiated asset register with links to the CDE published models, drawings and documents.
- Systems Non-Functional requirements - system capacity, communication capacity, performance, security, resilience and availability.

- Recommended Solutions - potential technology solutions with itemising strengths and weaknesses.

6.12 ToR for Technology Procurement

A Terms of Reference document for the procurement, implementation and support of the supporting technology.

Defines the criteria for software solution packages that RB Rail can use for Global Project Management and local Implementers.

Rail Baltica

BIM Strategy Framework

Author: Phil Jackson Intra-TeamIT Consultants Ltd

Version P2

A FRAMEWORK OF PRINCIPLES FOR DEVELOPMENT INTO DETAILED STRATEGY

Table of Contents

1	<i>Executive Summary</i>	62
2	<i>Project Context</i>	62
2.1	<i>Project Background</i>	62
2.2	<i>Project Outline</i>	62
2.3	<i>Project Delivery and Contracting Parties</i>	63
2.3.1	RB Rail	63
2.3.2	Beneficiaries	64
2.3.3	Implementing Bodies	64
2.4	<i>Delivery Constraints</i>	64
2.4.1	Integration of Approved Outline Designs	64
2.4.2	Early projects integration (for example Riga Central and Airport Station)	64
2.4.3	Local standards	65
2.4.4	Permissions and Approvals	65
2.4.5	Local Language Support	65
2.4.6	Asset Management	65
2.4.7	Supply chain maturity	65
3	<i>Strategy Framework</i>	66
4	<i>Rail Baltica BIM Objectives</i>	67
5	<i>BIM Strategy Governing Principles</i>	67
6	<i>BIM Core Information Requirements</i>	69
6.1	<i>Asset centric delivery</i>	69
6.2	<i>Asset life cycle</i>	69
6.3	<i>Life Cycle Stages</i>	69
7	<i>Process Framework for BIM Information Delivery</i>	70
7.1	<i>Planning Information Delivery Timing (When)</i>	71
7.2	<i>Progressive information delivery</i>	72
7.3	<i>Requirement driven information</i>	72
7.4	<i>Asking the questions at each stage (Why)</i>	73
7.5	<i>Information Requirements (What)</i>	73
7.6	<i>Defining Asset Information</i>	74
7.7	<i>Asset Information Requirements MoSCoW Table</i>	74
7.8	<i>Asset Information Requirements Stage by Stage</i>	76
7.9	<i>Project Asset Register</i>	77
7.9.1	Asset Information Hierarchy	77
7.10	<i>Level of Definition - Breakdown & Granulation</i>	78

7.11	<i>Information Accuracy, Utility and Purpose</i>	79
7.12	<i>Standard Asset Type Libraries and Data Dictionaries</i>	80
7.12.1	Language Mapping	80
7.12.2	Classification	80
7.12.3	Attributes	80
7.13	<i>Project Information Requirements</i>	81
8	<i>Delivery Process (How)</i>	82
8.1.1	Gathering Existing Information	83
8.1.2	Contract Briefing	83
8.1.3	Procurement	83
8.1.4	BIM Delivery Plans	84
8.1.5	Mobilisation	84
8.2	<i>Delivery Stage</i>	84
8.3	<i>Delivery Content</i>	85
8.4	<i>Delivery Format Standards</i>	86
8.4.1	Model File Formats	87
8.4.2	Data File Formats	88
8.4.3	Document Format	89
8.5	<i>Delivery Collaboration and Coordination Common Data Environment (CDE)</i>	89
8.5.1	CDE Information Capture Principles	90
8.5.2	The CDE Coordination Process	91
8.5.3	Spatial Coordination	96
8.5.4	Folder naming	96
8.5.5	File metadata and naming	96
8.5.6	File access and security	99
8.5.7	Multiple CDE Information Delivery Principles	100
9	<i>People (Who)</i>	101
9.1	<i>Roles and responsibilities</i>	102
9.2	<i>Communication, Promotion, Education, Training and Support</i>	102
10	<i>Commercial and Contractual</i>	103
11	<i>Technology</i>	103
11.1	<i>The Common Data Environment (CDE)</i>	103
11.2	<i>Asset Register Systems</i>	104

1 Executive Summary

This document sets out a strategy framework for implementing Building Information Management (BIM) on the Rail Baltica Projects. It outlines the strategic BIM goals, processes, standards and protocols for the capture, coordination, management and delivery of digital information throughout the lifecycle of design, construction and operation of the assets being delivered.

It is intended to act as a strategic guide to participating organisations and as basis for the development of a full project information strategy that details the standards and processes presented here. Plus set the process parameters for the delivery and implementation of technology platforms to support the BIM process.

Using this as a guidance document alongside the technical standards documents developed for the project, it is ready to be extended during a detailed strategy and standards development process which will include analysis of local, requirements, maturities and existing standards, risks and costs of implementation.

2 Project Context

2.1 Project Background

The Rail Baltica project has been planned for a number of years. Having received regulatory and financial approval for the conceptual alignment and corridor it has now reached the stage of detail design and construction. This BIM Strategy Framework is designed to set out proposals for the use of 'Digital Engineering' during the period of detail design, construction and handover into operation of the railway.

2.2 Project Outline

Rail Baltica is a new 'fast conventional' mixed traffic railway line linking Kaunas in Lithuania, Riga in Latvia and Tallinn in Estonia, and an extension to Vilnius from Kaunas. With a total line length of electrified double track, ERTMS L2 signalling and built to European standards and gauge, meeting their 'Technical specifications for interoperability' with a maximum design speed of 240kph for passenger trains and 120kph for freight trains.

Jointly funded by the European and the participating country authorities it will have multimodal terminals, located at Muuga in Salaspils in Latvia, Kaunas and in Lithuania, plus seven railway passenger stations located at Tallin, Riga Central, Riga Airport, Panevezys, Kaunas and Vilnius plus connection between Kaunas and Airports.



Union
railway

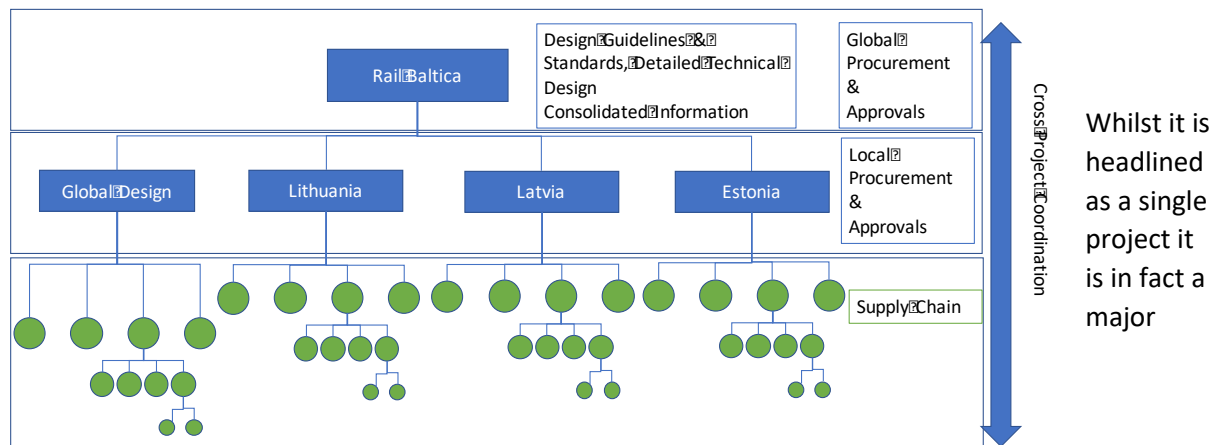
Estonia,
Vilnius

Parnu,

Vilnius

2.3 Project Delivery and Contracting Parties

The project will be coordinated by RB Rail and constructed locally by local country based Implementing Bodies. The organisation of responsibilities is broadly set out in the diagram below:



'Programme of Projects' each delivered under different procurements and contracts. Coordinated at the centre, with global and local approval mechanisms, but constructed locally.

Detailed organisational roles and responsibilities along with full approval rights, security rights and routings will need to be developed during development of detailed standards.

2.3.1 RB RAIL

Is the central coordination organisation that has been established to implement Rail Baltica. It is jointly owned in equal shares by SIA Eiropas dzelzceļa līnijas in Latvia, UAB Rail Baltica statyba in Lithuania and OU Rail Baltic Estonia in Estonia. Headquartered in Riga Latvia it has established branches in Lithuania and Estonia in order to ensure better project coordination process with the beneficiaries and implementing bodies.

RB Rail's main responsibilities are the design, cross border section construction and marketing of the railway. It also deals with the European Union submitting financing proposals for the Rail Baltica Global Project on behalf of the beneficiaries.

It serves as the central purchasing body for all parties for the procurement of studies, plans, designs for the global project, sub-systems (Control, Command, Signalling and Electrification, raw materials, key components and cross border track sections.

2.3.2 BENEFICIARIES

The Rail Baltica project is being implemented by the Baltic States, whose three ministries are responsible for the transport sector in their related countries. They are:

- Ministry of Transport and Communications of the Republic of Lithuania
- Ministry of Transport of the Republic of Latvia
- Ministry of Economic Affairs and Communications of the Republic of Estonia

2.3.3 IMPLEMENTING BODIES

Rail Baltica project's national implementing bodies in Estonia, Latvia and Lithuania are responsible for implementing and constructing the project in their respective countries.

- **ESTONIA**

Rail Baltica Estonia and the Estonian Technical Regulatory Authority

- **LATVIA**

SIA Eiropas Dzelzcela linjas (EDZL)

- **LITHUANIA**

UAB Rail Baltica statyba and JSC Lietuvos gelezinkeliai

2.4 Delivery Constraints

There are some specific constraints that impact the strategy broadly these can be summarised as: -

2.4.1 INTEGRATION OF APPROVED OUTLINE DESIGNS

The project has gone through a long planning process cumulating in an approved base corridor plan and concept designs that have been approved by both Rail Baltica and the local implementing authorities. These concept designs have been delivered by local implementing authorities in each participating country as drawings with varying degrees of content. Although they meet the requirements of concept approval they cannot be regarded as information models. They almost certainly contain information implied or specific that set out the design and operational requirements for the railway.

The delivery of a BIM strategy is therefore coming little late in the overall process and be necessary to undertake a catch-up exercise to integrate the existing information.

The detail strategy will need to review what, if any, information should be retrospectively captured, integrated and shared into the overall BIM databases.

2.4.2 EARLY PROJECTS INTEGRATION (FOR EXAMPLE RIGA CENTRAL AND AIRPORT STATION)

Some projects are being started prior to the start of the main contracts. These include Riga Central Station which is being procured under a 'Design and Build' contract which is currently being let. A simple paragraph of BIM standards for this project has been applied which requires the contracting parties to undertake a non-specific BIM process delivering coordinated design and construction. The station at Riga Airport is being undertaken as a more traditional design commission followed by a construction contract

2.4.3 LOCAL STANDARDS

Whilst the railway is being designed and constructed to European Standards local regulations and standards for other aspects of construction will prevail in obtaining approvals and authorisations. These might include for example planning, building, environmental, structural, drainage, and others. Information deliverables will, therefore, require inclusion of these local standards depending on project location.

2.4.4 PERMISSIONS AND APPROVALS

In addition to project permissions and approvals, which will be governed at overall programme level, each local implementing authority will require capability of making the at local level in accordance with local standards.

2.4.5 LOCAL LANGUAGE SUPPORT

Models, information and documents for local approval will need to be made available with local language support. Hence asset dictionaries and attribute requirements will need to have multi-lingual referencing.

2.4.6 ASSET MANAGEMENT

The future management of the built assets and their ownership is not yet fully determined. It is probable that there will be a number of asset management organisations involved. The strategy is based on a generic asset management information requirement that should meet any future ownership and management structure.

Existing railways asset management is carried out using information collected retrospectively. The BIM strategies presented in this document present the possibility of capturing data as it is created during design and building which presents an opportunity to not only save costs in post construction re-survey but also in delivering quality information hitherto not held in asset management systems.

Hence it is proposed that asset information is systematically collected in a generic form which can be eventually transferred or referenced into multiple asset management systems.

2.4.7 SUPPLY CHAIN MATURITY

The use of BIM techniques and information delivery whilst not entirely new is evolving throughout the supply chain and within client organisations. The supply chain is likely to involve both large organisations who have some experience with BIM however it is also certain to involve many smaller specialist organisations that are less familiar with BIM. Added to the fact that, to date, most BIM implementation has centred on proprietary parametric 3D design models, rather than the wider requirement for life cycle information delivery, the project will potentially encounter a wide variation in maturity and experience. This places a significant need for training and support for all involved in the delivery and use of information if the project is to fulfil its goals. The strategy will need to recognise this varied maturity and reflect it the standards and processes which must be straightforward but recognise the need to mature as the market matures.

3 Strategy Framework

The strategy framework is centred around the information captured, created, shared and coordinated through the project's life cycle. It is designed to extend the use of BIM beyond the commonly perceived understanding of being 3D modelling to one of information modelling and management.



3DModelling



InformationModelling



InformationManagement

It therefore is as much concerned with the data surrounding the project and the assets it creates as it is with 3D models although they of course play an important part in the process.

For the purposes of this strategy the following definition of BIM is used:

'Building Information Modelling is nothing more and nothing less than a systems approach to the design, construction, commissioning, ownership, management, operation, maintenance use, demolition and reuse of built assets.'

Focussed around information relating to the project assets as they are conceived, designed, constructed and operated the strategy framework sets out the basic components necessary for information delivery. Namely the delivery processes and content, the standards necessary to achieve the goals of sharing and coordination, the commercial and contractual requirements for information delivery, the technology required to support the processes and the people roles and training requirements for successful delivery.

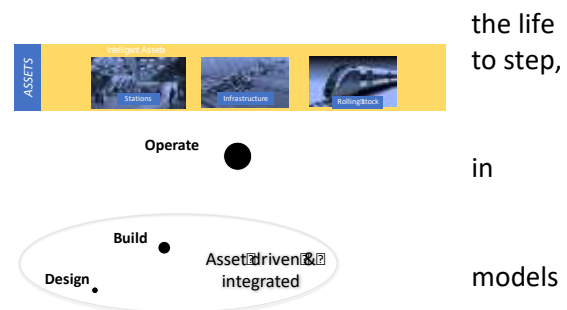


4 Rail Baltica BIM Objectives

Ideally Rail Baltica wish to realise the potential benefits of a digital approach to design, construction and operation of the Rail Baltica Project by using Building Information Management (BIM) delivery processes and standards. Realising that the industry has varying degrees of maturity and that the implementation BIM on the project will present a number of risks and additional costs the objectives below should be measured against the potential benefits and their impacts assessed whilst developing the detailed set of BIM Strategies and Standards.

It has the following broad objectives:

- A life cycle centric approach to information delivery and use.
- Using BIM to create virtual assets prior to construction and translating those virtual assets into physical assets. In other words, to build the railway twice – once as data and once physically eliminating potential issues before construction and capture vital information during the process.
- Capture relevant once information through cycle of the project programme, from step stage to stage, but use it many times throughout the process, reducing duplication of effort and maximising its use analysis, procurement and eventual operation.
- To extend the use of BIM beyond 3D to include wider information attributes, functional requirements, asset information together with linked documentation such as drawings, photographs, videos and related information sets.
- To capture operational and asset management information during the design and build process ready for handover to users once complete.
- Enable cross project information sharing and coordination.
- Developing a set of common shared asset object types.
- Encourage and support the design and construction supply chain to use BIM tools and technology in design and construction of the railway. With the specific aim of improved cross project coordination, removing errors early in the design process, reducing Requests for Information (RFI) between contracted parties, better quality and trustworthiness of deliverables.
- To encourage the supply chain to use the best technology to achieve the information requirements thus not restricting them to specific design tools.
- To implement technology that supports these objectives recognising the evolving nature of BIM and related technology.



5 BIM Strategy Governing Principles

- Globally collect, review, approve and coordinate information delivery at overall project level.
- Coordinate across national implementing bodies, but not other national authorities.
- Extract and print/plot documentation for other national approving authorities.
- Local collect, review, approve and coordinate information delivery at each project level.
- Contracted information delivery from supply chain against Rail Baltica requirements.
- File based federated coordinating delivery of information

- Based on 'Open' standards where feasible and through project standards where not. Avoiding proprietary solutions wherever possible and adopting technology that delivers solutions best suited to
- Recognition that that Technology will evolve over the period of the project.
- Leave the supply chain contractors to choose their own tools and solutions for information creation.
- Delivery of information to implementing bodies and global project in a consistent shareable, federated and useable format.
- Consistent standards for information delivery throughout the project.

6 BIM Core Information Requirements

The following are the potential core information requirements: -

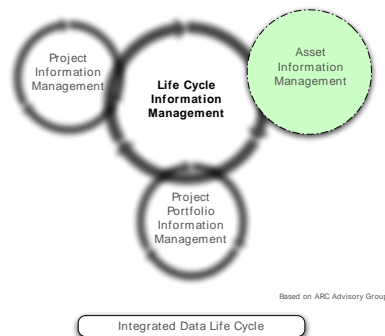
6.1 Asset centric delivery

Information captured, created, analysed and delivered relates to the assets the project is building. Information delivery should be asset centric rather than document or model centric.

Recognising that an asset begins life when it is conceived and designed and not when it is completed and handed over into operation governs the requirements for information creation and capture. Information is required to be delivered and related to an asset that is being designed and constructed from the start of a project.

6.2 Asset life cycle

An asset follows a natural life cycle through each of its stages from existing infrastructure through concept, design delivery and operational management.



6.3 Life Cycle Stages

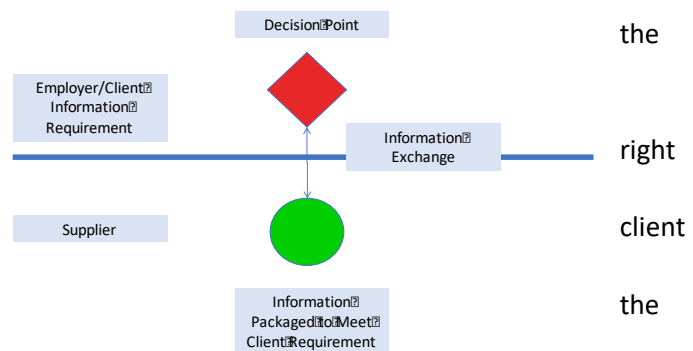
Project information requirements follow a similar life cycle stages and provide the keys to when information needs to be delivered.



7 Process Framework for BIM Information Delivery

Information delivery is built on a series of staged information exchanges between supply chain and the client.

Diagrammatically these can be represented as shown in the figure on the right where the red diamond represents the approval and decision to be made by the client and the green circle representing the information packaged and delivered by the supplier to meet the information contractually required by the client at that particular stage.

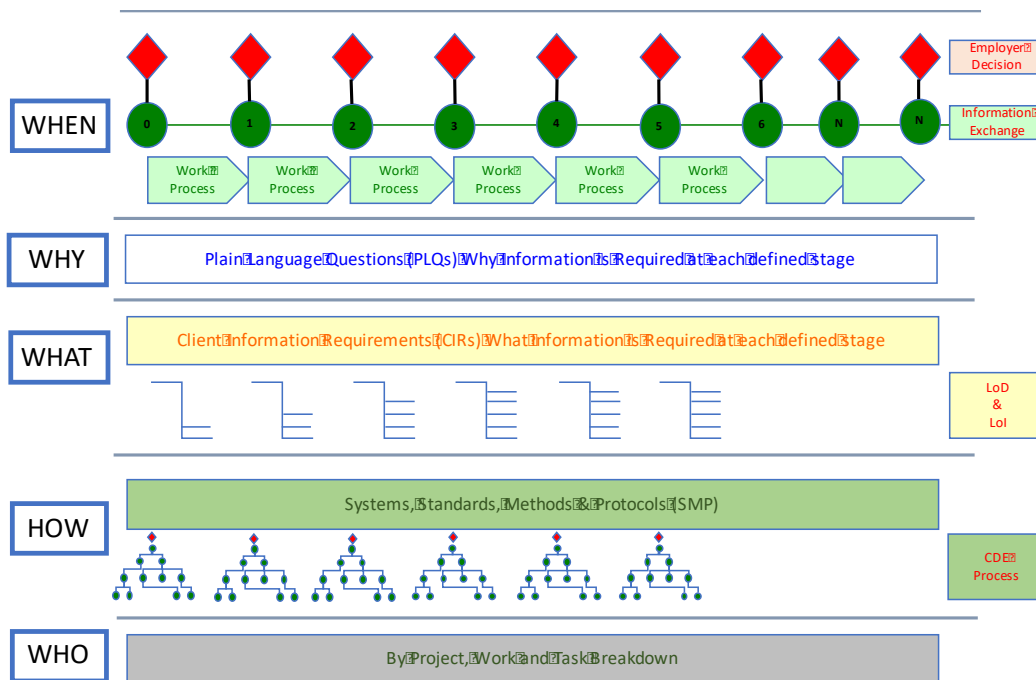


It should be noted that these information delivery points are exchanges rather than one way processes. Thus the client can receive test and approve information and release it for sharing with others in the project including the supply chain.

Information is required at each life stage in order to make decisions which will include approvals and continuity to proceed to the next stage.

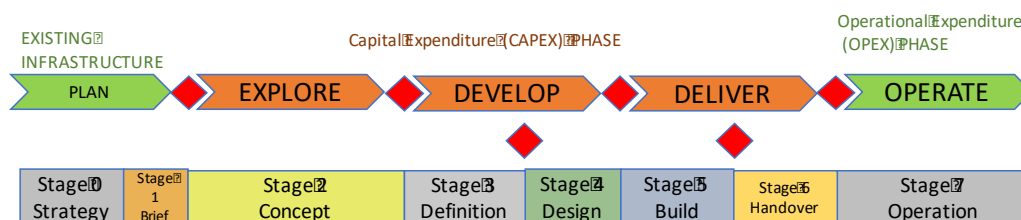
The BIM information delivery process requirements can be broken down into a series of standard questions namely When? - Why? – What? – How? - Who?

The diagram below illustrates how they fit together to achieve an integrated view of the delivery process.



7.1 Planning Information Delivery Timing (When)

Having established that information requirement follows the life cycle of planning, exploration, development, delivery and operation more detailed delivery points need to be established for the project. The diagram below sets out some generic delivery and decision stages which fit most projects.



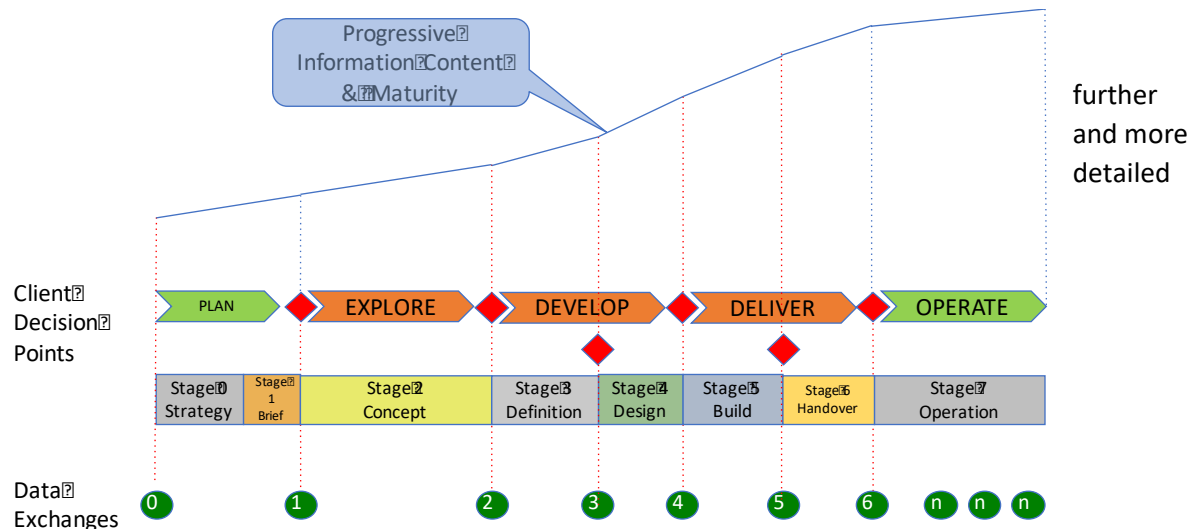
The headings shown are self-explanatory and follow the natural process of information development and provide key approval and decision points. They are designed as a template for more detailed examination during the detailed BIM Strategy exercise.

Exact mapping to these points will differ depending on the current stage of delivery. For instance, in the case of Rail Baltica the corridor alignment for the railway in general has been developed to definition stage and is about to enter into detail design stage. (It is intended that the proposed CDE will contain this information as a basis for detail design). However, future contracts such as buildings, overhead power and signalling will start at definition stage.

There may be further interactions between key stages where approvals are required. These together with detailed mappings to stages will need to be investigated as part of the detailed BIM Standards and Strategy.

7.2 Progressive information delivery

Information delivered therefore is progressive adding to that delivered in the preceding stage building in content and maturity as the project moves through its life cycle. Each data exchange between suppliers and the client provides



information to be managed, shared coordinated and utilised.

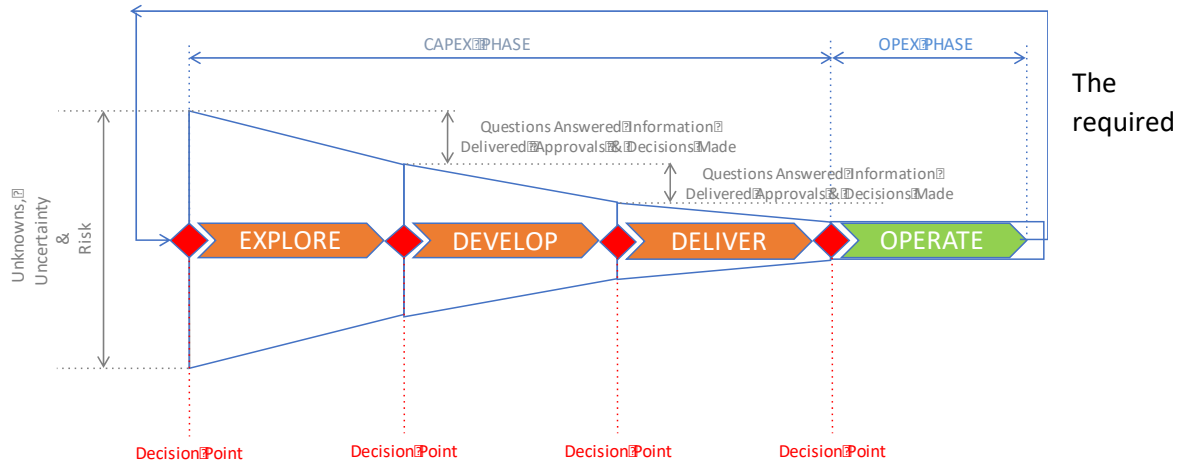
It is important to understand that progressive information is not editing previously created information but is additive. If changes are required, then change control to information previously created should be applied.

7.3 Requirement driven information

Each data delivery should be designed to satisfy the requirements set out for the delivery stage it sits within hence the process can be said to be 'Requirements Driven'.

7.4 Asking the questions at each stage (Why)

In developing information requirements, it can be useful to ask the question, in as simple terms as possible, what information is required at this stage and why it is required. In essence what unknowns, uncertainties and risks need to be reduced and satisfied during the current stage of the project life cycle.



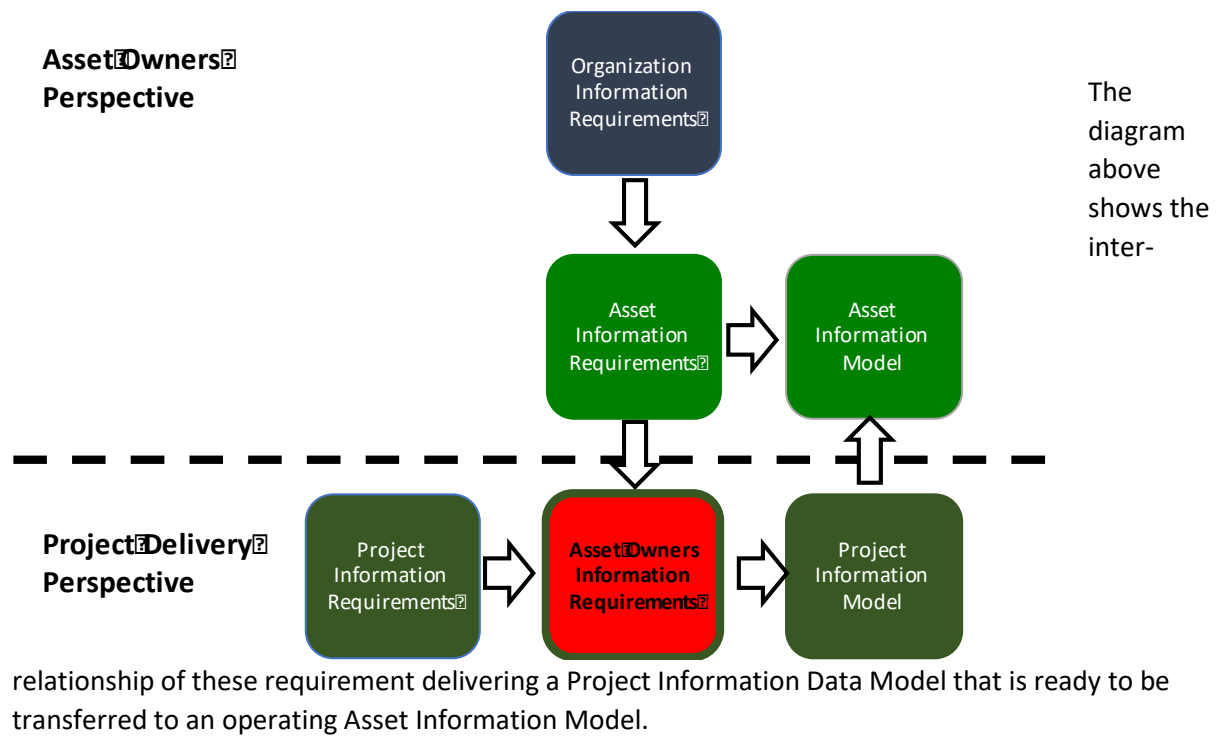
information becomes the answer to these questions.

7.5 Information Requirements (What)

Information delivery requirements comprise of several components: -

- Organisational Information Requirements (OIR) – information to support the client running the railway and its functions once the project is delivered. Strategic business requirements, performance and service levels.
- Asset Information Requirements (AIR) – information about the physical assets being delivered and operated.
- Project Information Requirements (PIR) – information that needs to be available to support project delivery including cost, scheduling, approvals,

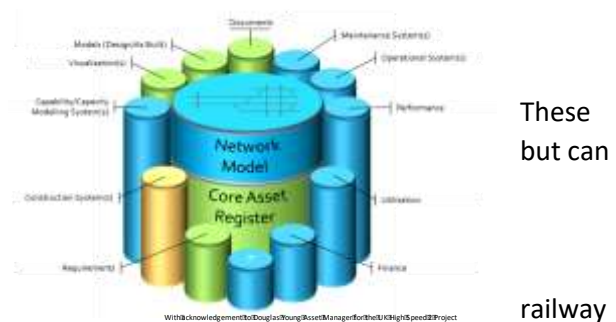
Summed together these form the Client Information Requirements and set out what needs to be delivered.



7.6 Defining Asset Information

The term asset information is a generic term covering a range of information and data types. data may or may not sit in a core asset register, be associated or linked with an asset.

This is illustrated diagrammatically here for a asset.



7.7 Asset Information Requirements MoSCoW Table

The following table gives summary guidance to the basic information requirements for any given asset. It is designed as a list that gives headers of information attributes required and to be fulfilled by detailed against detailed object descriptions. It uses the MoSCoW rating system for priorities specifically: -

M – Must have information

S – Should have information

C - Could have information

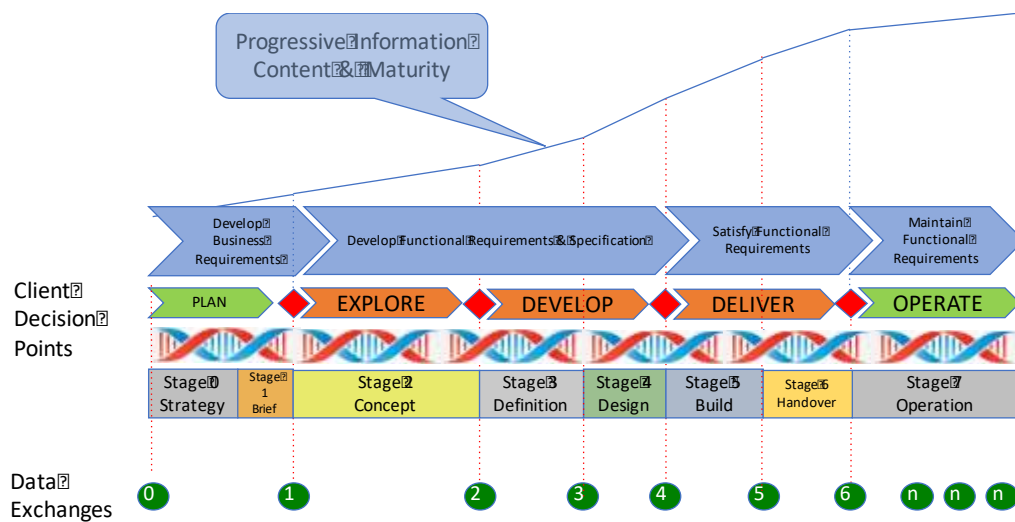
W – would have eventually information if time and money available

Subject	MoSCoW Rating	Notes
Asset Inception and Life Cycle	Must begin life as it is conceived not when it has been built and handed over after or during construction.	To satisfy life cycle information requirements, the development and collection of data about an asset must be instantiated at conception and be progressively managed and added to through its life cycle
An Asset	Must have a unique identification and a reference to type of object. Managed revision identifier	As an asset is conceived in the planning & design process it should be uniquely referenced and from that point on version controlled.
	Should have information related to its: - Currency Suitability for information use Functional. Technical performance specification.	Date of information currency Suitability of use of information including quality and accuracy. The function the asset performs. The technical performance specification for the asset
	Could have: - A location – Geospatial, Linear & Space A topological relationship and location. Geometric construction Dimensions Relationship to other assets and groupings such as Network, Entities, Facilities, Systems, and Assemblies.	Geometry and topology are not essential attribute requirements. This breaks with IFC tradition which currently mostly relies upon construction geometric components and use cases. However, these will generally be required attributes for locational and context purposes.
	Further Could have: - Reference to Work Breakdown Structure Material Energy embedded Energy of installation Volume or other quantification measure related to a method of measurement Manufacturer Installation date and time Performance criteria of installed product.	An extendable list which will be dependent on type of asset being described and captured.

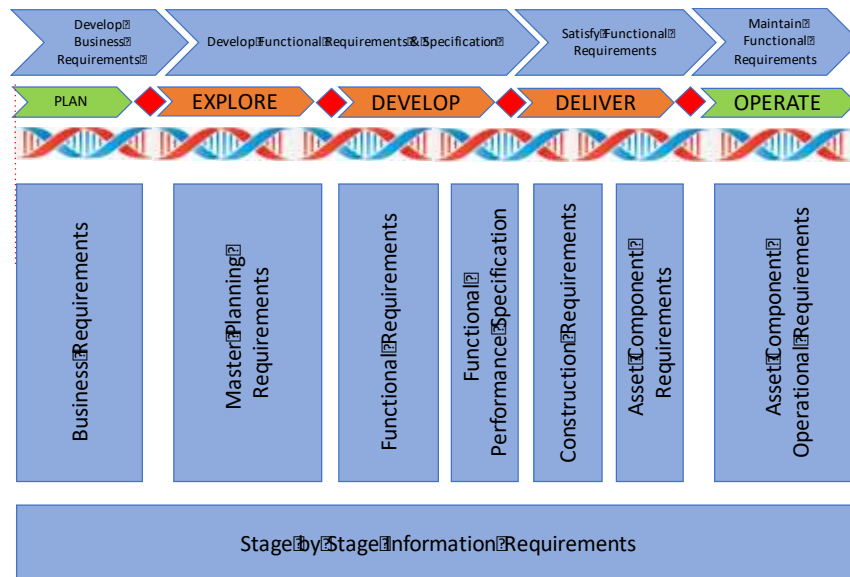
	Operational & Maintenance Could have: - Inspection frequency, Condition, Criticality, Risk	Information that gives support to day to day operation and maintenance of the asset.
--	---	--

7.8 Asset Information Requirements Stage by Stage

The information collected at each stage reflects the work carried out during that stage developing requirements from the initial business plan through functional requirements, specification to satisfying those requirements in construction and handing over that information for eventual operation.

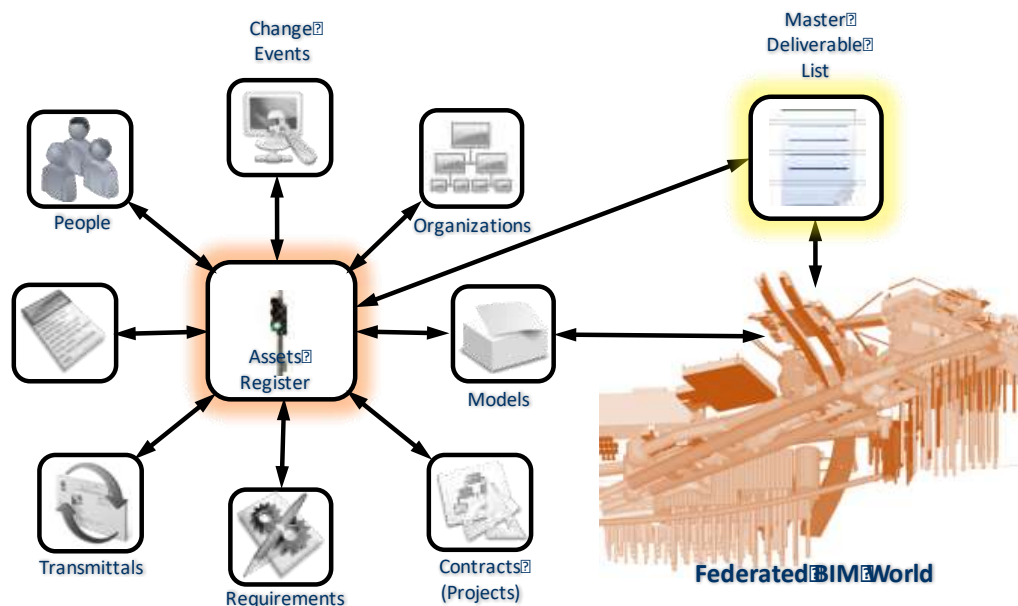


In more detail each stage develops and builds on the foundation laid down by the previous stage.



7.9 Project Asset Register

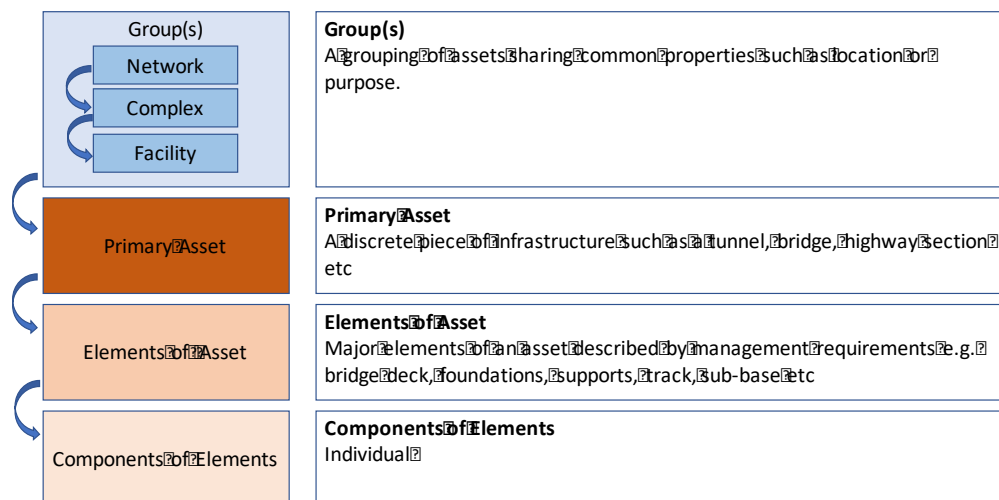
It is proposed that in order to achieve the maximum from BIM implementation an asset register is implemented. This will facilitate linking capability between models, documents and other associated data sets providing a repository for assets as they are instantiated.



7.9.1 ASSET INFORMATION HIERARCHY

An asset breaks down into a natural hierarchy of information that follow its natural development and provides inherited information to the next level of the hierarchy. There are multiple naming and grouping strategies for the levels of this hierarchy depending on domain, local and organisational practice and relationship to classification systems and will need to be developed in the detail strategy.

The following table gives an illustration of such a hierarchy. Note that the naming structure is given for example purposes only. It should also be noted that this hierarchy should not be confused with Classification Hierarchy which does not define things but indexes types of things in the context of information user.



Both primary assets and elements of primary assets can be systems or assemblies of elements or components. Each step in the hierarchy can be recursive. That is a further primary asset can exist within a primary asset or an element or a system asset element can contain hold further elements.

Breaking down the steps in the hierarchy will depend on the user of the information and should be developed during the detailed strategy.

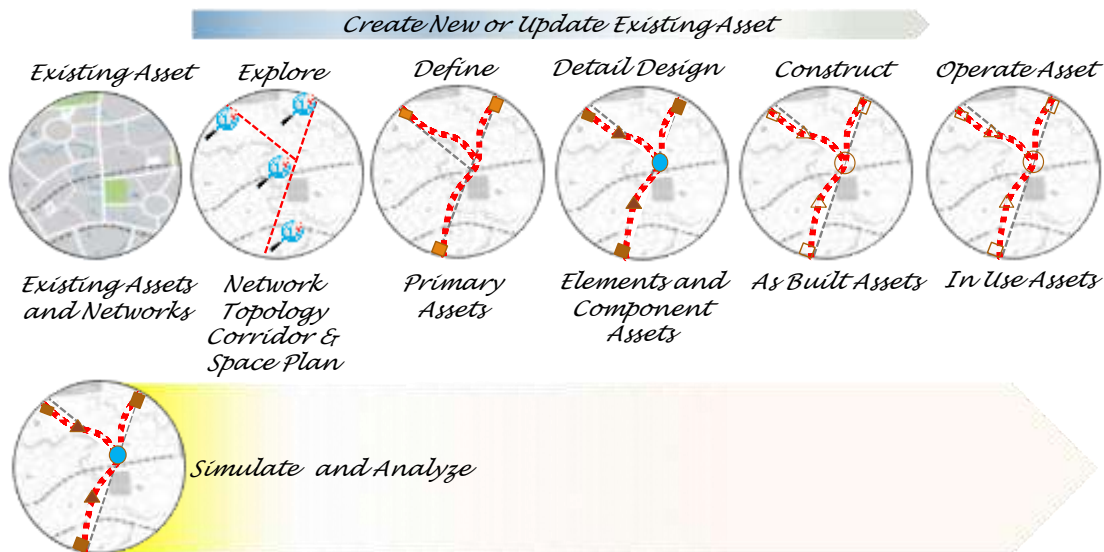
7.10 Level of Definition - Breakdown & Granulation

Depending on the life cycle stage of a particular asset and the asset hierarchy information that fulfils the managers needs is required. This has been interpreted in various ways across the world and across domain disciplines. Often this has been interpreted as the refinement of geometric detail required at each stage of development and harks back to the age of scale drawing/CAD/GIS detail. However, a number of more recent developments have recognised that this needs to cover not just geometry or scale but the total information attribute and metadata content required.

Depending on the stage, discipline, hierarchy or type of object different levels of definition may be required. Hence at the end of a stage or at a time in development a particular asset object may have geometric detail to one level and attribute information detail to another.

Information granularity is not therefore a continuously developed and refined object adding more detail but more a set of objects at each stage of development each with their own detail, accuracy

and information content appropriate to the stage of development. Each inheriting the information from the previous stage but NOT replacing the object but adding new more detailed objects.



Information requirements will therefore be related to the stage and level of information appropriate to the stage of development.

This should not only inform the BIM requirements but also the structure and requirements for future Asset Information Systems.

7.11 Information Accuracy, Utility and Purpose

Additionally, at each group in the asset object hierarchy and at each stage of development the required accuracy of information will differ.

It is important therefore to record within asset object metadata to what level of accuracy the information contained is produced and for what use or that information can be applied.

To illustrate at an early new project stage of planning or concept design a new road corridor might be modelled to ascertain basic alignment, quantities and land requirements. At this stage the level of accuracy required would be sufficient to approve a concept design and make basic decisions on budget. However, the information would not be accurate enough to complete detail design and set out the construction which would be fulfilled at element level with detailed alignment and offset geometry. At asset management stage accuracy should be held at a level that is suitable for location and for future updating construction.

7.12 Standard Asset Type Libraries and Data Dictionaries

In order to maximise cross-project use it is proposed that a standard library of asset types be used on the railway be established. This will not only support naming consistency and common attributes but also encourage the use of repeat assets thus increasing efficiency of procurement and potential for off-site manufacture.

Projects such as London Crossrail have developed such a library based on Asset Data Definition Documents (AD4s). Similarly, the Netherlands Highways Authority and Pro-Rail have developed Object Type Libraries.

The detailed strategy should develop that library borrowing experience from the above projects and any similar libraries internal to the three participating countries.

7.12.1 LANGUAGE MAPPING

By using a common asset register naming for objects and their attributes can be mapped to the different languages used on the project.

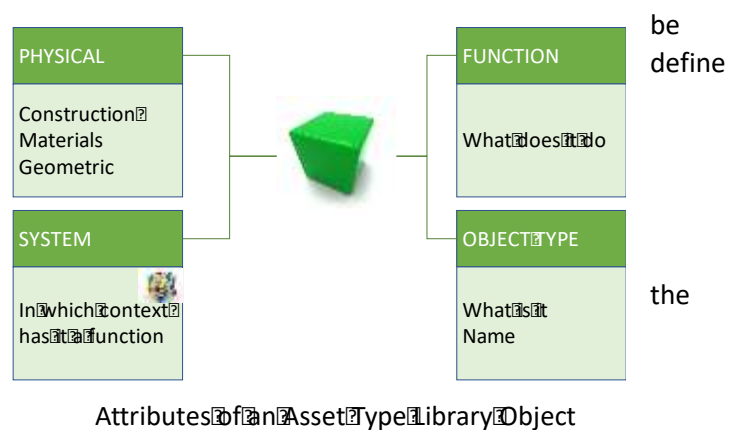
7.12.2 CLASSIFICATION

Similarly, different classifications can be applied to each asset that reflect their use and the classifications used in each country if they differ.

Classification may differ between countries. It is recommended that a general classification system is developed with cross referencing to classifications used in each respective country.

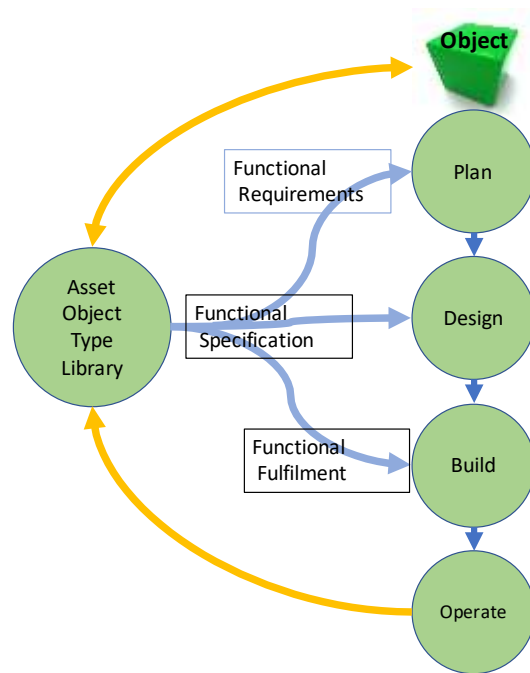
7.12.3 ATTRIBUTES

For each asset type attributes should be developed that name the asset type, its function, what systems and/or assemblies it relates to and physical properties such as construction materials, dimensions, serial number, asset tag, and condition. Further attributes can be added as project progresses as required.



Those attributes will increase in content and detail as the project progresses as illustrated below.

Interaction with a Type Library at different project stages



7.13 Project Information Requirements

Project information requirements relate to management of the project delivery. They will include: information for approvals, scheduling, progress monitoring, cost control, procurement and communication with stakeholders.

They relate to the assets being delivered and hence bear a close connection with the components of data models. Once asset components are identified their work breakdown structure for delivery can be ascertained and linked to cost, scheduling, issues and supporting documents such as 3D models, drawings, photographs, sketches and specifications.

This approach provides flexibility by not holding data in proprietary BIM tools but exposing the results to a wider audience of stakeholders and information users.

This approach facilitates the addition of what is known as 4D BIM (scheduling) and 5D BIM (Scheduling and cost). As well as more flexible approach to adding data without resorting to significant proprietary BIM modelling output.

Whilst this Strategy Framework includes the possibility of 4D and 5D modelling the full implications of such a strategy should be studied and an impact analysis undertaken during the proposed detailed BIM strategy.

The detailed strategy should therefore develop these requirements stage by stage through delivery.

8 Delivery Process (How)

The process of information delivery needs careful consideration as it sets out the contractual obligations and practical steps to ensuring that each party understands the information requirements and demonstrates how they will deliver against those requirements.

This strategy framework suggests a file based delivery approach to required information. Following the project delivery process step by step and details the actions at each step of the project lifecycle. From itemising existing information, setting out client information requirements, through choosing and contracting with the supply chain, mobilising, and delivering information.

The process is best looked at as a 'racetrack' cycle idealised as follows:

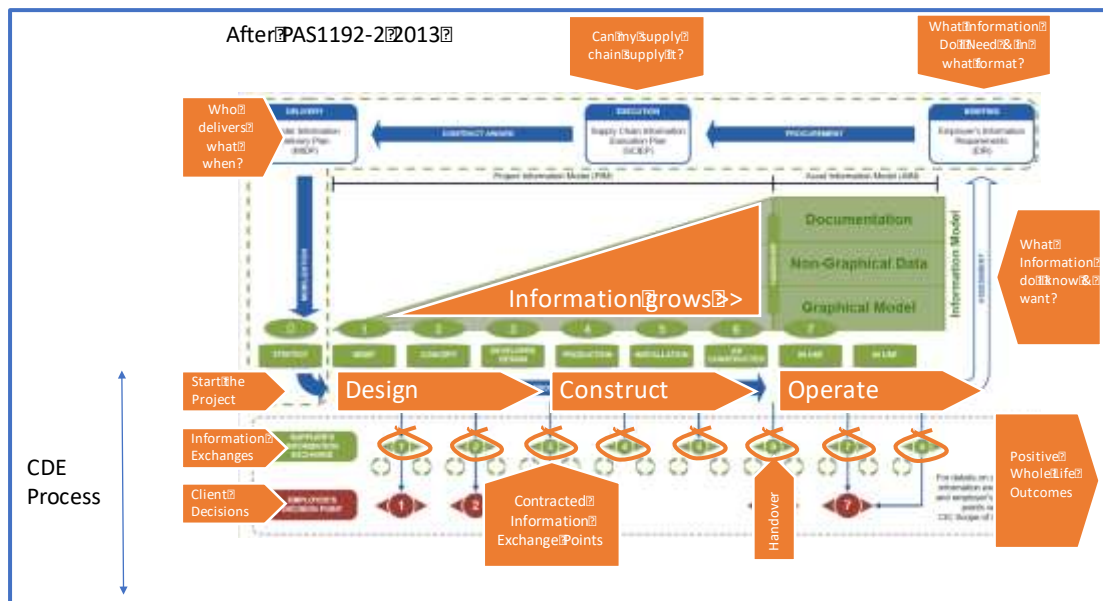


There are process standards evolving to support this process. It is recommended that the solution adopted should follow those currently being developed in the Nordic area and in particular meet local industry maturities and experience.

An example of such an approach is the one set out British Standards 1192 Series of Standards, specifically, British Standard PAS 1192:2:2013. This standard is currently under development as international standard ISO 19650 and designed to fit with buildingSMART International Delivery standards.

The 1192 approach is used in this framework as an example of the required delivery process functionality. However the process is generic and the detailed BIM Standards development should investigate local process standards (National and Nordic) against international emerging standards and document the chosen process in detail.

The core of the detailed PAS 1192 delivery process shown in the following 'racetrack' diagram:



Reference to the British Standard PAS 1192:2 – 2013 and any updates for the detail of this process are freely available from the following web site <https://shop.bsigroup.com/Navigate-by/PAS/PAS-1192-22013/>

Summarising the generic process step by step starting at the right hand side following feedback:

8.1.1 GATHERING EXISTING INFORMATION

What information is available from earlier analysis, surveys, existing databases & previous projects. Made ready for sharing with the supply chain at briefing and contract start in an agreed format accompanied with meta data that describes its currency, accuracy, suitability and purpose.

8.1.2 CONTRACT BRIEFING

Setting out the Clients Information Requirements and the delivery standards for the information including format and structure of the data. Mandating how the information will be exchanged, coordinated, validated and approved.

This makes the delivery of required information a contractual obligation to use a CDE approach to information delivery.

8.1.3 PROCUREMENT

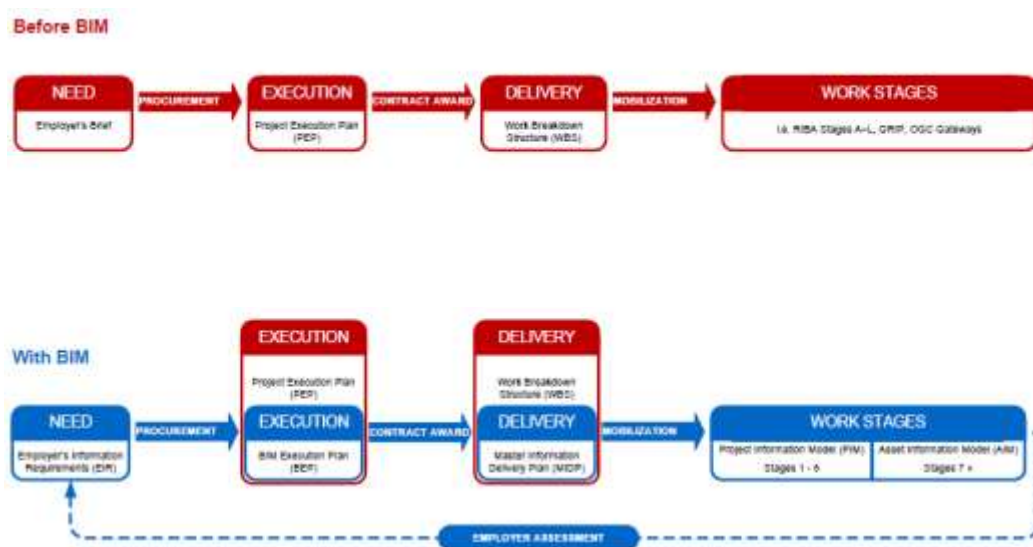
Project goes to tender to designer/contractors. Who respond with details of their capabilities and a BIM Execution Plan (BEP) that outlines how they will fulfil the contracted information delivery.

8.1.4 BIM DELIVERY PLANS

On award of contract the selected designer/contractor produces in discussion with the client a detail BEP and a Model Information Delivery Plan (MIDP). This sets out what data models will be delivered, lists those deliverable, how they will be broken down and who is responsible for those deliveries.

As part of that delivery plan the designer/contractor will demonstrate how they will ensure that the delivery is co-ordinated and meet the requirements of Common Data Environment (CDE) including delivering data to the Rail Baltica Common Data Environment for approval and wider sharing.

Whilst this might seem complex it is very little different to the normal process carried out for Project Execution Plans as can be seen in the diagram below.



8.1.5 MOBILISATION

An often overlooked stage in the delivery process is mobilising the technologies, people and communications to enable delivery and data exchanges to take place.

In the case of Rail Baltica it is proposed that central systems are set up ready for each project. This should include technology, start-up materials, training and education plus a central support mechanism. Hence mobilisation for each project will consist of plans and implementation of communication, roles and responsibilities, systems and system connection.

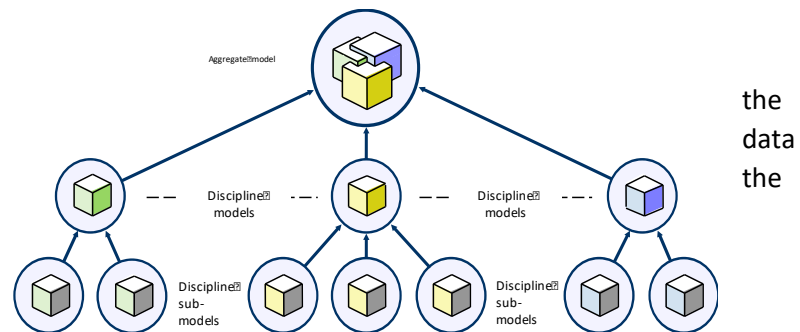
Time and resources should be planned for this mobilisation set up.

8.2 Delivery Stage

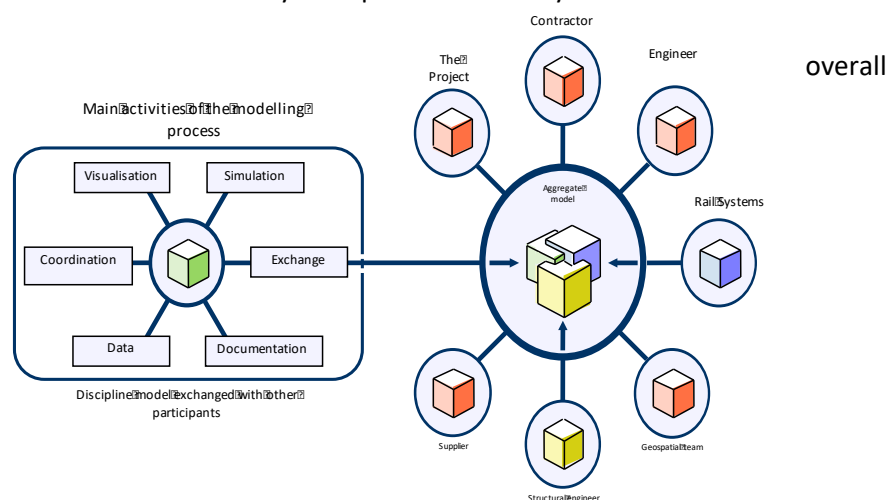
BIM Project information delivery starts supported by the project Common Data Environment data is collected progressively fulfilling the project 'Information Requirements' stage by stage coordinating across the project.

8.3 Delivery Content

The initial strategy set out in this document is founded on file based information delivery. Featuring files that can be viewed and referenced together (federated) it does not attempt to build one large single model but uses multiple sourced files controlled by the CDE. During detailed BIM strategy the volumes and their impact on CDE should be considered



Delivered data models can then be referenced by multiple users to carry out their tasks and deliver newly created information back to the CDE.



File delivery is composed of three distinct components combined as a single package:

- Models files –that contain models of a defined part of the project. These can include 3D models of assets and point cloud files. All files should be referenced to a common grid, common origin and map projection standard

- Data files –that contain information has been extracted from or related to delivered models, delivering data relating to each asset. Files should be extracted from the same version of the model file delivered with it. Data files should contain an index of the files contained in the delivery package.
- Document Files – including drawing files that contain information cut from the related delivered models, sketches/drawings that relate reference the delivered models and asset data but not necessarily cut from those models, photographs that relate to the delivered models and the asset information data.

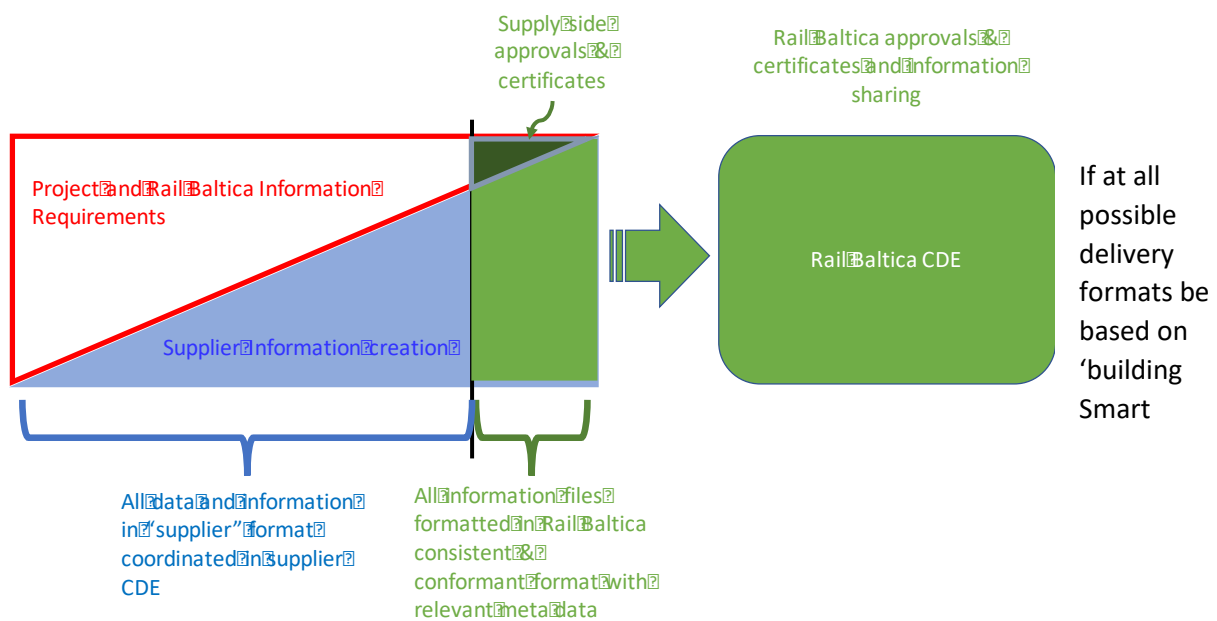
8.4 Delivery Format Standards

Information delivery to the project should be based as far as possible on non-proprietary formats which are capable of being federated, shareable and readable by all project participants.

Delivery should be based on enabling and permitting the supply chain to use the software creation and editing tools that suit their discipline and experience. Their delivery to Rail Baltica for project wide collaboration, coordination and approvals should be based on a format that can be consumed and used by the widest possible audience of stake holders.

The necessity for Rail Baltica to use proprietary BIM software should be avoided and all creation and editing should be undertaken by the supply chain.

This will necessarily require the supply chain participants to convert deliverable files into a more universally consumable format and structure. The process outlined in the diagram below is envisaged and should be developed during the detail strategy.



International' 'Open Standards'. However, it is recognised that for many railway and infrastructure assets these standards do not exist or are under development and not mature enough to use reliably in the project.

Where not possible then tools developed the proprietary software market should be adopted.

During the detailed development of BIM standards investigation should be made on the available common delivery formats and tools should be made. Typical of such formats are Bentley Systems iModel format or Autodesk's Navisworks format. Each of these have capabilities to combine various sources of information into a single viewable and useable format. Specific criteria for the choice of these tools are:

- They should have characteristics that meet the need for federation and sharing without further conversion and manipulation.
- Ideally these tools should embed all model data including the identification of individual assets and their attributes.

8.4.1 MODEL FILE FORMATS

Early BIM Model delivery centred around CAD file formats that defined geometry in 2D and 3D that could be referenced and delivered as drawings. These approaches delivered models in the common CAD formats of DWG for Autodesk AutoCAD and DGN for Bentley Microstation. Such models whilst geometrically defining components and permitting coordination for clash detection do not deliver full BIM information capability and therefore do not deliver many of the benefits of a BIM approach to project realisation.

The detailed strategy should ensure that such deliveries are avoided.

Serious consideration should be given to the use of BIM models that contain component information beyond geometry using an open set of standards for information exchange. As stated in our BIM objectives this requirement has risks of increased cost and need for skills which need to be considered the potential benefits for the overall project are significant and worth investigating.

A number of exercises to develop an open approach to model delivery are currently underway these include:

- 'building Smart' who have developed the concept of Industry Foundation Classes (IFC) to define construction assets, their geometry and their many attributes. Currently IFC have been developed to include most assets associated with buildings but not specifically railways and other infrastructure types. IFC standards for road, rail, bridges and tunnels are under development with at least a two to three-year horizon before delivery.
- Finnish Infra Model which has been used by the Finnish Traffic Authority since 2015. This has been developed from a previously defined 'LandXML' standard. Details can be found at <https://buildingsmart.fi/en/infrabim-en/inframodel-data-exchange/>. It should be noted that the Finnish authorities are working with 'building Smart' to integrate this into their forthcoming standards.
- Open Geospatial Consortium (OGC) who has developed a conceptual LandInfra model and encoded that in 'Open' Geometric Mark-up Language (GML). This standard is useful for wider geographic views of assets including networks, alignments and linear referencing. The

OGC have developed this standard in conjunction with 'building Smart' and it shares a common conceptual model for alignment definition.

Whilst these standards are useful it is considered they are not yet ready for full implementation across the type of assets that will be encountered in Rail Baltica. However, the detailed strategy should review them with a view to ensuring they can be incorporated as they evolve and mature.

It is recommended that at the current state of standards that the following are adopted:

- Geographic features such as boundaries, land parcels, environmental areas and other similar areas OGC GML should be adopted.
- Network and corridor alignment OGC 'LandInfra' GML should be adopted buildings such as stations the IFC
- Buildings such as Stations that 'building Smart' IFCs are adopted.
- For other infrastructure assets and features a proprietary tool provided by software vendors should be integrated. During the detailed strategy investigation should be made on how these tools work and their overall flexibility. Multiple conversion of data should be avoided and a tool that can hold native IFC and GML would be preferable.
- Point cloud files should be delivered to an agreed format to be decided during detailed strategy development.

The standard needs to provide capability of being delivered as individual files that can be federated in the CDE.

8.4.2 DATA FILE FORMATS

Following the above principles data should be delivered in a format that can be checked, validated by Rail Baltica and consumed by the Rail Baltica Asset Register.

The file schema and content should match that of the asset attribute requirements defined in the 'Standard Asset Type Library'

It is suggested that this is delivered spreadsheet format similar to COBie (Construction Operations Building Information Exchange) which is a non-proprietary data format for the publication of a subset of building information models (BIM) focused on delivering asset data as distinct from geometric information. (<https://www.thenbs.com/knowledge/what-is-cobie>). Further defined by BS 1192-4:2014 "Collaborative production of information. Fulfilling employer's information exchange requirements using COBie. Code of practice" freely available from <https://shop.bsigroup.com/forms/PASs/BS-1192-4-2014/>

The exact format and schema may need to be modified to suit Rail Baltica requirements in particular matching to the information requirements set out in the 'Standard Asset Type Library'.

A spreadsheet format will permit all users throughout the supply chain to use as it is a de-facto common standard.

As the project progresses it may be possible to deliver this data in IFC or other 'Open' data file formats.

This requirement does place some burden on the supply chain and their software vendors in extracting the required asset information from their models. However, the ability of extracting this data and liberating it for wider use outside proprietary software is key to the success in delivering the full benefits of BIM to the project.

8.4.3 DOCUMENT FORMAT

Document formats will depend on the type of document being delivered.

The detailed strategy should also consider whether native model file formats such as Revit rvt together with native analysis files should be delivered. However, care should be taken in this as the whole strategy is based on Rail Baltica and the implementing bodies as clients not requiring to hold and use proprietary BIM software tools, but use tools that can federate and use extracted data.

Drawings should be ideally delivered in the same format as the BIM Models retaining their link to the objects within the model. By doing so the objects in the drawing can be related to the asset register. However, if not in model format then one of the de-facto drawing CAD formats namely DWG or DGN. PDF versions of delivered drawings should also be delivered.

Other documents such as specifications and reports should be delivered in xlsx, docx, csv or PDF form as appropriate.

Photographs and videos should be delivered in a de-facto standard such as JPEG or MPEG.

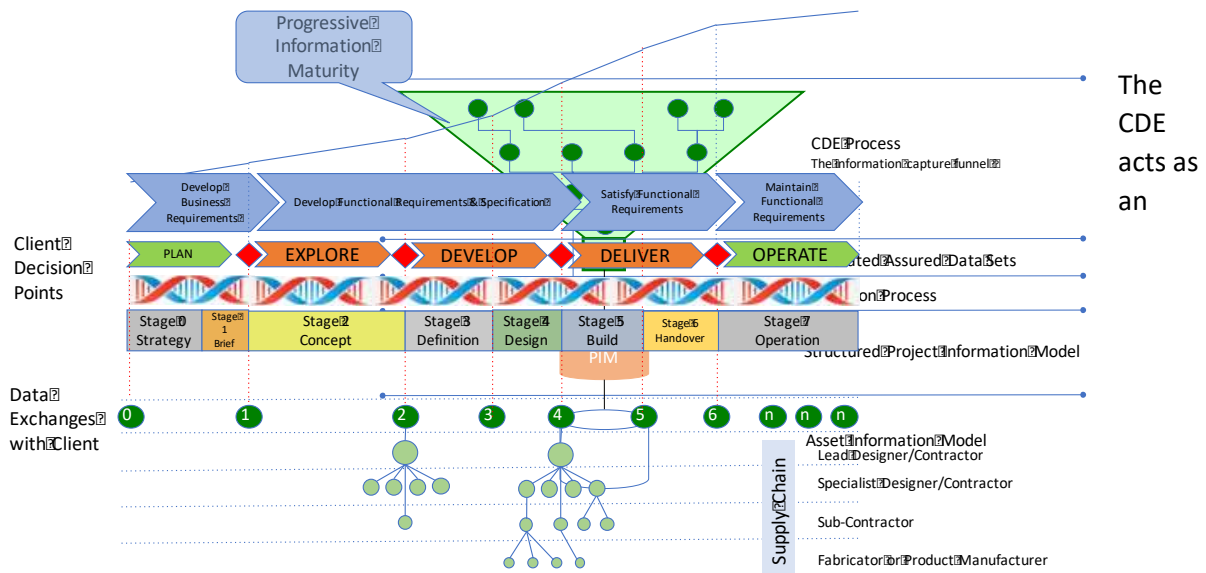
8.5 Delivery Collaboration and Coordination Common Data Environment (CDE)

In order to support project wide collaboration and coordination it is proposed that a Common Data Environment (CDE) process and technology is implemented.

An example of such a CDE can be found in the principles of BS 1192:2007 and BS PAS 1192:2 – 2013. These principles define the process and standards for carrying out coordination between multiple supply chain sources and controlling the delivery of that information.

8.5.1 CDE INFORMATION CAPTURE PRINCIPLES

Information is delivered in files from multiple sources in the supply chain and the CDE controls the coordination of that information in an organised, traceable and auditable process.



information funnel process capturing and coordinating each layer of the supply chain into a coherent and validated data set. Which can be used at each layer of the supply chain and eventually delivering assured federated data sets to the project

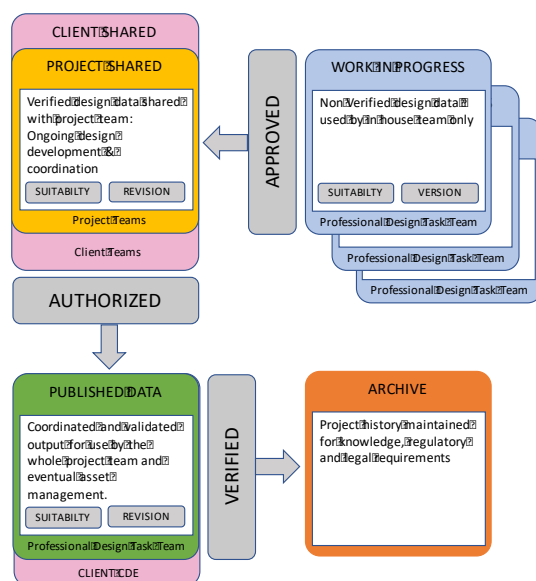
8.5.2 THE CDE COORDINATION PROCESS

The CDE supports and delivers a coordination, collaboration and approval process.

The British Standards referenced above namely BS 1192:2007 and PAS 1192: 2 -2013 are used here as example CDE processes. However, during the development of the detailed BIM standards these processes should be detailed specifically for the Rail Baltica project taking into account local maturity and adopted standards.

It is important that the chosen process is suitable to the current state of technology and available software tools. It is recognised that within a single team or discipline it may be possible to develop models with a single proprietary system however there is currently no single system available that can model all aspects of a rail project neither it practical to do so.

The works by progressing federated data files through a series of states and sharing the results for coordination, revision and approvals at each stage.



Information Coordination Process after BS 1192 and proposed SO 19650

Work in Progress

Starting with Work in Progress from a single team models and data are developed within that team until it has reach sufficient completion to share with other teams for them to coordinate with their work.

Project Shared

At which time having approved content and technical details the file can be shared for selected teams to reference. Those teams can then combine (federate) with their work and others, who have rights, if required to coordinate comment and resolve any issues. It should be noted that this process requires a rapid sharing discipline delivering coordination information to other project participants early in order to achieve a fast-combined goal.

It should be noted that commercial terms should be in place to ensure that all data created during the project for purpose other than for the project alone and not for instance for competition.

Often the coordination is best carried out in secure encrypted virtual meeting rooms where files can be viewed in federated form, differences can be resolved on the spot and actions recorded safely.

Client Shared

Once coordination has been completed to an agreed level the results can be Shared with the client for them to review, comment and approve. On approval the files can then be progressed to the Published state.

Published

Information is published for a specific defined purpose which might be for example costing, planning and regulatory approval, scheduling or for construction.

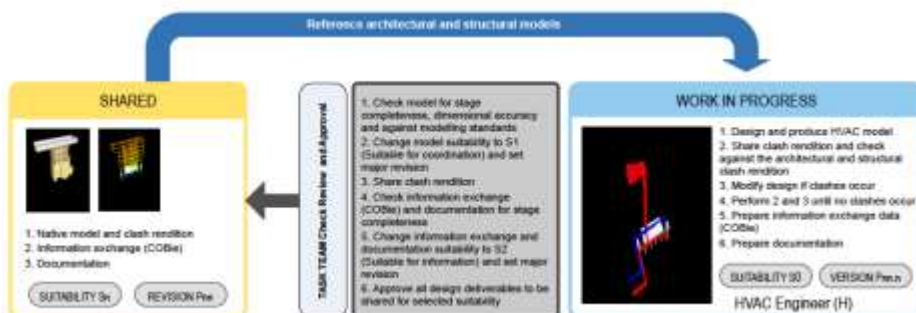
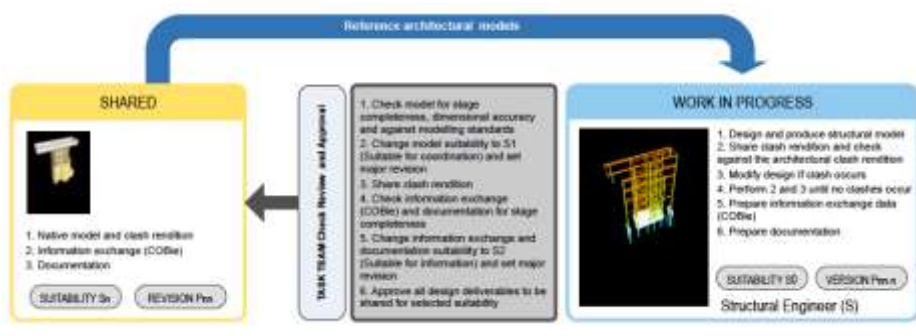
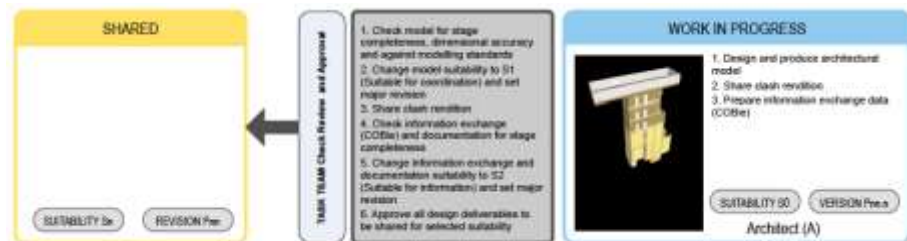
Published information is then available cross project (with appropriate permissions) a used as required in the context of the purpose it was delivered for.

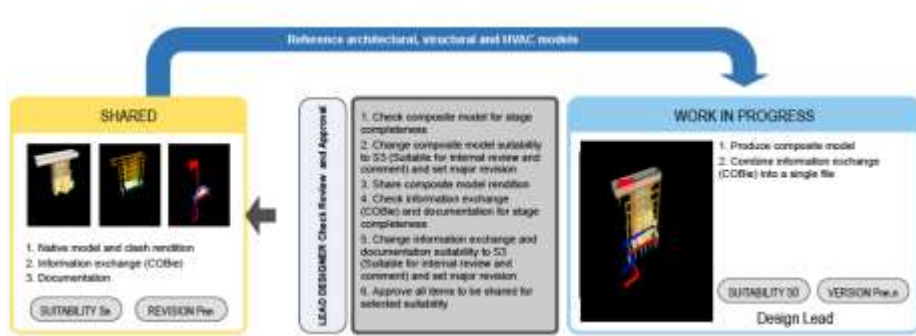
It should be noted that this Published State is not a Document Distribution Register it just contains the information that can be distributed outside the immediate project using document management techniques.

Archive

At each state information is archived to enable development history to be audited and retrieved.

The following diagrams illustrate the principles of the WIP/Share process:





8.5.3 SPATIAL COORDINATION

Spatial coordination of building information model(s) is an essential component to successful project collaboration. Generated model data, whether 2D or 3D, shall be created to:

- The agreed Project Coordinate system;
- True height above project datum.
- Agreed map projection systems where appropriate.

This will ensure that each discipline's model data can be effectively shared and fully coordinated within the project's information database to enable design review, coordination and clash avoidance/resolution to be undertaken.

8.5.4 FOLDER NAMING

Folder naming which considers the ontology of project information, contracts, disciplines and hierarchy of information are required to support information federation and the CDE process.

These should be developed during detailed BIM strategy.

8.5.5 FILE METADATA AND NAMING

A CDE process relies upon data that describes the content, origin, location, model volume, purpose/suitability, state, version and revision of the files being developed and delivered.

For example, in the case of the BS 1192 standards this relies upon a series of file naming conventions however this data could also be treated as file metadata. However, it is used it is important that this information is transmitted at the point of state change and that if any file is retrieved in digitally printed form the full metadata stack is included in the document.

The following conventions are shown as examples of required content.

The detailed BIM strategy will require tabulation of Rail Baltica file naming conventions, suitability codes, version and revision codes.

File Naming

The following file naming conventions are included in the example standard:

[Project] – [Originator] – [Volume] – [Level] - [File Type] - [Role] – [Number]

Project		Originator		Volume		Level/ Location		Type		Role		*Number
RSME	-	ATK	-	GB101	-	GF	-	DR	-	S	-	0001

Generally, these names are self-explanatory:

- Project – defines the name of the specific project the file relates to
- Originator – the name of the designer/contractor who created the file
- Volume – the specific zone of the model the file describes (see notes below)
- Level/Location – the location within the project – designed to locate where in the project the model is located. In a building this could be a floor but in a railway it is more likely to be a specific network line and a linear location on that link.
- Type – the type of file being developed and used for instance a model, drawing, or data file.
- Role – the discipline role that the file relates to for instance track design, Overhead Line, structural etc.
- Number – the sequential number of the file within this discipline.

Other data may be required for instance 'Confidential' status or mark.

It should be noted that these are not necessary drawing or document names but referential mechanisms. Published documents can be named according to any project convention however the file name (metadata) should be included at some in any printed rendition of the document and the information clearly available in any document register.

Status Code

Status defines the **'fitness'** of information in a model, drawing or document. It allows each design discipline to control the use to which their information may be put.

SH-CA-00-LG1-DR-A-00001 <Status code> <Revision code>
attribute attribute

A

typical Status Code table is used below for illustration. However, a more detailed project table will need to be produced during the detailed strategy development.

Status	Description	Model files	Drawing files	Documents
S0	Initial status or WIP Master document index of file identifiers uploaded into the extranet.	✓	✓	✓
In the Common Data Environment 'Shared' section				
S1	Fit for Co-ordination The file is available to be 'shared' and used by other disciplines as a background for their information.	✓	X	X
S2	Fit for Information	X	✓	✓
S3	Fit for Internal Review & Comment	As required	✓	✓
S4	Fit for Construction Approval	X	X	✓
In the Common Data Environment 'Documentation' section				
D1	Fit for Costing	✓	✓	✓
D2	Fit for Tender	X	✓	✓
D3	Fit for Contractor Design	✓	✓	✓
D4	Fit for Manufacture/Procurement	X	✓	✓
A	Fit for Construction. RIBA states that 'A' is noted as to 'action for construction.'	X	✓	✓
B	Partially signed-off: For Construction with minor comments from the Client. All minor comments should be indicated by the insertion of a cloud and a statement of 'in abeyance' until the comment is resolved, then resubmitted for full authorisation.	X	✓	✓
AB	As Built	✓	✓	✓

File Revision Codes

The revision is required to track the progression of a file or document to its completion and authorization.



They

follow the file through its states and act as a ratchet for each player within the process to recognise and record their file state.

The 'Status codes' and 'Revision' numbers are allocated as follows:

A typical table of codes is shown for illustrative purposes. The detailed strategy development this to expanded and for the project.

- During WIP (Status S0), preliminary revisions and versions are P1.1, P1.2, or P2.1, P2.1 etc. before release to 'Shared'.
- Before 'authorised for construction' (Status S1-Sn), preliminary revisions are: P1, P2, P3 etc.
- Once 'authorised for construction' (Status A), revisions are: C1, C2, C3 etc.

revision below for during will need published

Stage	Status	Revision and Version
WIP	S0	P1.1, P1.2, P1.3, P1.4 etc.
Pre-Construction	S1-Sn	P1, P2, P3, P4 etc.
Approved for Construction	A	C1, C2, C3 etc.

8.5.6 FILE ACCESS AND SECURITY

Control over who can see use and edit is critical to this process.

During WIP only the team creating the file can see edit and approve the content.

At the point of Share for coordination then the file is made visible to those who need to coordinate and approve the content. It should be noted that the file cannot be edited in this state and any changes are referred back to the originator.

Similarly, at the point of Publish then wider access is given but only for reference purposes not for editing.

Wider security issues regarding what should be made available and access to wider audience should be developed. An example of the required procedures for developing security approach can be found laid out in PAS 1192-5:2015 Specification for security-minded building information modelling, digital

built environments and smart asset management available freely from <http://bim-level2.org/en/standards/>. This standard provides practical advice on BIM file security across the project and the technical architecture standards that should apply.

The results of security investigations against processes will require a project access control matrix to be developed. Again this should be created during the detailed BIM Standards development.

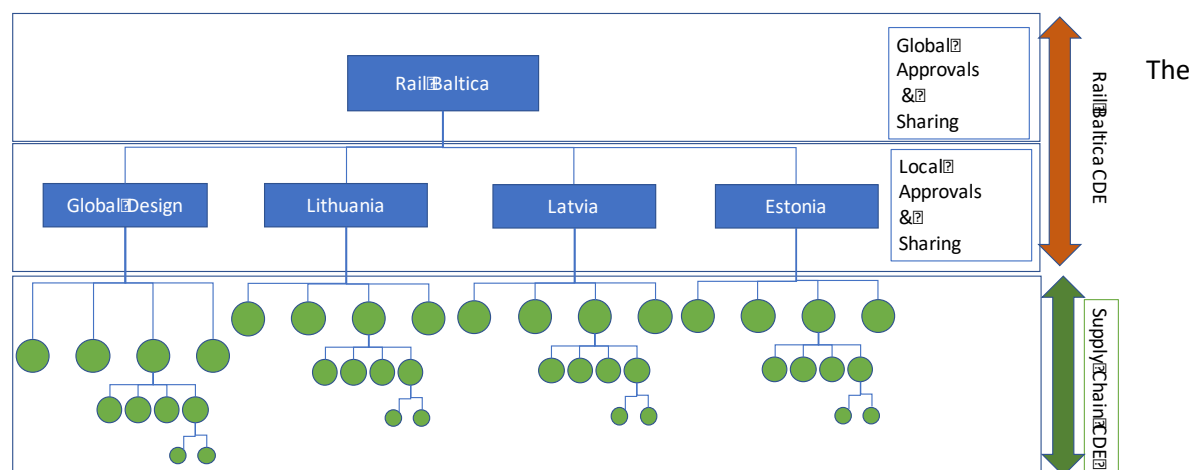
8.5.7 MULTIPLE CDE INFORMATION DELIVERY PRINCIPLES

Implementation of a CDE has multiple variations. Some projects have opted to control the full CDE chain including the suppliers within their system. Others have opted for a cascade approach asking suppliers to develop their own CDE that interacts with the client CDE in submitting information as it reaches Client Share State and making Published information available to the supply chain from the central CDE.

In the case of Rail Baltica it is recommended that the cascaded option is adopted.

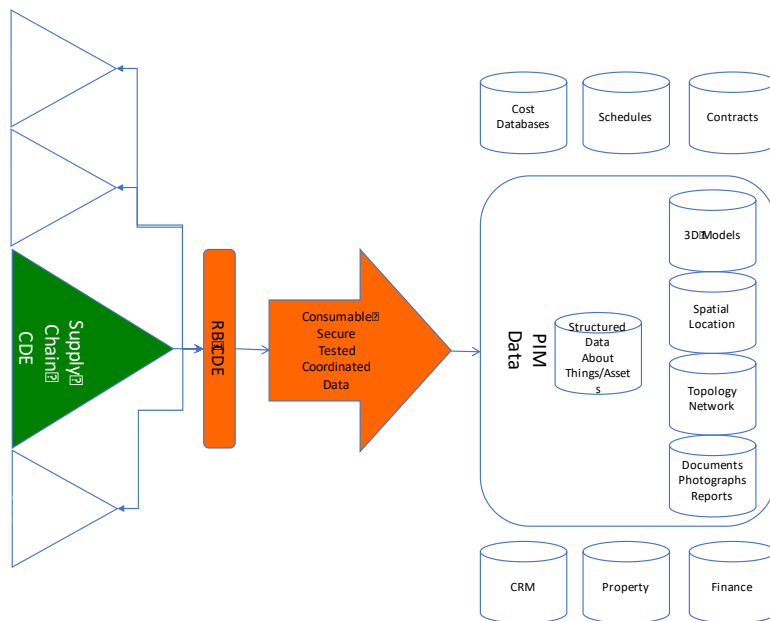
This frees the supply chain to use their own tools and systems based on a process that can be audited by Rail Baltica leaving Rail Baltica to deal with the collection, validation and approval of submitted and the distribution of project wide published data.

The recommended CDE architecture is shown in the diagram below:



central Rail Baltica CDE acting as a project control for all submitted information permitting local approvals by participating authorising bodies and overall project approvals and sharing by Rail Baltica. Thus, facilitating the requirement for local and global sharing and approval which will be developed during detailed strategy and standards.

Information then submitted can be assimilated into a Project Information Model and linked to other data relevant to the project.



9 People (Who)

Key to the success of the BIM strategy is the adoption of the practices by the people involved in the process. The process necessarily involves change and new approaches to delivery many of which encounter resistance from the professional community. The recruitment of all stakeholders and their involvement in the developing digital delivery of the project is an essential ingredient of realising the benefits of BIM. This is often the most difficult part of the process and has been the cause of many issues in implementing BIM across a project.

It is therefore a core part of the Rail Baltica BIM strategy to ensure that roles and responsibilities are identified to support the implementation and that the necessary knowledge and skills are communicated by documentation, training and interchange of developing technologies and practice.

9.1 Roles and responsibilities

The goal of implementing BIM is to make the delivery and use of digital information business as usual rather than inventing new jobs and job titles we want to involve all who are stakeholders in the project to work digitally and become BIM specialists.

It is therefore recommended that job titles such as BIM Manager are avoided. Having said that there are a number of roles that need to be undertaken and responsibilities to be allocated.

These include the following:

- Rail Baltica Information Manager – responsible for the overall coordination of information, the processes, standards and implementation on the project. The role does not have any responsibility for information technical content but does ensure that the BIM process is enforced and facilitate the delivery of information, its sharing and security across the project. It is suggested that this role is appointed by Rail Baltica
- Implementer Information Manager – a similar role that supports the local (Country) delivery aspects of information. Again these should be appointed by Rail Baltica in close discussion with local implementation bodies.
- Individual Project Information Managers – Managers who liaise with the Rail Baltica Information Managers appointed as part of the project by the supply chain contractors.
- Individual roles supporting the CDE process should be appointed by the supply chain contractors including discipline and team coordinators.
- Creating and authoring of information should be the responsibility of the design and construction engineers. Although they may use technicians who are experienced in modelling the strategy does not create specific BIM or CAD roles.

The core Rail Baltica Information Management role will require a support team that support and implement the technical solutions.

9.2 Communication, Promotion, Education, Training and Support

It is recommended that the BIM strategy is supported by a Support, Communication and Education programme. Key elements of which should include:

- Consideration should be given to the Information Managers having a small support team.
- A communication website that gives access to documentation, standards, reference manuals and short training videos showing process in practical detail.
- A support forum to answer queries and frequently asked questions plus the ability to share practical experience.
- Specific promotional events outlining the strategy, its benefits and components.
- A mechanism for all the project teams from client to supply chain sharing innovations, new approaches and technologies.

London Crossrail have set up an 'Open Academy', in conjunction with their technology provider, for the training and on- boarding of new project participants and the sharing of best practice and innovative technologies. This approach has proved very successful and it might be worthwhile making this part of the technology provision.

10 Commercial and Contractual

This BIM strategy makes the delivery of information through the stages of the life cycle and a key project asset. It is important therefore to bind in the information requirements and the delivery process to the supply chain contracts.

Individual information suppliers will need protection against unapproved copying of their supplied material. The recommended CDE process guards against this by making the Work in Progress state the only place where information can be changed.

Some information suppliers will have fears regarding the copying of their designs for purposes beyond the project in question. In order to guard against this the contract should include license to use the material for this project.

Finally, liability for content does not change in a BIM deliverable it remains as it always was with document related deliveries.

11 Technology

Technology to support the BIM delivery processes mandated in this strategy will need to be put in place.

There are two core technologies that are required:

11.1 The Common Data Environment (CDE)

Technologies to gather and manage the CDE process across the project automating the CDE processes and the validation of delivered information.

These technologies should be capable of collecting, federating for viewing reviewing, sharing across multiple users and locations. Information should appear as if one but may be distributed between systems.

A detailed set of requirements for CDE technology will depend upon the outcome of the detailed strategy.

The detailed strategy should include volume and capacity requirements for the CDE

A number of CDE potential solutions are available from the market however, these will need to be calibrated against the detailed strategy before selection is made.

11.2 Asset Register Systems

Working alongside the CDE an asset register system will be required to record asset instantiation and the capture of the associated attributes.

As this provides the links to many other sets of information such as scheduling, cost, contracts etc. a system that can be closely coupled with the CDE and linked to other databases is recommended.

Specifications for this system should be developed in the detailed strategy.

Annex D: SERVICE SCHEDULE AND RATES

Development of detailed BIM Strategy	No	Deliverable	Activity	Milestone	Review and/ or approval through Contracting Authority
	1.	Work package No.1	Kick-off meeting + 1. Workshop with Stakeholders (face to face meeting)	17 May, 2018	-
	2.		Detailed delivery schedule	Within 2 weeks of signing the contract	-
	3.		Update of BIM Strategy Framework document to achieve level of Detailed BIM Strategy document (<i>draft version</i>)	2 weeks after "Kick-off meeting"	2 weeks after submission
	4.		2. Workshop with Stakeholders (Skype meeting)	Within 2 weeks after submission of update of BIM Strategy Framework document to achieve level of Detailed BIM Strategy document (<i>draft version</i>) to the Contracting Authority	-
	5.		Update of BIM Strategy Framework document to achieve level of Detailed BIM Strategy document (<i>final version</i>)	1 week after 2. Workshop	1 week after submission
	6.		Full BIM Manual together with Detailed BIM Strategy Document including all Processes and Standards (<i>draft version</i>)	4 weeks from completion and submission of the Update of BIM Strategy Framework document to achieve level of Detailed BIM Strategy document (<i>draft version</i>) to the Contracting Authority	2 weeks after submission
	7.		Specifications and Designs for supporting Technologies (<i>draft version</i>)	Carried out in parallel with the delivery of the BIM Manual	2 weeks after submission
	8.		3. Workshop with Stakeholders (Skype meeting)	Within 2 weeks after submission of full BIM Manual together with Detailed BIM Strategy Document including all Processes and Standards (<i>draft version</i>) and Specifications and Designs	-

				for supporting Technologies (<i>draft version</i>) <u>to the Contracting Authority</u>	
	9.		Full BIM Manual together with Detailed BIM Strategy Document including all Processes and Standards (<i>final version</i>) and Specifications and Designs for supporting Technologies (<i>final version</i>)	1 week after 3. workshop	1 week after submission
	10.	Work package No 2	A ToR for Procurement of Supporting Technology (<i>draft version</i>)	2 weeks from submission of the Specifications and Design for Supporting Technology (<i>final version</i>)	1 week after submission
	11.		4. Workshop with Stakeholders (Skype meeting)	Within 1 week after review of a ToR for Procurement of Supporting Technology <u>through Contracting Authority</u>	-
	12.		A ToR for Procurement of Supporting Technology (<i>final version</i>)	Within 1 week after review of a ToR for Procurement of Supporting Technology <u>through Contracting Authority</u>	
		Work package No 3	Education and Training Material (<i>draft version</i>)	Delivered over a period of 12 weeks after submission of full BIM Manual together with Detailed BIM Strategy Document including all Processes and Standards (<i>final version</i>) and Specifications and Designs for supporting Technologies (<i>final version</i>) to the <u>Contracting Authority</u>	2 weeks after submission
	13.		5. Workshop with Stakeholders (Skype meeting)	Within 1 week after review of Education and Training Material (<i>draft version</i>)	-
	14.		Education and Training Material (<i>final version</i>)	1 week after 5. Workshop	1 week after submission
	15.		Ongoing Consultancy Support – support for questions and supplemental additions according to inquiries of Contracting Authority	A period of 12 months after the acceptance of Work package No 2 by Contracting Authority	-

Total fee:

92 500,00 EUR (ninety two thousand five hundred euro and 00 cents), excluding VAT.

The fee includes payment for any and all expenses incurred by the Service Provider in the course of provision of the Services and due performance of the Agreement.

The Payment Schedule agreed between Service Provider and Principal is:

After delivery and acceptance of:	Fee
Work package 1	50% of contract price
Work package 2*	30% of contract price
Work package 3	20% of contract price

**After acceptance of Work package No 2 by Principal the Service provider shall provide ongoing consultancy support for 12 months in term as specified in Annex D*

Service Start Date: The Service Provider shall start immediately after conclusion of the Contract to perform the Works as specified in Annex C and Annex D.

Annex E: KEY PERSONNEL

Annex F: LIST OF APPROVED SUB-CONTRACTORS

No sub-contractors intended.

Annex G: PROVISIONAL COMPLETION CERTIFICATE NO. **insert number**

Date: **insert date in the form of 1 January 2018**

Location: **insert location**

For:
[•]
(hereinafter, **Principal**)

This provisional completion certificate (hereinafter, **Provisional Completion Certificate**) is issued to the Principal by **insert name**, registration number **insert registration number**, legal address **insert legal address** (hereinafter, the **Service Provider**), represented by **insert name of representative** on the basis of **insert basis of representation**.

In this Provisional Completion Certificate, unless the context requires otherwise, all defined terms shall have the meaning ascribed to such terms in accordance with the **insert agreement date in the form of 1 January 2018** Professional Consultant Services Agreement No. **insert agreement number** (hereinafter, the **Agreement**) and Annex A (*Definitions and Common Terms*) of the Agreement.

Whereas:

- (A) the Principal and the Service Provider have entered into the Agreement;
- (B) Clause 7.5 of the Agreement stipulates that upon meeting a Service Milestone or producing a Deliverable constituting all or an identifiable part of the Scope of Service, the Service Provider shall issue to the Principal a Provisional Completion Certificate substantially in the form of Annex G (*Provisional Completion Certificate*) of the Agreement;
- (C) a Service Milestone has been met or a Deliverable has been completed.

The following Service Milestone(s) has/have been met on **insert date in the form of 1 January 2018**, as specified in accordance with Annex D (*Service Schedule and Rates*) of the Agreement:

describe in reasonable detail the Service Milestone attained. Insert n/a, if no Service Milestone has been attained.

The following Deliverable(s) has/have been completed on **insert date** and are attached to this Provisional Completion Certificate:

insert name of the Deliverable. Insert n/a, if no Deliverables have been completed.

As stipulated in Clause 7.6 of the Agreement, in the event the Principal objects to the issue of the Provisional Completion Certificate, the Principal shall give a written notice to the Service Provider setting out in **reasonable detail Defects or reasons for the objection (hereinafter, the “Objection Notice”) within fourteen (14) Working Days** following receipt of the Provisional Completion Certificate.

In the event of conflict between the text in this Provisional Completion Certificate and the Agreement, the Agreement shall take precedence.

Signature:

insert name, surname
insert position
insert company name

Annex H: PROVISIONAL ACCEPTANCE CERTIFICATE NO. **insert number**

Date: **insert date in the form of 1 January 2018**

Location: **insert location**

For:
[•]
(hereinafter, **Service Provider**)

This provisional acceptance certificate (hereinafter, **Provisional Acceptance Certificate**) is issued to the Service Provider by **insert name**, registration number **insert registration number**, legal address **insert legal address** (hereinafter, **Principal**), represented by **insert name of representative** on the basis of **insert basis of representation**.

In this Provisional Acceptance Certificate, unless the context requires otherwise, all defined terms shall have the meaning ascribed to such terms in accordance with the **insert date in the form of 1 January 2018** Professional Consultant Services Agreement No. **insert agreement number** (hereinafter, **Agreement**) and Annex A (*Definitions and Common Terms*) of the Agreement.

Whereas:

- (A) the Principal and the Service Provider have entered into the Agreement;
- (B) the following Service Milestone(s) has/have been met and the following Deliverable(s) has/have been supplied to the Principal:
 - (i) [PLEASE IDENTIFY MILESTONE]
 - (ii) [PLEASE IDENTIFY DELIVERABLE]
- (C) any and all Defects have been averted or no Objection Notices have been issued;
- (D) as stipulated in accordance with Clause 7.8 of the Agreement, final acceptance shall be evidenced by means of Principal issuing and both Parties attaching their signature to the Final Acceptance Certificate substantially in the form of Annex I (*Final Acceptance Certificate*) (hereinafter, **Final Acceptance Certificate**).

The Principal is satisfied with the result of any and all achieved Service Milestones and/or Deliverables completed and submitted and, in accordance with Clause 7.6 of the Agreement, the Principal accepts the part of the Service delivered as of the date of this Provisional Acceptance Certificate.

In the event of conflict between the text in this Provisional Acceptance Certificate and the Agreement, the Agreement shall take precedence.

Signatures:

insert name, surname
insert position
RB Rail AS
Principal

insert name, surname
insert position
insert company name
Service Provider

Annex I: FINAL ACCEPTANCE CERTIFICATE NO.

Date: insert date in the form of 1 January 2018

Location: insert location

For:

[•] (hereinafter, Service Provider)

This final acceptance certificate (hereinafter, **Final Acceptance Certificate**) is issued to the Service Provider by [insert name, registration number insert registration number, legal address insert legal address] (hereinafter, **Principal**), represented by [insert name of representative] on the basis of [insert basis of representation].

In this Final Acceptance Certificate, unless the context requires otherwise, all defined terms shall have the meaning ascribed to such terms in accordance with the Professional Consultant Services Agreement No. [insert agreement number] dated [insert date] (hereinafter, **Agreement**) and Annex A (*Definitions and Common Terms*) of the Agreement.

Whereas:

- (D) the Principal and the Service Provider have entered into the Agreement;
- (E) one or more Service Milestones have been met and/or Deliverables have been completed;
- (F) any and all Defects have been averted or no Objection Notices have been issued;
- (G) as stipulated in accordance with Clause 7.8 of the Agreement, final acceptance shall be evidenced by means of the Principal issuing and both Parties attaching their signature to the Final Acceptance Certificate substantially in the form of Annex I (*Final Acceptance Certificate*) (hereinafter, **Final Acceptance Certificate**);

The Principal is satisfied with the result of the Service and/or Deliverables completed and submitted and the Principal accepts the Service in its entirety.

In the event of conflict between the text of this Final Acceptance Certificate and the Agreement, the Agreement shall take precedence.

Signatures:

[insert name, surname]

insert position]

RB Rail AS

Principal

[insert name, surname]

[insert position]

[insert company name]

Service Provider

Annex J: REPRESENTATIVES

Representatives from RB Rail AS:
Raitis Bušmanis , BIM Manager
Address: Kr. Valdemāra iela 8 – 7, Rīga, LV-1010, Latvia
Mobile phone: +371 22011063
e-mail: raitis.busmanis@railbaltica.org

Representatives from AECOM INOCSA SL:
Diego González Pascual , BIM Manager
Address: Calle Alfonso XII 62, Madrid 28014-MADRID, Spain
Mobile phone: +34 680 41 20 90
e-mail: diego.gonzalez@aecom.com

Annex K: TENDER OF THE SERVICE PROVIDER

Annex L: DECLARATION OF SERVICE PROVIDER

Date: insert date in the form of 1 January 2018

Location: insert location

I, the undersigned duly authorised representative, on behalf of AECOM INOCSA SL undertake (hereinafter, **Declaration of Service Provider**):

- (a) To respect the freely-exercised right of workers, without distinction, to organize, further and defend their interests and to bargain collectively, as well as to protect those workers from any action or other form of discrimination related to the exercise of their right to organize, to carry out trade union activities and to bargain collectively;
- (b) Not to use forced or compulsory labour in all its forms, including but not limited to not employ people **against their own free will, nor to require people to lodge 'deposits' or identity papers upon** commencing employment;
- (c) Not to employ: (a) children below 14 years of age or, if higher than that age, the minimum age of employment permitted by the law of the country or countries where the performance, in whole or in part, of a contract takes place, or the age of the end of compulsory schooling in that country or countries, whichever is higher; and (b) persons under the age of 18 for work that, by its nature or the circumstances in which it is carried out, is likely to harm the health, safety or morals of such persons;
- (d) To ensure equality of opportunity and treatment in respect of employment and occupation without discrimination on grounds of race, colour, sex, religion, political opinion, national extraction or social origin and such other ground as may be recognized under the national law of the country or countries where the performance, in whole or in part, of a contract takes place;
- (e) To ensure the payment of wages in legal fashion, at regular intervals no longer than one month, in full and directly to the workers concerned; to keep an appropriate record of such payments. Deductions from wages will be conducted only under conditions and to the extent prescribed by the applicable law, regulations or collective agreement, and the workers concerned shall be informed of such deductions at the time of each payment. The wages, hours of work and other conditions of work shall be not less favourable than the best conditions prevailing locally (i.e., as contained in: (i) collective agreements covering a substantial proportion of employers and workers; (ii) arbitration awards; or (iii) applicable laws or regulations), for work of the same character performed in the trade or industry concerned in the area where work is carried out;
- (f) To ensure, so far as is reasonably practicable, that: (a) the workplaces, machinery, equipment and processes under their control are safe and without risk to health; (b) the chemical, physical and biological substances and agents under their control are without risk to health when the appropriate measures of protection are taken; and (c) where necessary, adequate protective clothing and protective equipment are provided to prevent, so far as is reasonably practicable, risk of accidents or of adverse effects to health;
- (g) To support and respect the protection of internationally proclaimed human rights and not to become complicit in human rights abuses;
- (h) To create and maintain an environment that treats all employees with dignity and respect and will not use any threats of violence, sexual exploitation or abuse, verbal or psychological harassment or abuse. No harsh or inhumane treatment coercion or corporal punishment of any kind is tolerated, nor is there to be the threat of any such treatment;
- (i) To have an effective environmental policy and to comply with existing legislation and regulations regarding the protection of the environment; wherever possible support a precautionary approach to environmental matters, undertake initiatives to promote greater environmental responsibility and encourage the diffusion of environmentally friendly technologies implementing sound life-cycle practices;

- (j) To identify and manage chemical and other materials posing a hazard if released to the environment to ensure their safe handling, movement, storage, recycling or reuse and disposal;
- (k) To monitor, control and treat as required prior to discharge or disposal wastewater and solid waste generated from operations, industrial processes and sanitation facilities;
- (l) To characterize, monitor, control and treat as required prior to discharge or disposal air emissions of volatile organic chemicals, aerosols, corrosives, particulates, ozone depleting chemicals and combustion by-products generated from operations;
- (m) To reduce or eliminate at the source or by practices, such as modifying production, maintenance and facility processes, materials substitution, conservation, recycling and re-using materials, waste of all types, including water and energy;
- (n) To adhere to the highest standards of moral and ethical conduct, to respect local laws and not engage in any form of corrupt practices, including but not limited to extortion, fraud, or bribery;
- (o) To disclose (a) any situation that may appear as a conflict of interest, such as but not limited to: where a service provider or an undertaking related to the service provider has advised the Principal or has otherwise been involved in the preparation of the procurement procedure; and (b) if the **Principal's**, professional under contract with the Principal or Sub-Contractor may have a direct or indirect interest **of any kind in the service provider's business or any kind of economic ties with the service provider**;
- (p) Not to offer any benefit such as free goods or services, employment or sales opportunity to a **Principal's staff member in order to facilitate the service provider's business with the Principal**;
- (q) Within a period set in the applicable national legislation following separation from service or award **of a contract, as the case may be, to refrain from offering employment to any Principal's staff in service and former Principal's staff members who participated in the procurement process and to whom a legal restriction to receive material benefits from or be employed by a service provider which participated in a procurement procedure or restrictions with similar effect applies**;
- (r) To promote the adoption of the principles set forth in this Declaration of Service Provider by my potential business partners and promote the implementation of the principles set forth in this document towards own service providers;
- (s) To maintain and create accurate records, annual reports and accounts, and not to alter or forge any of the mentioned in an effort to conceal, misrepresent or the actual information. All of our records, regardless of format, made or received as evidence of a business transaction must fully and accurately represent the transaction or event being documented. All of our records and reports will be retained in accordance with applicable laws and regulations and will be fully auditable;
- (t) Not procure goods, works and services from other service provider:
 - (i) who, or its member of the Management Board or the Supervisory Board or procurator of such service provider, or a person having the right to represent such service provider in activities related to a subsidiary, has been found guilty in any of the following criminal offences by a such punishment prescription of prosecutor or a judgement of a court that has entered into effect and is non-disputable and not subject to appeal:
 - i. bribetaking, bribery, bribe misappropriation, intermediation in bribery, taking of prohibited benefit or commercial bribing;
 - ii. fraud, misappropriation or laundering;
 - iii. evading payment of taxes and payments equivalent thereto;
 - iv. terrorism, financing of terrorism, invitation to terrorism, terrorism threats or recruiting and training of a person for performance of terror acts;

- (ii) who, by such a decision of a competent authority or a judgment of a court which has entered into effect and has become non-disputable and not subject to appeal, has been found guilty of an infringement of employment rights which means:
 - i. employment of such one or more citizens or nationals of countries, which are not citizens or nationals of the European Union Member States, if they reside in the territory of the European Union Member States illegally;
 - ii. employment of one person without entering into a written employment contract, not submitting an informative declaration regarding employees in respect of such person within a time period laid down in the laws and regulations, which is to be submitted regarding persons who commence work;
- (iii) who, by such a decision of a competent authority or a judgment of a court which has entered into effect and has become non-disputable and not subject to appeal, has been found guilty of infringement of competition rights manifested as a vertical agreement aimed at restricting the opportunity of a purchaser to determine the resale price, or horizontal cartel agreement, except for the case when the relevant authority, upon determining infringement of competition rights, has released the candidate or tenderer from a fine or reduced fine within the framework of the co-operation leniency programme;
- (iv) whose insolvency proceedings have been announced (except the case where a bailout or similar set of measures is applied within insolvency proceedings oriented towards prevention of possible bankruptcy and restoration of solvency of the debtor, in which case I shall evaluate the possibility of such service provider to participate in the tender), economic activity of such service provider has been suspended or discontinued, proceedings regarding bankruptcy of such service provider have been initiated or such service provider will be liquidated;
- (v) who has tax debts in the country where the procurement is organised or a country where such service provider is registered or permanently residing, including debts of State social insurance contributions, in total exceeding an amount which is common threshold in public procurements in the respective country.

Signature:

Arnis Braiens Kākulis, authorized person