

Project Partnership Agreement

Preamble

Having regard to:

The following agreement is hereby made between the lead partner (LP) of the project and the project partners (PPs) as listed in the latest approved application form for the implementation of the DS4SSCC project, project ID 2025-3-G, Digital Twinning as Common Good (DT-aCoGo), approved by Open & Agile Smart Cities (OASC) on April 1st 2025.

Abbreviations

EU – European Union

Programme – European Data Space for Smart Communities (DS4SSCC)

Manual - Call for pilots manual DS4SSCC, Round 3, November 29, 2024

MA - Managing Authority (e.g. OASC)

LP - Lead Partner

PP - Project Partner (PPs – Project Partners)

AP – Associate Partner

DT-aCoGo - Digital Twinning as Common Good

OASC - Open & Agile Smart Cities

Article 1: Legal framework

PP's and LP agree to fully comply with the Grant Agreement signed by LP and OASC on 23-4-2025, attached in annex 1.

1.1 The following legal provisions and document constitute the contractual basis of this partnership agreement and the legal framework for the implementation of the project DT-aCoGo:

- The European Structural and Investment Funds Regulations, Delegated and Implementing Acts for the 2021-2027 period, as further specified below;
- DS4SSCC–DEP funded by the European Union Digital Europe Work Programme 2021-2022 under Grant Agreement No. 101123342
- Pilots Manual European Data Space for Smart Communities, Round 3, November 29, 2024
- The DS4SSCC-DEP consortium approved by the European Commission setting the programme;
- The laws of the PP's countries applicable to this contractual relationship.
- The Grant Agreement (subsidy contract) concluded between the LP of the project and the MA;
- Project data, comprising but not limited to latest project documentation such as the DS4SSCC application;

- All manuals, guidelines and any other documents relevant for project implementation in their latest version, as published on the DS4SSCC programme website.

Should the above-mentioned legal norms and documents, and any other documents or data of relevance for the contractual relationship be amended, the latest version shall apply.

Article 2: Definitions

For the purposes of this partnership agreement, the following definitions apply:

- **Lead partner (LP):** the project partner designated by all partners and who assumes responsibility for ensuring implementation of the entire project according to Articles 23 (5) and 26 (1) b of Regulation (EU) No 2021/1059.
- **Project partner (PP):** any institution financially participating in the project and contributing to its implementation, as identified in the latest approved application form. It corresponds to the term “beneficiary” used in the European Structural and Investment Funds Regulations.
- **Associate Partner (AP):** is an entity that implements action tasks, without receiving EU funding. The AP is not a beneficiary nor a party to the Grant Agreement. The AP contributes partly to the implementation and is therefore actively involved in the consortium. The AP is named in the application as a contributor. Agreed activities are defined in article 5.
- **Application:** DT-aCoGo application as attached in Annex 1 of the Grant Agreement.
- **Project data:** data comprising but not limited to all latest project documentation such as the approved application form and all project information available in the electronic system.

Article 3: Subject of the Partnership Agreement

This partnership agreement lays down the arrangements regulating the relations between the LP and all the PPs, in order to ensure sound implementation of the project as in the latest version of the project data, as well as in compliance with the Grant Agreement. Main purpose of this Partnership Agreement is to capture the commitment of PP and LP to the Grant Agreement signed between LP and OASC, and realisation of the activities that follow from the Application submitted by this consortium that is part of that Grant Agreement (PP, AP and LP).

Article 4: duration of the partnership agreement

The present partnership agreement comes into force once it has been signed by the LP and each PP individually. It remains in force until the LP and PPs have completed in full their obligations as further defined in article 6 of this agreement towards the MA and any other relevant European body. Notwithstanding the entry into force of the partnership agreement

as indicated above, the obligations of the partners based on the legal framework included in article 1 are applicable from the start of the project.

Article 5: Roles and duties in the partnership

The LP of the project:

- is entitled to represent the PPs in the project.
- is responsible for the overall coordination, management and implementation of the project towards the MA.
- ensures timely start and implementation of the activities within the lifetime of the project, in compliance with all obligations to the MA. The LP must notify the MA of any factors that may adversely affect implementation of the project activities and/or financial plan.
- monitors the delivery of the agreed work plan setting out tasks to be undertaken as part of the project, the role of the PPs in their implementation, and the project budget.
- prepares and submits the project interim and final reports, including supporting documents, according to the programme manual, and additional requested documents and/or information from MA.
- addresses requests for project modifications, according to the programme manual.
- is, in general, the contact point representing the partnership for any communication with the MA or any other programme body.
- provides the partners with copies of all relevant project documents, and reports on the implementation of the project. The LP must regularly inform the PPs of all relevant communication between the LP and the MA.
- carries out any other tasks agreed with the PPs.

PPs are the bodies responsible for carrying out specific project activities in the manner and scope indicated in the project data (in particular in the latest approved application form). PPs commit themselves to undertake all steps necessary to support the LP in fulfilling its obligations as specified in the subsidy contract signed between the MA and the LP, as well as in this agreement.

The PPs must:

- actively cooperate in the implementation of the project;
- cooperate in the staffing and/or financing of the project in accordance with the partnership agreement;
- keep to other obligations based on this partnership agreement;
- provide the LP with all the information and documents required for coordinating and regularly monitoring the technical and financial progress of the project, and necessary in preparing the interim report and final report concerning the part of the project that the partner is responsible for;
- provide any additional information related to reporting to the LP or MA if requested, in due time;
- inform the LP of any change related to the name of their organisation, contact details, legal status or any other change concerning the partner organisation which may have an impact on the project or on their eligibility to the programme.

The AP is: responsible for carrying out specific project activities in the manner and scope indicated in the Application.

The AP actively cooperates in the implementation of the project and adheres to the following general obligations as stated in the Grant Agreement; proper implementation under call conditions; avoiding conflict of interest; confidentiality, security, ethics and values obligations; giving visibility to the EU funding of the DT-aCoGo project; result ownership agreements; Information and record-keeping obligation;

The AP will:

- honour any deadlines set by the Manual, the LP or agreed within the partnership.
- notify the LP of any factors that may adversely affect implementation of the project in accordance with the project data and lead to a deviation.
- carry out the specific activities set out in the project data in line with the latest version of the application form. This involves implementing parts of the DMI-PDX, the development and deployment of transaction rules as part of the Recipe-template and scaling and dissemination activities.

As AP DMI represents itself and coordinates the envisaged activities by its members (e.g. AMS-IX, DEXES and We City).

Article 6: Financial management of the project

Each PP must:

- set up separate accounting records or use an appropriate accounting code for all transactions relating to the operation, ensuring that expenditure as well as the received national and programme co-financing related to the project, are clearly identified.
- strictly follow the EU eligibility rules as well as further eligibility rules set up by the programme in the Pilots manual (Round 3, November 29, 2024) and, if applicable, national rules.
- be responsible for guaranteeing the sound financial management of programme funds received and, in cases of recovery, for reimbursing the LP or relevant programme body directly unduly paid programme co-financing, in accordance with the rules and procedures set in the manual. In the case of national contribution, the specific regulation of the country granting it applies.
- regularly and timely submit expenditures for verification to the designated controllers, according to the rules set at the Manual and at national level. Verified expenditures must be submitted through the programmes electronic monitoring system to the LP immediately after verification.
- ensure that the expenses incurred are strictly related to the project activities, in line with the project data.
- ensure that programme requirements on eligibility of expenditure as stated in the programme manual are strictly respected.
- According to Regulation (EU) 2021/1060 of the European Parliament and of the Council of 24 June 2021, the LP and PP's shall ensure that all supporting documents related to an operation supported e.g. co-funded by DS4SSCC are kept at the appropriate level for a 5-year period from 31 December of the year in which the last payment by the managing authority to the beneficiaries is made.

Furthermore, the LP must:

- ensure that the expenditure presented by the PPs participating in the project has been incurred for the purpose of implementing the project and corresponds to the activities agreed between those partners as specified in the project data.
- verify that the expenditure presented by the PPs participating in the project has been validated by controllers, according to the rules set at the manual and at national level.
- Monitor the spending of the project budget foreseen for each PP, and ensure that budget shifts are carried out within the limits and according to the rules as set out in the programme manual.

If a PP fails to inform the LP of any deviation from the project data, the LP is then entitled to refuse to include in the project progress report the costs of this partner that are connected to unjustified deviations and/or that result in an overspending of the approved budget of this partner. Similarly, if a PP fails to provide the necessary input for the preparation of the project reports within the deadline set in the Manual and agreed with the LP, the LP may be obliged to submit to the programme the joint progress report without the costs of this PP, in coordination with the MA.

Programme co-financing payments not requested by each PP in time and full in line with the project planned expenditure included in the project data may be lost for the project partner concerned.

The PPs must provide access to the premises, documents and information, irrespective of the medium in which they are stored, for verifications by the MA, relevant national authorities, authorised representatives of the EC, the European Anti-Fraud Office (OLAF), the European Court of Auditors, the Group of Auditors and any external auditor authorised by these institutions or bodies. These verifications may take place up to 5 years from 31 December of the year of the last payment from the programme to the LP or PP. The PPs must ensure that all original documents, or their certified copies, in line with the national legislation related to the implementation of the project, are made available until the above final date of possible verifications, and until any on-going audit, verification, appeal, litigation or pursuit of claim has been completed.

The DT-aCoGo project has a joint budget set aside for overall project management and reporting (activities listed in the application under Work Package 1).

All project partners except associate partners contribute to the joint costs for overall project management and reporting. The contribution will take place through a deduction from the pre-financing payment and the final DS4SSCC payment. The allocation of joint coordination and communication costs is as follows: The LP will bear 50% of these costs. The other 50% will be prorated according to the EU contribution allocated to the respective PP. All specified in Annex 2

Article 7: Recoveries

Should the MA, in accordance with the provisions of the respective articles of the Grant Agreement contract, demand repayment of programme co-financing already transferred, each PP must transfer to the LP or relevant programme body any amounts paid to them in

excess, according to the rules and timeframe as set out by the programme in the programme manual and recovery documents.

In such cases, the LP must immediately forward to the PPs the recovery documents received from the MA and notify every PP of the amount repayable.

If the recovery concerns the LP alone, then the LP must not stop payments to the other PPs.

Article 8: Modifications, withdrawal from obligations

The LP and each PP agree not to withdraw from the project unless there are unavoidable reasons for doing so. Should this nonetheless happen, the LP and the remaining PPs must find a solution in agreement with the rules and procedures as described in the programme manual.

Should a PP fail to comply with its obligations under this partnership agreement, the partnership may decide as a last resort to remove this PP from the project and request modifications in accordance with the procedures outlined in the programme manual.

The LP can, if necessary, request modifications of the project data to the MA or other relevant programme body. Any modifications requested, including budget, partnership and operational changes, must be agreed and authorised by the PPs of the project beforehand, according to pre-agreed rules of procedure or other decision-making mechanism established in the partnership.

The LP and PPs must strictly follow the provisions of the programme manual when requesting and/or implementing modifications in the project.

Article 9: Information and communication, publicity and branding

The LP and the PPs must comply with the EU publicity rules as well as the communication requirements outlined in the programme manual and provide any material developed during the lifetime of the project that may be useful for publications at the programme level.

In the spirit of cooperation and exchange, the LP and PPs ensure that any output and result produced during project implementation can be used by all interested parties and organisations and are in the public interest and publicly available. The MA and any other relevant programme, EU and national body can use them for information and communication purposes in the framework of the programme.

Moreover, the PPs will support the LP and play an active role in any actions organised by the programme to disseminate and capitalise on project results.

Article 10: Intellectual property rights, confidentiality and conflict of interest

The LP and PPs must undertake to enforce all applicable national and EU law, including but not limited to laws on intellectual property rights, especially copyright, regarding any output produced as a result of project implementation.

The LP or PP shall ensure that it has all rights to use any pre-existing intellectual property rights, if necessary for the implementation of the project.

The LP and PPs are obliged to take all necessary measures to avoid conflicts of interest, and to keep each other informed without delay on any circumstances that have generated or may generate such conflict.

The LP and PPs are obliged to inform the relevant programme bodies if there is any sensitive or confidential information related to the project that may not be published or made publicly available. This clause does not affect the LP and PPs obligation to make all results and outputs of the project available to the public.

The agreement does not purport to transfer any Background IP.

Article 11: third party contracts, liability and outsourcing

In the case of cooperation with third parties including but not limited to sub-contractors, with regard to the project, the relevant PP remains solely responsible towards the other PPs concerning compliance with its obligations as set out in the programme manual. Whenever it is relevant for other PPs, PPs must inform each other about the scope of such contracts and the names of the contracted parties.

Should a PP not comply with its obligations, this PP shall be the sole responsible for damages and costs resulting from this non-compliance.

Article 12: Assignment, legal succession

In case of legal succession, e.g. where the LP or any PP changes its legal form, the LP or PP is obliged to transfer all duties and obligations under this contract to its successor. Legal succession shall be formalised in a project data modification.

Article 13: Amendment of the partnership agreement

Amendments to the partnership agreement must be properly documented. If applicable in accordance with the rules and procedures as set out in the programme manual, the LP presents the amended partnership agreement to the relevant programme body without undue delay.

Article 14: Termination

The partnership agreement must be terminated as a consequence of termination of the subsidy contract. Following termination of the partnership agreement, the LP and PPs are still obliged to comply with all the requirements after project closure, such as recoveries or document retention for audit and evaluation purposes.

Article 15: Dispute settlement

Disputes arising between PPs or between the LP and PP/PPs concerning their contractual relationship and, more specifically, the interpretation, performance and termination of this agreement should whenever possible be resolved amicably. Should this not be possible, the law of the country of the LP shall apply.

Final Provisions

The partnership agreement is written in English. If this document and its annexes are translated into another language, the English version will be the binding one.

In case of conflicting clauses or interpretation thereof between this agreement and the subsidy contract, the subsidy contract takes precedence.

If any provision in this partnership agreement should be wholly or partly ineffective, the parties to the partnership agreement undertake to replace the ineffective provision by an effective provision which comes as close as possible to the purpose of the ineffective provision.

Amendments and supplements to the present agreement must be in written form. Consequently, any changes to the present agreement will only be effective if they have been agreed on in writing.



Signatures

On behalf of

LP City of 's-Hertogenbosch:

PP City of Rotterdam:

PP City of Tampere:

PP Future Insight:

AP DMI (Dutch Metropolitan Innovations):

List of annexes

- Annex 1 – Allocation of joint coordination and communication costs
- Annex 2 – Grant Agreement DT-aCoGo



Annex 1 (of Project Partner Agreement) Allocation of joint coordination and communication costs

The overall Consortium costs are estimated € 234.728 according to Application Form. These costs will be distributed as follows:

- 50% will be 'subsidized' by OASC
- € 11,5 K will be paid by Municipality of Rotterdam
- € 8,5 K will be paid by Municipality of Tampere
- The remaining costs will be paid by Municipality of 's-Hertogenbosch



Annex 2 (of Project Partner Agreement) Grant Agreement

Grant Agreement

Project 2025-3-G - DT-aCoGo

BETWEEN:

Open & Agile Smart Cities

Having its registered seat at Luxemburgstraat 19, 1000 Brussels, Belgium

Registry code: 0686623804

VAT number: BE0686623804

Represented by: Karl-Filip Coenegrachts, Chair of the Governing Body & Executive Director
(Hereinafter referred to as: "OASC")

And

Municipality of 's-Hertogenbosch

Having its registered seat at Wolvenhoek 1, 5211HH, 's-Hertogenbosch, The Netherlands

Registration number: 8260788

VAT number: NL00.17.09.124.B.01

Represented by: Jan-Hein van Beers
(Hereinafter referred to as: "Beneficiary")

OASC and the Beneficiary are hereinafter referred to as the "Parties" or individually as the "Party".

WHEREAS

1. OASC has entered into a grant agreement (**hereinafter the 'Grant Agreement'**) with the Directorate-General for Communications Networks, Content and Technology (**'the Agency'**), under the powers delegated by the European Commission (**'the Commission'**) for the funding of the action entitled 'European Data Space for Smart Communities - DS4SSCC-DEP (**'The Action'**)', Grant Agreement no. 101123342 in the Digital Europe Programme.
2. The Piloting Programme is part of the Action which includes providing financial support to third parties.
3. This Grant Agreement (**"Grant Agreement"**) lays down the contractual arrangements between OASC and third-party recipients of financial support as part of the Piloting Programme (**"Beneficiaries"**) in relation to the Project 2025-3-G - DT-aCoGo (**'the Project'**) as described in Annex 1.

NOW, THEREFORE, IT IS HEREBY AGREED AS FOLLOWS:

Article 1: Purpose

The purpose of this Grant Agreement is to lay down the contractual arrangements between the Parties regarding the participation of the Beneficiary in the Project.

Article 2: Entry into force and duration

2.1 Entry into force

This Grant Agreement enters into force on the date the last of the Parties signs the 1st of May 2025.

2.2 Duration

This Grant Agreement shall be in force from the Effective date and until the full completion of the Project or the expiration of the Project end date, whichever occurs first.

Article 3: The Grant, Payment Terms and Bookkeeping

3.1 The Grant

OASC will grant the Beneficiary a maximum amount of 1.298.421,83 for the Project described in Annex 1.

3.2 Payment Terms

Grant payment shall be provided in three instalments:

- A. Upon signature of the Grant Agreement, 1/2 of the total grant amount as pre-financing. Payment shall be made within 30 calendar days from the entry into force of the Grant Agreement.
- B. Upon receipt and approval by OASC of the interim report which shall be based on actual costs (with 50% of reimbursement rate), up to 2/3 of the total grant amount as stipulated in this Article 3. If this is smaller than 1/3 of total grant, no additional payment is made. Payment shall be made within 30 calendar days from report documentation approval.
- C. Upon receipt and approval by OASC of the final report which shall be based on actual costs (with 50% reimbursement rate) ascertained by a Certificate on the Financial Statements, a final balance payment. Payment shall be made within 30 calendar days from report documentation approval.

In addition to cost reporting the Beneficiary must submit the 'deliverables' identified in Annex 1, in accordance with the timing and conditions set out in it.

OASC, in coordination with the Agency, reserves the right to claim back all or part of the Grant in the event that the Beneficiary does not submit all the Deliverables in the required format and on the prescribed dates.

The Beneficiary shall acknowledge funding upon receipt.

3.3 Payment suspension

OASC may at any moment suspend the payment of the Grant if:

- A. The Beneficiary does not comply with the provisions of the Grant Agreement or has committed or is suspected of having committed substantial errors irregularities or fraud;
- B. The technical or financial reports have not been submitted or are not complete or additional information is needed (see also Annex 2), or
- C. There is doubt about the eligibility of the costs declared in the financial statements and additional checks, reviews, audits, or investigations are necessary (see also Annex 3).

Before suspending payments, OASC will send a pre-information letter to the Beneficiary concerned:

- formally notifying the intention to suspend payments and the reasons why and
- requesting observations within 30 days of receiving notification.

If OASC does not receive observations or decides to pursue the procedure despite the observations it has received, it will confirm the suspension (confirmation letter). Otherwise, it will formally notify that the procedure is discontinued.

The suspension will take effect the day after the confirmation notification is sent.

If the conditions for resuming payments are met, the suspension will be lifted. OASC will formally notify the Beneficiary concerned and set the suspension end date.

During the suspension, no prefinancing will be paid to the Beneficiaries concerned. For interim payments, the interim report must not contain any financial statements from the Beneficiary concerned. The Beneficiary must include them in the final report.

3.4 Book-keeping

The Beneficiary shall ensure that the funding provided to it pursuant to this Grant Agreement is properly administered; that the funding is used solely for the purposes set out herein; and those activities funded under the Project are recorded fully and accurately.

The Beneficiary must — for a period of five years after the DS4SSCC-DEP project closure — keep records and other supporting documentation in order to prove the proper implementation of the Project and the costs they declare as eligible.

The Beneficiary must make the documentation in relation to Article 3.2 above available upon request or in the context of checks, reviews, audits or investigations (see Article 4).

The Beneficiary must keep the original documents. Digital and digitalised documents are considered originals if they are authorised by the applicable national law.

Article 4: Checks, reviews, audits, evaluations

4.1 Checks

OASC will — during the implementation of the Project or afterwards — check the proper implementation of the Project and compliance with the obligations under the Grant Agreement, including assessing deliverables and reports.

For this purpose, OASC may be assisted by external persons or bodies.

Pertaining to the above, information provided by the Beneficiary must be accurate, precise and complete and in the format requested.

4.2 Reviews and audits

Reviews and audits may be started up to five years after the DS4SSCC-DEP project closure. If carried out during the implementation of the Project, a review may also recommend reorientations to the Project.

Should the European Union including as represented by the Agency, the Commission, the European Court of Auditors or the European Anti-Fraud Office (OLAF), decide to carry out a check, review, audit or investigation on the Action and pertaining to the Project, the Beneficiary shall cooperate diligently and make available all required information, records and other supporting documents relating to the implementation of this Grant Agreement within the deadline requested. OASC shall formally notify the Beneficiary about such reviews or audits.

In case reviews and audits carried out in line with this Article show ineligible costs, substantial errors, irregularities or fraud or serious breach of obligations, this may lead to suspension, termination, cost rejection, grant reduction and recovery. In some cases, findings may result in the acceptance of additional costs (if the Beneficiary declared them).

4.3 Evaluations

The Agency or the Commission may – directly or indirectly – carry out interim and final evaluations of the impact of the Action measured against the objective of Digital Europe.

In the instance of such evaluations OASC may request from and the Beneficiary must provide as far as possible information relevant to the evaluation.

Evaluations may be started during implementation of the Action and up to five years after the DS4SSCC-DEP project closure.

Article 5: Ownership of Results

5.1 Rights of Parties

Results generated by the Beneficiary in the execution of the work under this Grant Agreement are owned by the Beneficiary.

‘Results’ means any (tangible or intangible) output of the Project such as data, knowledge, or information — whatever its form or nature, whether it can be protected or not — that is generated in the Project, as well as any rights attached to it, including intellectual property rights.

The agreement does not purport to transfer any Background IP.

5.2 Joint ownership by the Parties

Parties will jointly own results if:

- A. they have jointly generated them and
- B. it is not possible to:
 - (i) establish the respective contribution of each Party, or

(ii) separate them for the purpose of applying for, obtaining or maintaining their protection.

The joint owners must agree (in writing) on the allocation and terms of exercise of their joint ownership ('joint ownership agreement'), to ensure compliance with their obligations under this Agreement.

Unless otherwise agreed in the joint ownership agreement, each joint owner may grant non-exclusive licences to third parties to exploit jointly-owned results (without any right to sub-license), if the other joint owners are given:

- A. at least 45 days advance notice and
- B. fair and reasonable compensation.

Once the results have been generated, joint owners may agree (in writing) to apply another regime than joint ownership (such as, for instance, transfer to a single owner (see Article 30) with access rights for the others).

5.3 Rights of Third Parties

If third parties (including personnel) may claim rights to the results, the Beneficiary concerned must ensure that it complies with its obligations under the Grant Agreement. If a third party generates results, the Beneficiary concerned must obtain all necessary rights (transfer, licences or other) from the third party, in order to be able to respect its obligations as if those results were generated by the Beneficiary itself. If obtaining the rights is impossible, the Beneficiary must refrain from using the third party to generate the results.

Article 6: Conflict of Interest

The Beneficiary must take all measures to prevent any situation where the impartial and objective implementation of the Project could be compromised for reasons involving economic interest, political or national affinity, family or emotional ties or any other shared interest ('conflict of interests').

They must formally and without delay notify OASC of any situation constituting or likely to lead to a conflict of interests and immediately take all the necessary steps to rectify this situation.

OASC may verify that the measures taken are appropriate and may require additional measures to be taken by a specified deadline.

If the Beneficiary breaches any of its obligations under this Article, the grant may be reduced, and the Grant Agreement may be terminated. Such breaches may also lead to any of the other measures described in Article 4.

Article 7: Confidentiality

During implementation of the Project and for five years after the DS4SSCC-DEP project closure, the Parties must keep confidential any data, documents, or other material (in any form) that is identified as confidential at the time it is disclosed ('confidential information').

If information has been identified as confidential only orally, it will be considered to be confidential only if this is confirmed in writing within 15 days of the oral disclosure. During these 15 days, the Parties must consider the information as confidential.

Unless otherwise agreed between the Parties, they may use confidential information only to implement the Grant Agreement.

The Beneficiary may disclose information to their personnel or third parties involved in the Project only if they:

- A. need to know to implement the Grant Agreement and
- B. are bound by an obligation of confidentiality.

The confidentiality obligations no longer apply if:

- A. the disclosing Party agrees to release the other Party;
- B. the information was already known by the recipient or is given to him without obligation of confidentiality by a third party that was not bound by any obligation of confidentiality;
- C. the recipient proves that the information was developed without the use of confidential information;
- D. the information becomes generally and publicly available, without breaching any confidentiality obligation, or
- E. the disclosure of the information is required by EU or national law.

The Beneficiary may disclose sensitive information to their personnel or other participants involved in the action only if they:

- A. need to know it in order to implement the Agreement and
- B. they are bound by an obligation of confidentiality.

OASC and the Agency may disclose sensitive information to its staff and to other EU institutions and bodies. It may moreover disclose sensitive information to third parties, if:

- A. this is necessary to implement the Agreement or safeguard the EU financial interests and
- B. the recipients of the information are bound by an obligation of confidentiality.

If the Beneficiary breaches any of its obligations under this Article, the grant may be reduced. Such breaches may also lead to any of the other measures described in Article 4.

Article 8: Promoting the Project – visibility of EU Funding

8.1 Communication activities by the Beneficiary

The Beneficiary must promote the Project and its results by providing targeted information to multiple audiences (including the media and the public) in a strategic and effective manner.

This does not change the confidentiality obligations (see Article 7) which still apply.

Before engaging in a communication activity expected to have a major media impact, the Beneficiary must inform OASC.

The Beneficiary shall always:

- A. use DS4SSCC-DEP logo in accordance with instructions and guidelines of OASC provided to the Beneficiary from time to time and
- B. include a suitable acknowledgement of the support of EU funding in the form specified by OASC from time to time.

If the right of use is subject to rights of a third party (including personnel of the Beneficiary), the Beneficiary must ensure that it complies with its obligations under this Agreement (in particular, by obtaining the necessary approval from the third parties concerned).

Any communication activity related to the Project must indicate that it reflects only the author's view and that OASC and the Agency are not responsible for any use that may be made of the information it contains.

8.2 Communication activities by DS4SSCC-DEP project consortium

OASC and the Agency may use, any non-sensitive information relating to the Project for policy, information, communication, dissemination and publicity purposes — during the action or afterwards. This includes materials, documents notably summaries for publication, public deliverables and any other materials such as pictures or audio-visual material received from the Beneficiary (including in electronic form).

The right to use the beneficiaries' materials, documents and information is granted in the form of a royalty-free, non-exclusive and irrevocable licence, for the whole duration of the industrial or intellectual property rights concerned.

Article 9: Processing of Personal Data

8.1 By OASC and the Agency

Any personal data under the Grant Agreement will be processed under the responsibility of the data controller of OASC and the Agency in accordance with and for the purposes set out in the Funding & Tenders Portal Privacy Statement and Regulation 2018/1725.

8.2 By the Beneficiary

The Beneficiary must process personal data under the Agreement in compliance with the applicable EU, international and national law on data protection (in particular, Regulation 2016/679

The Beneficiary may grant their personnel access only to data that is strictly necessary for implementing, managing, and monitoring the Grant Agreement.

The Beneficiary must inform the persons whose data are transferred to OASC and the Agency and provide them with the Funding & Tenders Portal Privacy Statement.

Article 10: Liability for damages

10.1 Liability of the OASC and the Agency

OASC and the Agency cannot be held liable for any damage caused to the Beneficiary or to third parties as a consequence of implementing the Grant Agreement, including for gross negligence.

OASC and the Agency cannot be held liable for any damage caused by any of the Beneficiary or third parties involved in the Project, as a consequence of implementing the Grant Agreement.

10.2 Liability of the Beneficiary

Except in case of force majeure as outlined in Article 12, the Beneficiary must compensate OASC for any damage it sustains due to the implementation of the Project or due to failure of the Project implementation to comply with the Grant Agreement.

10.3 Damage caused to third parties

Each Party shall be solely liable for any loss, damage, or injury to third parties resulting from the performance of the said Party's obligations by it or on its behalf under this Grant Agreement.

Article 11: Termination

11.1 Termination for cause

Without prejudice to the foregoing terms and conditions, the present Grant Agreement may be terminated by OASC, by notice in writing, in the event of:

- a breach of the terms of this Grant Agreement by the Beneficiary;
- failure of the Beneficiary to account for any or all of the granted funding;
- failure of the Beneficiary to meet its reporting obligations;
- failure to report or unreasonable delay in reporting material risk events;
- where, on the basis of reporting or evaluation, and after consultation with the Beneficiary, OASC determines that the Project is not or cannot substantially meet its stated results;
- where any offer, payment, consideration or benefit of any kind, which constitutes or could be construed as an illegal or corrupt practice, is made either directly or indirectly as an inducement or reward for the grant or execution of the present Grant Agreement and Project funded pursuant to same;
- where there has been a misappropriation of granted funds;
- or, in the case of mutual agreement to terminate between the parties.

This Grant Agreement may be terminated if the Grant Agreement between OASC and the Agency regarding the Action is terminated.

11.2 Obligations upon and after termination

The Beneficiary accepts that any funding provided to it by OASC pursuant to this Grant Agreement, and which has not been expended in accordance with the Grant terms prior to termination, will be returned to OASC. The Beneficiary agrees to refund to OASC within 3 months

of termination of this Grant Agreement any part of the received grant funding which has not been spent.

In the event of termination where there has been illegal or corrupt practice or misappropriation of funds the Beneficiary will, at the written request of OASC, repay the whole or a specified part of the Grant. Such repayment will be made within the period established by OASC in its written repayment request.

In cases of intended termination of this Grant Agreement, the Beneficiary will be given an opportunity to respond to OASC's concerns before formal termination.

Termination shall not affect any rights or obligations of the Parties incurred prior to the date of termination, unless otherwise stipulated herein or agreed between the Parties. This includes the obligation to provide all input, deliverables, and documents for the period that the Grant Agreement was still in force and effect.

Article 12. Force Majeure

'Force majeure' means any situation or event that:

- A. prevents either party from fulfilling their obligations under the Agreement,
- B. was unforeseeable, exceptional situation and beyond the parties' control,
- C. was not due to error or negligence on their part (or on the part of third parties involved in the Project), and
- D. proves to be inevitable in spite of exercising all due diligence.

No Party shall be considered to be in breach of this Grant Agreement if it is prevented from fulfilling its obligations under this Grant Agreement by Force Majeure.

Each Party will notify the other Party of any Force Majeure without undue delay.

The Parties must immediately take all the necessary steps to limit any damage due to force majeure and do their best to resume implementation of the Project as soon as possible.

The following cannot be invoked as force majeure:

- A. any default of a service, defect in equipment or material or delays in making them available, unless they stem directly from a relevant case of force majeure,
- B. labour disputes or strikes, or
- C. financial difficulties.

If the consequences of Force Majeure are not overcome within 12 weeks after such notification, either **Party shall have the right to terminate this Grant Agreement upon notification.**

Article 13: Miscellaneous

13.1 Inconsistencies and severability

Should any provision of this Grant Agreement become invalid, illegal, or unenforceable, it shall not affect the validity of the remaining provisions of this Grant Agreement. In such a case, the

Parties shall be entitled to request that a valid and practicable provision be negotiated which fulfils the purpose of the original provision.

13.2 No representation, partnership, or agency

No Party shall be entitled to act or to make legally binding declarations on behalf of the other Party. Nothing in this Grant Agreement shall be deemed to constitute a joint venture, agency, partnership, interest grouping or any other kind of formal business grouping or entity between the Parties.

13.3 Notices and other communication

Any notice to be given under this Grant Agreement shall be in writing to the addresses and recipients as listed below.

Formal notices:

If it is required in this Grant Agreement that a formal notice, consent, or approval shall be given, such notice shall be signed by an Authorised Representative of a Party and shall either be served personally or sent by mail with recorded delivery or telefax with receipt acknowledgement.

Other communication:

Other communication between the Parties may also be affected by other means such as e-mail with acknowledgement of receipt, which fulfils the conditions of written form.

Any change of persons or contact details shall be notified immediately by the respective Party to the other Party.

13.4 Language

This Grant Agreement is drawn up in English, which language shall govern all documents, notices, meetings, arbitral proceedings and processes relative thereto.

13.5 Assignment and amendments

No rights or obligations of the Parties arising from this Grant Agreement may be assigned or transferred, in whole or in part, to any third party without the other Parties' prior formal approval.

Amendments and modifications to the text of this Grant Agreement including Annexes shall be made in writing and signed by Authorized Representatives of both Parties.

13.6 Mandatory national law

Nothing in this Grant Agreement shall be deemed to require a Party to breach any mandatory statutory law under which the Party is operating.

13.7 Applicable law

The Agreement is governed by the applicable EU law, supplemented, if necessary, by the law of the Kingdom of Belgium.

13.8 Settlement of disputes

The Parties shall endeavour to settle their disputes amicably.

All disputes arising out of or in connection with this Grant Agreement, which cannot be solved amicably, shall be finally settled before the courts of Brussels.

Nothing in this Grant Agreement shall limit the Parties' right to seek injunctive relief in any applicable competent court.

Signatures

AS WITNESS:

The Parties have caused this Grant Agreement to be duly signed by the undersigned Authorised Representatives in separate signature pages the day and year first above written.

The signature of a Party by means of a scan or digitization of the original signature (e.g. a scan in PDF format) or an electronic signature (e.g. via AdobeSign), counts as an original signature with the same validity, enforceability and permissibility. Each Party receives a fully signed copy of the Grant Agreement. The transfer of this copy by e-mail or via an electronic signature system will have the same legal force and legal effect as the transfer of the original copy of the Grant Agreement.

OASC

Signature:

Name: Karl-Filip Coenegrachts

Title: Chair of the Governing Body

Date:

Municipality of 's-Hertogenbosch

Signature:

Name(s): Jan-Hein van Beers, MPC MSc

Title(s): CFO department of Urban Development, Municipality of 's-Hertogenbosch

Date: 23-4-2025



Annex 1 (of Grant Agreement) The Project and the Budget



European data space
for smart communities

DT-aCoGo Application Form

Call for Pilots of European Data Space
for Smart Communities - Round 3



**Funded by
the European Union**

Funded by the European Union. Views and opinions expressed are however those of the author(s) only and do not necessarily reflect those of the European Union or of the granting authority. Neither the European Union nor the granting authority can be held responsible for them

1. 1. Pilot details

1.1. Pilot Sites and Leadership

Pilot Project Name and Acronym

Full Name of the Project	Acronym
Digital Twinning as Common Good	DT-aCoGo

Lead applicant

The application can be led by any eligible organisation. However, it is recommended that the lead partner is an eligible local public administration.

Lead Applicant	Main Contact Name	Position	e-mail	Phone no
City of 's-Hertogenbosch	Huibert Crijns	Europa Coordinator	h.crijns@s-hertogenbosch.nl	+31651143884

Pilot sites

There must be one pilot site in at least two EU Member States, where each pilot site must include one local or regional public administration that has to contribute effort to the pilot budget. In some cases, those pilot sites can also be in the Digital Europe Programme Associated countries.

N o	Pilot site location	Public Local Administration and department	Type of pilot site (country, region, city, district, village etc)	Main Contact Name	e-mail	Phone no
1	'Spoorzone' Den Bosch	City of 's Hertogenbosch	Central Station city district	Niek Verschure	n.verschure@s-hertogenbosch.nl	+316 508 62 917
2	Railway Station Area Tampere	City of Tampere	Central Station city district	Teppo Rantanen	teppo.rantanen@tampere.fi	+35840023 5442
3	Rotterdam	City of Rotterdam	City wide	Roland van der Heijden	Rjmm.vanderheijden@rotterdam.nl	+31622844 924

1.2. Consortium members and roles

Please identify consortium members and their role(s). Lead Partner should be added first to the list. Please note that only partners registered and headquartered in the EU, and in some cases also in Digital Europe Programme Associated countries, can participate. Due diligence will be undertaken post-selection to validate the eligibility of established legal entities, as/where required (see also section 5).

Note: Applicants can participate in multiple consortia but the maximum support for one beneficiary can be up to € 1 000 000 for all applications. For further details, please refer to the Call for Pilots Manual available at <https://ds4sscc.eu/cfp-three>.

No	Consortium organisation name	Organisation type (Private for profit organisation, Public organisation, Small or medium-size enterprise, Non-governmental organisation, Higher or secondary education establishment, Research Organisation, International Organisation, Other)	Location (city & country)	Role in pilot activities (e.g., Service/data providers, service/data users, service/data intermediaries, etc.)	Main contact
1	City of s-Hertogenbosch	Municipality	's-Hertogenbosch, Netherlands	Lead Partner of DT-aCoGo consortium. Overall consortium coordination Coordination s'-Hertogenbosch pilot. Data provider, service provider and data user	Jan Wester (overall consortium coordination) Niek Verschure (local pilot coördination)
2	City of Tampere	Municipality	Tampere, Finland	Coordination Tampere pilot. Data provider, service provider and data user	Anni Joela

3	City of Rotterdam	Municipality	Rotterdam, Netherlands	Management of Rotterdam use case at city level. Data provider, service provider and data user	Corné Helmons
4	Future Insight	Private Agency	Zwolle, Netherlands	Open Urban Platform Operator Data Intermediary	Rick Klooster

1.3. Stakeholders

Please list engaged/to be engaged stakeholders for the implementation of your proposed pilot activities. Please differentiate between various stakeholder groups and name a few key organisations in that group you have engaged or will engage.

	Stakeholder group (including key organisations in that group)	How you have engaged or will engage them	Intended role in pilot activities. Please also specify their respective roles in the data space, such as data providers, data users, data intermediaries, etc.
1	'S-HERTOGENBOSCH		
A	Municipality		
a	City of 's-Hertogenbosch	Relevant municipal departments will be engaged as internal stakeholder user-group of the Digital Twin. Involvement and ownership are secured by utilizing their resources including 3D city model (3DCM), BIM Engineer (BE), Sewage System BIM Engineer (SSBE), etc.	Partner at 's-Hertogenbosch pilot site. Data provider and data user. Detect and monitor events, issue alerts, provide emergency response, and engage data space actors and the community. Provide data such as traffic sensors, public transport schedules, air quality data, and crowdsourced data (e.g., mobile apps). Issues alerts like traffic congestion, Heat stress, flood warnings etc. 3DCM, BE, SSBE adds future building and lifecycle info to current buildings. Publishes local data sources to be imported, translated and converted into diverse models for DT-usage.



b	Citizens	Test user group. Residents will be involved as a participation group as part of the area development process.	Test – user group Data User and potential Provider Offers potential anonymised input (e.g. reports of waterlogging, heat stress, or unsafe traffic zones) providing real-time information and feedback, for public space, road and street usage data for city planning, emergency response and decision support.
c	Area developers Area Development stakeholders: (semi) public e.g. South-Holland Province, Ministry of Housing, Housing Corporations and private companies e.g. architects, planning consultancy, Real Estate Developers	Area developers will be engaged as ‘professional’ user groups as part of the area development process. Optimizing street layouts, landscape elements (hardscape and softscape), flood mitigation and emergency response measures; Mitigation measures for Urban Heat Island (UHI)	Data Provider and data user Create interactive maps, urban heat maps; urban planning integrating Digital Twin simulations to model impact of developments on water flows, stormwater drainage, and heat stress
B	Regional Utilities and Public Agencies		
a	Water Agencies		
I	St, Rioned National Dutch city sewerage and water management foundation	GWSW server. Ontology and data conversion services for urban water management	Knowledge and service provider, open standards
b	Mobility Agencies		
I	Verkeerscentrale Zuid-Nederland (Traffic Control Center South Netherlands)	Refer Rotterdam case below	Data Provider and data user Refer Rotterdam case below
c	First responders		
I	Veiligheidsregio Brabant-Noord (VRBN) - Regional safety authority	Refer Rotterdam case below	Data Provider and data user Refer Rotterdam case below
II	Politie Den Bosch (Police)	Refer Rotterdam case below	Data Provider and data user Refer Rotterdam case below
d	Other potential City/regional stakeholders		



I	Rijkswaterstaat- Ministry of Infrastructure and Water Management	Refer Rotterdam case below	Data Provider and data user Refer Rotterdam case below
II	KNMI (Dutch Meteorological Institute)	Refer Rotterdam case below	Data Provider Refer Rotterdam case below
2	TAMPERE		
A	Municipality		
a	City of Tampere	Relevant municipal departments will be engaged as internal stakeholder user-group of the Digital Twin. Involvement and ownership are secured by utilizing their resources including 3D city model (3DCM), BIM Engineer (BE), Sewage System BIM Engineer (SSBE), etc.	Partner and coordination at Tampere pilot site. Data provider and data user Detect and monitor events, issue alerts, provide emergency response, and engage data space actors and the community. Provide data such as traffic sensors, public transport schedules, air quality data, and crowdsourced data (e.g., mobile apps). Issues alerts like traffic congestion, Heat stress, flood warnings etc. 3DCM, BE, SSBE adds future building and lifecycle info to current buildings. Publishes local data sources to be imported, translated and converted into diverse models for DT-usage.
b	Steering group, Tampere	Policy guidance and oversight	Governance Body For Tampere partial implementation project.
c	Citizens	Test user group. Residents will be involved as a participation group in the area development process.	Test User group. Data user and potential provider Offers potential input for anonymised input (a.o. reports of waterlogging, heat stress, or unsafe traffic zones) thus providing real-time information and feedback, for public space, road and street usage data for city planning, emergency response and decision support.



d	Area Development stakeholders: City, Regional Authority and private companies e.g. architects, planning consultancy, Real Estate Developers	Area developers will be engaged as 'professional user groups as part of the area development process. Optimizing street layouts, landscape elements (hardscape and softscape), flood mitigation and emergency response measures; Mitigation measures for Urban Heat Island (UHI)	Data Provider and data user Create interactive maps, urban heat maps; urban planning integrating Digital Twin simulations to model impact of developments on water flows, stormwater drainage, and heat stress
B	Utilities and Public Agencies		
a	Water Agencies		
I	Tampere Water (Tampereen Vesi)-Municipal water management authority	Refer Rotterdam case below	Data Provider and data user Refer Rotterdam case below
b	Mobility Agencies		
I	Tampere Urban Transport (Nysse)	Refer Rotterdam case below	Data Provider and data user Refer Rotterdam case below
II	Tampere Traffic Management Center (Liikenteenhallintakeskus)	Refer Rotterdam case below	Data Provider and data user Refer Rotterdam case below
III	Finnish Transport Infrastructure Agency (Väylävirasto)	Refer Rotterdam case below	Data Provider and data user Refer Rotterdam case below
c	First Responders		
I	Tampere Region Rescue Department (Pirkanmaan pelastuslaitos)	Refer Rotterdam case below	Data Provider and data user Refer Rotterdam case below
II	Pirkanmaa Wellbeing Services County (Pirha)	Refer Rotterdam case below	Data Provider and data user Refer Rotterdam case below

III	Tampere Police (Poliisi)	Refer Rotterdam case below	Data Provider and data user Refer Rotterdam case below
d	Other City/Regional Stakeholders		
I	Centre for Economic Development, Transport and the Environment (ELY-keskus)- Regional water and climate authority	Refer Rotterdam case below	Data Provider and data user Refer Rotterdam case below
II	Finnish Meteorological Institute (FMI)	Refer Rotterdam case below	Data Provider and data user Refer Rotterdam case below
III	Finnish Environment Institute (SYKE)	Refer Rotterdam case below	Data Provider and data user Refer Rotterdam case below
3	ROTTERDAM		
A	Municipality		
a	City of Rotterdam	<p>Partner and project manager of Rotterdam City pilot site. Stakeholder Orchestration</p> <p>Relevant municipal departments will be engaged as internal stakeholder user-group of the Digital Twin. Involvement and ownership are secured by utilizing their resources including 3D city model (3DCM), BIM Engineer (BE), Sewage System BIM Engineer (SSBE), etc.</p> <p>.</p>	<p>Data provider and user</p> <p>Detect and monitor events, issue alerts, provide emergency response, and engage data space actors and the community. Provide data such as traffic sensors, public transport schedules, air quality data, and crowdsourced data (e.g., mobile apps). Issues alerts like traffic congestion, Heat stress, flood warnings etc.</p> <p>3DCM, BE, SSBE adds future building and lifecycle info to current buildings. Publishes local data sources to be imported, translated and converted into diverse models for DT-usage.</p>

b	Citizens	Test user group. Residents will be involved as a participation group in the area development process.	<p>Test user group Data user and potential provider</p> <p>Offers potential anonymised input (e.g. reports of waterlogging, heat stress, or unsafe traffic zones) providing real-time information and feedback, for public space, road and street usage data for city planning, emergency response and decision support.</p>
c	Area Development stakeholders: (semi) public e.g. South-Holland Province, Ministry of Housing, Housing Corporations and private companies e.g. architects, planning consultancy, Real Estate Developers.	<p>Area developers will be engaged as 'professional user groups as part of the area development process.</p> <p>Optimizing street layouts, landscape elements (hardscape and softscape), flood mitigation and emergency response measures; Mitigation measures for Urban Heat Island (UHI)</p>	<p>Data provider and data user</p> <p>Create interactive maps, urban heat maps; urban planning integrating Digital Twin simulations to model impact of developments on water flows, stormwater drainage, and heat stress</p>
d	Independent Governance and Ethics Board Rotterdam (shared for all Pilot Cities)	Regulatory entity constituted to oversee ethical compliance and govern OUP affairs	<p>Governance Body</p> <p>Oversee ethical compliance, Provide Policy Guidance and Oversight, Promote Transparency & Accountability, Harmonization of Data Standards, Compliance with Data Protection Laws, Data Sovereignty and Security, Certification and Trust, Data Infrastructure and Interoperability Standards</p>
B	Utilities and Public Agencies		
a	Water Agencies		



I	Hoogheemraadschap van Schieland en de Krimpenerwaard (HHSK)-regional water authority.	Sharing Real-Time and water level data to detect and predict flooding and using Historical data for long-term flood risk management strategies; utilizes data to assess risks; Provides data on pumping stations' ensuring water is efficiently removed during storms, Sharing sewer overflow data to detect areas at risk of flooding or contamination; Using sensor data and satellite imagery to track potential breaches in flood defences.	Data provider and user Flood protection, ensuring critical infrastructure like local water management and wastewater treatment remains operational in event of flooding with Flood risk assessments and flood resilience measures, responsible for Real-time water levels in water bodies, Rainfall measurements from local monitoring stations.
II	St. Rioned National Dutch city sewerage and water management foundation	GWSW server. Ontology and data conversion services for urban water management	Knowledge and service provider, open standards
b	Mobility Agencies		
I	RET (Rotterdamse Elektrische Tram)	Sharing data on public transport routes, real-time vehicle locations, service disruptions; sharing public transport flow data to help manage traffic congestion; using data to optimize public transport routes and adjust schedules in real time based on traffic flow and response to in response to storms, flooding, high temperatures,	Data User and Data Provider Operates public transport network, including trams, buses, and metros, real-time tracking and traffic management, disruption alerts, route optimizations
II	Traffic Control Centers (Verkeerscentrale) (Rotterdam and National Level)	Sharing data on traffic conditions, vehicle counts, congestion hotspots, accidents, and road closures; Using data to predict traffic congestion or disruptions caused by weather conditions	Data Provider and Data User Real-Time Traffic Monitoring, Utilizes cameras, IoT sensors, and data platforms, Traffic Incident Management
c	First Responders		



I	Politie Rotterdam- Police	Utilizing data for incident management and diverting traffic, including incidents like extreme weather conditions, enduring traffic safety	Traffic enforcement and management, including in emergency situations, Enforcing, Managing Large-Scale Events
II	Veiligheidsregio Rotterdam-Rijnmond (VRR) – Regional Safety Authority	Sharing data on public safety and crisis management during emergencies like floods, heatwaves; provide real-time health and safety data during heatwaves; uses weather data to activate emergency response protocols, using traffic data to deploy emergency services;	Data provider and data user Ensures public safety during emergencies like flooding, etc., coordinator of disaster response; using real-time heat stress maps and emergency response dashboards
d	Other Stakeholders		
I	KNMI (Dutch Meteorological Institute)	Providing real-time weather data, Climate change data- Offering long-term climate predictions helping city plan for future heatwaves, storms, and flooding; utilizing weather conditions data to assess impact on road and transport networks, predicting coastal flooding or river flooding	Data Provider Weather forecasts, flood forecasts, real-time weather alerts including storm warnings and extreme rainfall predictions, monitor high temperatures, issue alerts, and provide guidance to protect public health; issuing code orange/red warnings for heatwaves.
III	Rijkswaterstaat- Ministry of Infrastructure and Water Management	Providing Traffic and Environmental Data, including flood risks, and storm events, flood risk data of port and waterfront; Access real-time city traffic data to adjust flood or waterway management strategies	Data Provider and user Operation & Maintenance of Storm Surge Barrier operation, Waterway Management, Highway Traffic Control, Emergency Response on Highways
IV	NDW (Dutch National Dataportal Mobility)	Providing Traffic Data	Data provider
4	DATA BROKER		
A	Primary Stakeholders		



a	Clearly.BIM	<p>Sourcing high-quality, curated data. Negotiating data licensing agreements. Ensuring compliance with data privacy regulations</p> <p>Potential engagement modes - Data Exchanges & APIs, Partnerships & Licensing Agreements, Subscription-based, etc.</p>	<p>Data intermediaries</p> <p>Imports the Services / API's into the models; Aggregates and curate data from multiple sources, ensuring quality and relevance. Stores a set of BIM models including metadata.</p>
b	Clearly.3D-City	<p>Sourcing high-quality, curated data. Negotiating data licensing agreements. Ensuring compliance with data privacy regulations</p> <p>Potential engagement modes - Data Exchanges & APIs, Partnerships & Licensing Agreements, Subscription-based, etc.</p>	<p>Data intermediaries</p> <p>Imports the Services / API's into the models; Aggregates and curate data from multiple sources, ensuring quality and relevance. remove/mask some of the areas/buildings from a specific point in time,</p>
B	Other Stakeholders		
a	Other Data Brokers	<p>Participation in Data Ecosystems and Marketplaces, Data Exchange Through APIs and Data Platforms</p> <p>Potential engagement modes - Data Exchanges & APIs, Partnerships & Licensing Agreements, Subscription-based, etc.</p>	<p>Data intermediaries</p> <p>Procure relevant datasets (e.g., climate, rainfall, topography, demographics, land use, and infrastructure, etc.); enabling predictive analytics</p>
5	MODEL PROVIDERS		
A	Primary Stakeholders		
a	BIM models by BIM Partners (Clearly BIM, Skanska)	<p>Data integration including GIS, IoT, and sensor data in BIM Model; temporal Analysis of built environment</p>	<p>Data intermediaries</p> <p>Provide Building Information Modelling (BIM) data for urban planning and infrastructure management. Integrate heat stress data into urban planning.</p>



b	Water Management Model -Nelen & Schuurmans (flooding),	Connected to the OUP via 3Di (hydrodynamic modelling software). Developing hydrological and flood simulation models, vulnerability assessment,	Data intermediaries Imports Geopackages (through 3Di) for water management calculations. Provide predictive and analytical models and decision-making tool for urban challenges (e.g. flood risk models). Real-time monitoring, disaster response and risk mitigation
c	Tygron (heat stress model),	Analysis platform for integrated digital twin focused on the topic heat stress. Climate adaptation strategies. Connected to the OUP	Data intermediaries Imports Geopackages for heat stress analysis. Provide predictive and analytical models for urban challenges (e.g. Heat stress models). Real-time monitoring, disaster response and risk mitigation,
d	Scenexus(Mobility Model)	Traffic flow optimization. Connected to the OUP	Data intermediaries Imports Geopackages for mobility simulations. Provide predictive and analytical models for urban challenges. Real-time monitoring, disaster response and risk mitigation,
B	Other Stakeholders		
a	KNMI / weather impact	Climate data models	Data intermediaries Data and model supplier
b	ESRI	Geo-data GIS- integration	Data intermediaries Data and model provider
6	VIEWER PROVIDERS		
A	Key Stakeholders		
a	VSC Viewer	Connected to the OUP via 3Dtiles and WMS services. creating an WMS service (for viewers) and Get API Geopackage (for other models to use)	Data intermediaries Visualization tool for structured and spatial data; enabling users to interact with 3D models, immersive visualization



b	Unreal Viewer	Connected to the OUP via 3Dtiles and WMS services. creating an WMS service (for viewers) and Get API Geopackage (for other models to use)	Data intermediaries High-quality real-time rendering, provides ways for realistic, high-fidelity interaction with 3D environments; AR, VR compatibility
B	Other Stakeholders		
7	DATA EXCHANGE AGENCIES		
a	Amsterdam Internet Exchange (AMS-IX)	Provides regulatory tech to operationalise Replicable Recipe Templates. (Preventing misuse and Negotiation) SaaS implementation through 'Trustbroker' module	Data intermediaries Data Exchange; Low-latency connectivity/ edge computing capabilities; Real-time insights and incident response etc.
b	DEXES	Operationalisation of 'Trustbroker' function at DMI-PDX	Trusted Data Exchange Enabling trusted data exchange through its infrastructure like Amsterdam Data Exchange (AmDEX) serviced by AMS-IX
8	TECHNOLOGY PROVIDERS		
A	Primary Stakeholders		



a	Future Insight	<p>Partner; Open Urban Platform applications;</p> <p>Helping set up and implement use cases; developing Hub (Clearly.Hub) based on 3D Database and BIM database for cities Rotterdam, Den Bosch, and Tampere; Conducting Performance evaluation of 'automated' recipes for data space blueprint; Develops Operational Urban Data Space Market Place - Connecting the OUP marketplace/PDX to the DMI ecosystem; Support designing executable recipe; connecting 3 recipe executions to the OUP; Help developing 'Cookbook' for design and implementation of recipes</p>	<p>Data intermediaries</p> <p>Platform and software supplier; Data Connection and Hub Setup; Application and Data Integration; tackling both technology and policy part; focus on interoperability, Improving Efficiency, future readiness on pilots; Functional Management</p>
b	Think-IT	Operationalising the Connector-as-a-service	<p>Data intermediary</p> <p>Software supplier</p>
B	Other Stakeholders		
a	Software providers		
I	AWS	Data compliancy 'landingzone' and cloud provider	<p>Data intermediaries</p> <p>Software supplier</p>
II	Sitowise (Tampere)	Digital Twin provider	<p>Data intermediaries</p> <p>Software supplier</p>
III	Wapice (Tampere)	City IoT Ticket Provider	<p>Data intermediaries</p> <p>Software supplier</p>
IV	Centric (Rotterdam)	Furban, Tooling for participation in urban planning	<p>Data intermediaries</p> <p>Software supplier</p>



V	The People Group (Rotterdam)	Developing and implementing digital solutions and data integrations in a Digital Twin based on Unreal engine	Data intermediaries Software supplier
b	Data Integrators		
I	Siemens (Tampere)	Public safety Innovation (NLD)	Data intermediaries Data Integrators
c	Cloud and storage providers		
I	Microsoft (Tampere)	City data and cloud. Digital twin and metaverse solutions for urban planning and infrastructure Copilot M365 artificial intelligence pilot	Data intermediaries Data (cloud) management. Cloud and Infrastructure provider for Data Storage
II	Nokia (Tampere)	Human-centric metaverse Applications and connectivity	Data intermediaries Scalable data storage and processing
9	URBAN INNOVATORS		
I	Urban Innovator Global BV.	Connect to and mobilize the international UI Global Lighthouse program and Citiverse Learning Community of Practice to engage start-ups	Network partner to engage start-ups with innovative solutions for mobility, flood management, heat stress mitigation etc. Provide predictive analytics solutions. Learning goes to OUP as a feedback loop.
II	The Dutch Metropolitan Innovations (DMI)-ecosystem	Connecting to DMI Product & Data Exchange Connecting to DMI-community (over 80 partners, including 40 cities)	Dutch network partner to engage cities on national level in Netherlands Data intermediate Use data for analysis, decision-making, and service delivery
10	KNOWLEDGE INSTITUTIONS		
A	Key stakeholders		
I	(VTT Technical Research Centre of Finland)	Research and technology partner in the development of digital twin technologies	Data Users, Data integrator, Cloud Storage and Data Exchange

II	TNO (Rotterdam)	Data Space Support Center and Mobility model	Knowledge supplier
III	Geonovum	Publishers and distributors of the Replicable Recipe Cookbook Dissemination to NLDT & Citiverse EDIC	Open standards and data modelling NLDT-testbed
B	Secondary Stakeholders		
I	Erasmus Data Center	Data and immersive tech city lab	Knowledge and data provider
II	Jheronimus Academy of Data Science (JADS);	Student involvement in realising Replicable Recipe Template Cookbook	Data Modelling + training
III	Breda University of Applied Sciences (BUAS);	Digital twinning for integrated urban planning regarding mobility and safety (following from Smart City Monitor)	Data Space design
IV	Avans University of Applied Sciences,	Improving the living environment- IoT-CityLab	Sandbox test lab
V	The Metaverse Institute etc.)	Tampere Metaverse Vision 2040	Data Knowledge Providers
12	BUSINESSES		
I	Business Tampere Regional economic development agency	Mobilizing tool and application developers in the OUP marketplace to utilize data for city service.	Network partner Learning goes to OUP as a feedback loop
II	Businesses within Innovation Quarter, Den Bosch (IKDB)	Mobilizing tool and application developers in the OUP marketplace to utilize data for city services.	Network partners Learning goes to OUP as a feedback loop.
13	EU - INITIATIVES		
I	Citiverse & NLDT EDIC	Connection through Rotterdam and Geonovum (Dutch representatives on behalf of Min. of Housing and Spatial planning)	Dissemination network to scale results to other cities/countries

II	Data Space Support Center	Alignment via TNO and VTT with global data governance standards and interoperability frameworks as developed by GAIA-X, International Data Spaces (IDS), and FIWARE.	Knowledge providers Focusing on establishing and promoting standards for data spaces
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1.4. Grant allocation request

Total amount requested in euros (€) (not including the 50% co-funding). Please select one and specify the total budget. Support requested must not be higher than 1.5 million euros. For further details, please refer to the Call for Pilots Manual available at <https://ds4sscc.eu/cfp-three>.

- 1M€
- 1.5M€
- Other sum (up to 1.5M€, max 50% of the eligible costs): € 1.298.421,83

Total budget (including co-funding): € 2.596.843,66

1.5. Duration of the pilot

Duration of the pilot can be up to 16 months for application round 3.

Duration: ____16____ months

1.6. Digitalisation level

No	Pilot site location	<p>Digitalisation level</p> <p>Please choose which of the below mentioned solution responds the most to the digitalisation level in your Pilot Site(s).</p> <ul style="list-style-type: none"> • Data platform • Digital twin • Emerging data space • None of the above <p>You can choose more than one option.</p> <p>In order to comply with the eligibility criteria, a data platform, digital twin or emerging data space already must be in place in the city/community. Please note that your solution does not necessarily refer to digital maturity levels and simply characterises your chosen digital infrastructure.</p> <p>If wished, you can complement the answer with the score from LORDIMAS digital maturity assessment (optional).</p>
1	Spoorzone	<p>Emerging Data Space (Open Urban Platform + Authorisation Policies Store), Digital Twin for urban planning, D-model of the Spoorzone,</p> <p>LORDIMAS digital maturity assessment (LORDIMAS, 2024)- Den Bosch: Overall (61), Governance (70), Service Design (60), Data Management (47), Interoperability (70), Service Delivery (64), Technology (51), Networking (70)</p>

2	Railway Station Area	Emerging Data Space (Open Urban Platform – Authorisation Policies Store), IoT Data platform, City information model, Digital Twin/CitiVerse, 3D city model, LORDIMAS digital maturity assessment (LORDIMAS, 2024)- <i>Tampere: Overall (68), Governance (56), Service Design (64), Data Management (70), Interoperability (70), Service Delivery (64), Technology (65), Networking (90)</i>
3	Rotterdam City	Emerging Data Space (Open Urban Data platform + Authorisation Policies Store), Digital Twin, 3D city model. LORDIMAS digital maturity assessment (LORDIMAS, 2024)- <i>Rotterdam: Overall (61), Governance (56), Service Design (64), Data Management (57), Interoperability (40), Service Delivery (68), Technology (45), Networking (100)</i>

1.7. Compliance with MIMs Plus

No	Pilot site location	Digitalisation level <i>Which of the below mentioned MIMs Plus is your technical solution compliant with. You can choose more than one option.</i> <ul style="list-style-type: none"> ● MIM1 - Context Information (Context Information Management) ● MIM2 - Data Models (Shared Data Models) ● MIM3 - Contracts (Ecosystem Transactions Management) ● MIM4 - Trust (Personal Data Management) ● MIM5 - Transparency (Fair and Transparent Artificial Intelligence) ● MIM6 - Security (Security Management) ● MIM7 - Places ● MIM8 - Indicators (Ecosystem indicator management) ● MIM9 - Analytics (Data Analytics Management) ● MIM10 - Resources (Resource Impact Assessment) ● None of the above <i>In order to comply with the eligibility criteria, the applicant must be compliant at least with MIM1 - Context Information (Context Information Management), MIM2 - Data Models (Shared Data Models), and MIM6 - Security (Security Management). More info on MIMs Plus at https://living-in.eu/group/7/commitments/mims-plus-version-6-final</i>
1	's-Hertogenbosch	Compliant with MIM1, MIM2 and MIM6. MIM3, MIM4, MIM5 MIM7, MIM8 are implemented but will be trialled
2	Tampere	Compliant with MIM1, MIM2 and MIM6 . MIM3, MIM4, MIM5 MIM7, MIM8 are implemented and will be trialled
3	Rotterdam	Compliant with MIM1, MIM2 and MIM6 . MIM3, MIM4, MIM5 MIM7, MIM8 are implemented and will be trialled

1.8 Alignment with Data Spaces Building Blocks & recommended standards and implementations

Please confirm whether you have provided a mapping of the data spaces building blocks and recommended standards against the platform architecture (See section 3.4 Technical implementation of the Pilot in this application form).

- Yes

2. 2. Relevance

2.1. Pilot Summary

Please describe the core idea of the pilot and outline the local challenges you aim to address, and how. Bring out all the communities and sectors involved. Please summarise your plans regarding sustaining the data space initiative beyond the project and federating with other data space initiatives on an European level. This description will be used publicly in case the proposal will be selected to be funded. (max 5000 characters)

The Digital Twin as Common Good (DT-aCoGo) pilot focusses on deployment of the Open Urban Platform as a full Urban Data Space for the Digital Twin Pipeline. Main goal of the pilot is to make digital twinning replicable and scalable across European cities by using 'Replicable Recipe Templates'. To this purpose DT-aCoGo will trial a 'Replicable Recipe Template' in a digital twin use case for Climate Adaptive Urban Design, to improve cities climate resilience. This twin enables stakeholders to develop scenarios for heat stress mitigation, flood management improvement and mobility impact reduction in at least three moments in time (current, short future, long future), which in turn helps to reduce CO₂ emissions and minimize disruptions for citizens. Challenges involved are characterized by a strong interconnectedness of systems, and reciprocal influence of interventions on different geographical scales. Digital Twinning helps to get a grip on these inherently complex and multidisciplinary dependencies and enables multi-stakeholder decision making. To this end public and private data from a variety of sources need to be shared in an Urban Data Space, including interoperability between existing trust frameworks.

In the use case models will be tested for each factor, integrating combined results into a Digital Twin using standards, allowing different stakeholders to visualize design and mitigation scenarios in a self-chosen fit-for-purpose manner (2D, 3D, 4D, IX).

To this purpose Rotterdam will deploy a 'Replicable Recipe Template' that addresses three aspects: a. the required data preparation for different models (water, traffic, climate, BIM), b. the required cross-domain model2model interoperability and c. the (automated) enforceable transaction contracts involved. To secure scalability across European cities, the specific 'Recipe' will then be trialed at the pilot sites in Den Bosch and Tampere to validate replicability, human-machine readability and useability within DDS4SSCC blueprint building blocks.

In general, Replicable Recipe Templates reduce the present costly and time-consuming manual labor to create digital twin scenarios. They also enhance frictionless labelling instructions, user-interface adjustments, quality checking and compliancy with and the enforcement of agreed rules of engagement. Summarised: as an impact Replicable Recipe Templates will:

1. lower cost as it reduces the need for manual labour
 2. enhance a level playing field through normalisation of transaction requirements
 3. enable the replicability and scaling of catalogue-services across-cities;
 4. empower sovereign collaboration/participation of different user groups (professionals – citizens);
- These impacts will advance the development and implementation of data-driven solutions within the DS4SSCC framework.

Project goals:

- Deployment of a validated (replicability, useability, scalability) cross-domain 'Replicable Recipe Template' for a digital twin for Climate Adaptive Urban Design.
- Creating mitigation scenarios, towards the effects of 1-Heatstress, 2-Flooding and 3-mobility.
- Validation of Recipe generated data flows in OUP against blueprint building blocks
- 3 OUP-hubs with replicable catalogues (linked to EU Data Space federated services catalogue)
- Implementation of a NLDT-Test Bed (landing-zone) as sandbox facility

- Pragmatic ‘Cookbook’ for the creation & deployment of Replicable Recipe Templates (available for dissemination)

To sustain and scale up the pilot activities beyond their initial implementation, we envisage a multifaceted action plan focusing on long-term adaptability and scalability. Scalability is achieved through replicable Recipes, open standards, and a modular platform architecture, and offering a NLDT-testbed facility, allowing Recipes to be easily adopted and trialled by other cities facing similar urban challenges.

The pilot will deliver a pragmatic ‘cookbook’ describing the steps and elements to develop and deploy a Replicable Recipe-template. This will enhance broader adoption, dissemination of best practice enabling other regions and cities across Europe to adopt similar frameworks. The Replicable Recipe concept will actively be disseminated internationally to the OASC, DS4SSCC, Live-in Europe, Citiverse & NLDT EDIC and Urban Innovator global communities through Rotterdam and Tampere as Dutch and Finnish representatives. 'Rotterdam, s-Hertogenbosch and Future Insight will actively disseminate results among the Dutch Metropolitan Innovations (DMI)– ecosystem among peer cities.

2.2. Alignment with EU, national and regional policies and Data Space for Smart Communities objectives

Describe how the project is aligned with the objectives and activities as described in the Call for Pilots Manual. How does the project address the general objectives and themes and priorities of the call? (max 2500 characters)

Project addresses the call objectives and activities by deploying the Open Urban Platform (OUP) as a multi-domain data space and a low-code digital twin (DT) visualization platform. The OUP contains several blueprint Building blocks that will be trialled use case.

- The OUP functions as data federation layer connecting all federated data sources, models and viewers to storage facilities for transactions (data-marketplace), following international data-sharing standards, which are consistent with EU regulations for data sovereignty, interoperability, and ethical governance.
- For every pilot site an OUP-Hub is set up and functions as a central portal for stakeholder access and initial trusted identity provider, federated services catalogue host and participant management system.
- Governance Authority's policies are technically enforced through a Connector-as-a-Service architecture (customized version of the latest Eclipse Data Space Connector vs 0.11) enabling secure data exchange between participants while maintaining data sovereignty.
- The Recipe-template defines policies and requirements to be enforced by connectors to enable data-transactions by involved stakeholders. Identity and Trust frameworks will work in conjunction with connector authentication. The PDX-marketplace will integrate with federated catalogues from connectors.
- The use case demonstrates Model2Model dataflows from BIM, mobility, water and climate data models visualised in a digital twin for Climate Adaptive Urban Design. following Minimum Interoperability Mechanisms (MIMs Plus). In that way the 'Recipes' enhance the deployment of MIMS and enable scaling of Digital Twin models cross cities, thus adding to the development of a *single European Market for Data through Data Spaces*.
- Recipe-templates address existing gaps in data and model re-usability and regulatory environment by parametrizing 3 basic components a. multi-model data preparation; b. cross-domain model2model interoperability and c. technical enforcement of transaction contracts.
- As Recipes parametrise components from several sectoral data models to interact, they are instrumental to test cross domain data flows in the OUP Data Space testing the ‘blueprint building blocks but also enable scaling and replicability of digital twin scenarios.

- The pilot fosters innovation and aligns ecosystems by making (recipe) services available via trusted federated services catalogues assessed in the NLDT-testbed.

Describe how the pilot activities connect, align with, and are complementary to the EU, national and/or regional policy and strategy (e.g., the New European Bauhaus and the European Green Deal initiatives). What is the project's contribution to the overall Digital Europe Programme objectives? (max 2500 characters)

The pilot activities demonstrate robust alignment with EU and national policy frameworks, including the European Green Deal and the New European Bauhaus as follows:

1. Cross-domain Interoperability is secured at the core of the OUP Data Space using international trust framework standards. The use case Recipe-template will explicitly validate the ability to facilitate cross domain data flows using fair principles and MIM 1-8. It deploys the principles of the EIF-framework to advance interoperable public services.
2. On a Dutch national level, the project fully aligns with the Dutch Metropolitan Innovations (DMI) ecosystem infrastructure that supports urban transformation and innovation across governance levels. Connecting to the DMI Products & Data Exchange guarantees that results will scale beyond the consortium.
3. To secure alignment with the NLDT & Citiverse EDIC, the project deploys a NLDT-testbed in Rotterdam (part of Dutch EDIC membership coalition).
4. The use case aligns with the European Green Deal by creating replicable twinning scenarios for heat stress mitigation and flood management as well as predictive and sustainable traffic management impacted. The Recipe-template utilizes mobility, water, climate and BIM models. The use case Recipe- template enhances data services for mitigating policies for risk prevention and disaster resilience, specifically targeting extreme weather events. It complements the New European Bauhaus as the Recipe enhances low-code twinning for community collaboration and participation in Urban Design.
5. The pilot contributes to the Digital Europe Programme by enhancing critical digital capacities, such as the connector-as-a-service facility. It offers a provider agnostic interoperable data layer, advancing European Data sovereignty. Deployment of PET's are anticipated but not pivotal given the used data.
6. The pilot further aligns with the Next Generation Cloud and Edge Infrastructure and Services as the OUP offers a cloud based 'landingzone' to audit compliancy of new services.
7. Furthermore, pilot aligns with several climate adaptation strategies e.g. EU Climate Adaptation Strategy, Dutch Climate Adaptation Strategy and Finnish National Climate Adaptation Plan, enhancing urban resilience against climate change impacts.
8. On city level it aligns with Rotterdam Climate Adaptation Strategy, Rotterdam Resilience strategy, Climate Neutral Tampere (2030), and Tampere Metaverse Vision 2040.

2.3 Alignment to the Data space for smart communities blueprint

The pilot must deploy and validate the building blocks and components referred to in the data space blueprint as well as demonstrate data sharing and value creation among data space participants. For detailed requirements, please refer to the Call for Pilots Manual available at <https://ds4sscc.eu/cfp-three>.

Describe the use case which will be used for validation of the DS4SSCC blueprint; and also barriers and challenges to be addressed. Please also describe how the use case covers the Green Deal domain(s) chosen for the pilot. (max 5000 characters)

The use case will demonstrate replicability and scalability of digital twinning across European cities by using 'Replicable Recipe Templates'. To this purpose Rotterdam will deliver a Digital Twin for Climate Adaptive Urban Planning, in which different stakeholders (municipality, sewerage company, first responders, traffic agencies and residents) develop scenarios for heat stress mitigation, flood



management improvement and mobility impact reduction in at least three moments in time (current, short future, long future).

Challenges involved addresses at least predictive traffic management and data-services related to weather, climate and extreme weather events to facilitate risk prevention, disaster resilience as well as climate change adaptation as green deal domains.

Based on the Rotterdam twin a Recipe-template will be designed (data preparation, model2model dataflows and transaction requirements) and trialled for replicability, human-machine readability and useability in the pilot sites at 's-Hertogenbosch and Tampere.

Cities deploy the OUP as data federation layer connecting required data sources to be shared in an Urban Data Space to feed different sectoral models. (water, climate, mobility and BIM). Models will then be tested for each factor to establish Model2Model dataflows, following Minimum Interoperability Mechanisms. Combined results are integrated into a Digital Twin, allowing different stakeholders to visualize design and mitigation scenarios in a self-chosen fit-for-purpose manner (2D, 3D, 4D, IX).

For every pilot site an OUP-Hub is set up as a central portal for stakeholder access and initial trusted identity provider, federated services catalogue host and participant management system.

The Recipe-template defines policies and requirements to be enforced by a 'trustbroker' or connector functionality. The use of replicable recipes ensures a consistent, scalable implementation guaranteeing a basic quality. They enhance the deployment of MIMS, enable scaling of Digital Twin models cross cities, thus adding to the development of a *single European Market for Data through Data Spaces*.

The use case aims to realize the following during the project:

- It will validate scalability through Recipe-templates
- It will enhance cities' dynamic planning capabilities by providing a time-based approach considering climatic adaptation scenarios visualized in at least 3 moments in time (current, short future, longer future). To this purpose a timelapse slider will be incorporated in the viewers
- It will empower different stakeholder groups (professionals–citizens) to create low-code mitigation scenarios, showing the effects on 1-Heatstress, 2-Flooding and 3-mobility and the impact of flooding on mobility.

Data sources: Mobility data, Built environment data from project parties (e.g. BIM), Geodata, 3D city model, City IoT Ticket Platform. Master registrations, 3D City model, BIM-design and planning models, Asset management data, IoT Platform (e.g. weather station, sewerage system), satellite data and Mobility data.

Challenges

Validating barriers and challenges include model2model interoperability, machine readability of templates, and technical barriers for participation of stakeholders using connectors. Another challenge is the technical integration of existing infrastructure with federated cloud/ cloud-to-edge solutions, which is essential for scalability, seamless data accessibility, real-time response among others.

These challenges are addressed by offering a

- Connector-as-a service modular option, serviced by hyperscalers (e.g. AWS, Microsoft etc.)
- Simplified management interface for non-technical participants

This approach will significantly lower the threshold for participation while maintaining high security and compliance standards.

Please select at least two Green Deal domain(s) addressed in the pilot.

Note that at least two different sectors must be covered, i.e., entities sharing the respective data to provide a local public service (in each participating local administration).

- Predictive traffic management/sustainable mobility planning, establishing synergies with the mobility data space and making use of the Sustainable Urban Mobility Indicators, where appropriate.
- Data-services related to weather, climate and extreme weather events to facilitate risk prevention, disaster resilience as well as climate change adaptation.

The use case delivers a DT for Climate Adaptive Urban Design with mitigation scenarios for heat stress and flood management, and its predictive impact on Mobility, all described in Replicable Recipe Template. Pilot is aligned with two Green Deal Domains 1) Data-services related to weather, climate and extreme weather events and 2) Predictive traffic management and sustainable mobility planning.

Describe the infrastructure on which the pilot will be deployed (own or from third parties, i.e. TEF project) and how it will be engaged in the data space. (max 2500 characters)

Basic infrastructure:

1. The OUP (data federation layer) establishes seamless interoperability utilizing open APIs, MIMs and international data-sharing standards, consistent with EU regulations for data sovereignty, interoperability, and ethical governance. It operates vendor and provider agnostic.
2. The OUP offers self-managed 'OUP-hubs' (with Digital Twin generator) that function as central portal for stakeholders
3. Recipe enforcement is done by a trustbroker or connector service.
4. The Product & Data Exchange (marketplace) provides access to a range of different data services and applications.
5. The OUP deploys a Networked Local Digital Twin--test bed to safely onboard data catalogues and Services in the Marketplace.
6. The OUP is developed and maintained by an open public-private digital ecosystem and operationalised by partner Future Insight.

[Detailed mapping of infrastructure](#)

[Digital Twin Demo Open Urban Platform and Unreal Engine](#)

Pilot specifications:

- Viewers of 'Unreal' and 'FI Viewer' are connected to the OUP.
 - 3DTiles and WMS will be used as data services.
- Data Brokers 'Clearly BIM' and 'Clearly.3D-foundation' are connected to the OUP.
 - The Data broker Clearly.BIM will be used to store a set of BIM models including metadata (for instance start-construction end-construction), making it possible to show them in the 3D models 'in time'.
 - The Data broker Clearly.3D-Foundation will be used to update and maintain 3 citymodels for specific point in time (removal / demolishing date), ensuring 3D models do not show both the old and new buildings.
- Datasets will be connected to the OUP using open standards
 - For current information the OUP will connect to Federated Services Catalogs to connect to Master registrations (for example: buildings, public space, aerial photo, Google etc.).
 - For future models BIM-Models will be used, using IFC
 - Scope of 3D will be at least the area of City development
 - A connection for the sewerage systems will be created using CityGML and HYDX files
- Models including (flooding, heat stress, mobility and BIM) will be connected trans-domain
- Models explore and retrieve data using the OUP (not directly to source) PDX defines rules technical enforcement by 'trustbroker' or connector.
- Models publish the results as webservices back to the OUP in open format, making it possible to use them in all the stated viewers.



Describe the overall governance framework for data sharing during the pilot activities. (max 2500 characters)

The overall governance

Open Urban Platform serves as central portal, participant management system, and initial trusted identity provider.

1. Recipe approval: Governance and Ethical board approves specific Recipe-template

2. Data discovery and catalog federation

OUP-hub is set up to discover available data assets across all participants and stakeholders. Catalogs are federated and linked to the marketplace.

3. Preparation:

Requesting party authenticates through the identity system with OUP as trusted identity provider. This could transition to self-sovereign identity with iSHARE integration.

4. Contract negotiations:

The requesting party initiates a contract negotiation. Requirements are checked against Recipe policies. (Participants using an EDC connector (not delivered by the OUP) checking s done by the DSP implemented in the EDC. Evaluating connector uses ODRL to check.) Negotiations result in a data contract that specifies what data will be shared and under what conditions.

5. Policy Enforcement, data transfer and usage control

If the request complies with Recipe policies actual data transfer occurs. Data transformations may be applied as specified in Recipe during transfer. The PDX enforces usage control based on the agreed contract (time limitations, purpose restrictions, etc.). Usage is logged for audit purposes and compliance verification. Providing may receive confirmation of proper data usage.

Trust-Based Architecture the OUP offers a system for issuing and revoking licenses for trusted partners. To automate the use of recipes, SaaS services (e.g. connectors) will be tested to assess machine readability of Recipes. OUP Hubs will be linked to webservices (utilizing 3D Tiles and WMS formats). These DT models can be visualized within the OUP Viewer and made available in FI Viewer and Unreal Engine. OUP also hosts various Apps offering functionalities ranging from city visualizations to advanced modeling solutions, connector-as-a-service and 'trustbroker' services.

Governance & Ethical Board – consisting of at least 5 independent members representing quadruple-helix public-private interests. ensures compliance with laws, regulations, and ethical standards, defined by a multidisciplinary Governance & Ethics working group. The OUP Supervisory Board must give prior approval (right of consent) with regard to a change to existing functionality, technical architecture and OUP usage conditions. It mediates in case of liabilities and disputes.

2.4. Transferability

Please describe the potential relevance and transferability of your pilot activities beyond pilot sites' context (i.e. to other communities in Europe). (max 2500 characters)

The Rotterdam Recipe-template will be trialled in Tampere and 's-Hertogenbosch, making digital twinning scalable and transferable to other cities. Facilitation of the Recipe-templates by the OUP as full Urban Data Space for the Digital Twin Pipeline will also be trialled in the pilot sites. The validated Recipe template can be adapted to cities with similar challenges. OUP's federated model and open standards ensure scalability, while flexibility in planning (e.g., BIM models) allows for transfer to different regions.

The pilot's replicable, modular and adaptable solutions can be tailored to varying urban scales and infrastructure contexts, fostering broader adoption. The SaaS based infrastructure operates vendor and provider agnostic and made scalable by different cloud providers.

In the Netherlands partnerships with [DMI-ecosystem](#) will drive active adoption beyond the pilot sites to over 100 partners (incl. 40+ cities).

Validated Recipe results will be actively shared with the NLDT and Citiverse EDIC via the Dutch representatives Rotterdam and Geonovum.

Via Tampere we will disseminate results to the ITU-virtual world and Citiverse program.

The validated Recipe-template will be stored in a Recipe-catalog and made available as a service, preferably connected to the EU Federated Services Catalogue.

The steps to create and implement Recipe-templates will be gathered in a pragmatic 'Cookbook' free to be used by user groups in other cities and regions.

2.5. Political support and endorsement

Please describe how the ambition is politically supported and endorsed, including the nature and strength of the support. (You may refer to published, online documentation via link(s) accordingly or attach supporting documents). (max 2500 characters)

The project has received political endorsement from the cities involved ('s-Hertogenbosch, Tampere and [Rotterdam](#)). The cities' local and regional authorities/agencies are involved in the planning and implementation process, ensuring the project is aligned with political goals for sustainable and resilient urban development.

Nationally the project is supported by national and regional authorities and aligning with:

1. The Dutch Metropolitan Innovations (DMI) ecosystem, supported by over 100 participants (public and private) and is supported by the Ministry of Infrastructure and Watermanagement.
2. The National Digital Twin Infrastructure program of Dutch Ministry of Housing and Spatial Planning, supports the Recipe approach and will actively support dissemination the NLDT Citiverse EDIC.
3. The NLDT & Citiverse EDIC: the pilot will deploy the Networked Local Digital Twin-testbed as developed by Geonovum, the Dutch national Geo-standardisation body, that acts as the Dutch representative to the NLDT & Citiverse EDIC on behalf of the Ministry of Housing and Spatial planning and the 6 largest cities in the Netherlands, including Rotterdam.
4. At the national level, Finland's Data Space strategy emphasizes the importance of data-driven decision making and the utilization of data for economic growth and innovation. Tampere's [Citiverse](#) initiatives align with these national goals to improve urban services and create new business opportunities. Regionally, data space development supports citizen well-being, regional vitality, and sustainable urban growth. This project is part of that development.

The project's alignment with EU policies also garners political support. (see 2.2)

2.6. Cross-cutting considerations

What do you consider to be important cross-cutting considerations for your pilot activities, and how do you plan to cater to and evaluate these? How will you ensure pilot activities align with the Do No Significant Harm (DNSH) principle? Cross-cutting themes may relate to aspects such as diversity, inclusion, gender dimension, accessibility, and a just inclusive transition. (max 2500 characters)

The project supports equitable urban development, leveraging data to enhance climate resilience and inclusivity. Open data and standards ensure broad participation, with independent boards overseeing ethical governance and privacy.

Cross-cutting considerations –

- Data Ownership and Interoperability- Federated governance ensures data quality, transparency, trust, and interoperability with international standardized protocols and APIs.
- Scalability and Performance- The platform is designed for high performance, handling increased data load and real-time processing. Cloud-neutral.
- Maturity Level- The OUP platform is fully operational and supports trialling across cities, with ongoing adjustments based on feedback.
- Data Compliance and Sovereignty- Compliance with GDPR and data sovereignty is secured in the Recipe-template requirements and enforced by a trustbroker or connector-as-a service functionality. The OUP operates provider and cloud neutral.
- Sustainability- Alignment with EU Green Deal and sustainable infrastructure, including low-energy usage and green cloud services.
- Stakeholder Engagement- Inclusive strategies balance diverse stakeholder interests and ensure broad participation.
- Fairness and Inclusivity- Transparent, inclusive data collection and decision-making, with open channels for feedback via the OUP user groups and Supervisory Board.
- Ethics- The governance and ethical board ensures responsible data usage, addressing biases, and accountability for data-transactions.
- Diversity and Gender Equality- the self-managed OUP-hubs enable inclusion. Recipes enable low code digital twinning, empowering grassroots communities and addressing gender-specific needs.
- Accessibility – Pilot provides fit-for-purpose visualization for effective stakeholder and community engagement.
- Just inclusive transition- The pilot ensures transparency in data collection, use of data, and implication of data-driven decisions, through logging and auditing facilities with open channels for feedback and dialogue, allowing affected communities to voice concerns and contribute to the decision-making process.
- DNSH Principle- the project will deploy a ‘sandbox’ facility (landingzone) as a comprehensive risk management facility to manage externalities and mitigate unintended consequences like privacy risks or environmental harm. This is checked by the Governance and Ethical board.

3. 3. Implementation

3.1. Coordination and management



Please outline how the consortium intends to coordinate and manage the pilot, including relevant resource / deployment plans across the pilot site, and, where relevant, specific roles, profiles, and expertise. (max 2500 characters)

Project Governance Structure

The project management structure will ensure that tasks are clearly defined, and stakeholders are actively involved in decision-making. With appropriate project management tools in place, regular check-ins and progress tracking will be done to ensure that milestones are met, and that there is alignment between the different stakeholders' goals.

- The project will be coordinated by a Pilot Coordinator (PC) across multiple teams. The PC Oversees project coordination, budget control, and stakeholder mediation, covering all phases. Develops a communication and dissemination plan and manages reporting, monitoring and evaluation based on KPIs and matrices.
- PC forms a managing team (MT) that includes project managers from the partners.
- Each partner-city and Future Insight appoint a project manager (PM) managing the local project team that consists of use case owner (overseeing pilot site), inhouse (technical) experts/product owners and external partners including data and model providers, all contributing to different facets of the implementation at the pilot site and OUP. The PM coordinates local stakeholders and result and provides input for reporting to the PC.
- The MT consults at least 3 times with the shared Governance and Ethics Board for legal, ethical and data management compliances. Consultation will be initiated by PC and prepared by FI. Advise is implemented by PM from Future Insight.
- The OUP Supervisory Board consists of 5 representatives from the Quadruple Helix. It guards responsible OUP operations, guides on principles and mediates in case of liabilities and dispute between participants.

3.2. Soundness of work plan

Please outline the work packages and their key deliverables (i.e. outputs/results), and the associated activities to achieve those deliverables (i.e. a planning logic of: Work package -> Deliverable/s -> Activity/ies).

The work plan follows a structured approach, with defined phases for data collection, model integration, testing, and validation. Specific deliverables for each phase include preparing datasets, connecting data brokers, implementing the platform architecture, and testing the integration of different models. The timeline is designed to ensure all activities are completed in a logical sequence, allowing for iterative testing and improvement.

The work plan includes three urban planning snapshots (current, short-term, long-term) and three mitigation scenarios (heat stress, flooding, and mobility). Data preparation involves aligning 3D models, BIM datasets, and scenario modeling.

Project activities are covered in 5 Work packages. Execution and implementation are divided in 3 main phases, containing 12 steps:

W1 Pilot coordination: involves overall pilot coordination, project management and (progress) reporting

WP2 Setup phase involves setting up OUP-hubs for pilot sites by connecting stakeholders, desired and relevant data sources.

WP3 model usage phase this phase involves connecting sectoral models to the OUP, train stakeholders for usage and test rendering to fit for purpose visualization over time (timelapse viewing)

WP4 Replicable Recipe Templates & Model2Model phase: in this phase the Replicable Recipe Format based on the use case is trialed for Replicability, Human -Machine readability and useability within DS4SSCC blueprint building blocks. WP 2 and WP3 deliver input for the Replicable Recipe Template that will be trialed in WP 4.

WP5 Communication & dissemination involves activities to secure and disseminate results. To disseminate and secure results a 'cookbook' will be extracted from WP 2, 3 and 4 describing pragmatic steps to create and implement Recipe-templates for Smart Community Data Spaces. Additional to the DS4SSCC and Living-In Europe communities, Tampere & Rotterdam will disseminate results to the international Citiverse Learning Community of Practice hosted by Urban Innovators Global. On a Dutch national level Den Bosch, Rotterdam and Future Insight will scale results within the DMI-ecosystem (40+ cities). On European level dissemination to the Citiverse & NLDT EDIC will be done by Rotterdam in collaboration with the Dutch Ministry of Housing and Spatial Planning as part of the Dutch EDIC membership in.

Following Table describes key deliverables and activities to be undertaken within each WP

Work package	Deliverables	Activities
WP1 Programme management	1.1 Pilot milestone planning 1.2 One progress report and one final report and independent CFS reports by consortium members 1.3 DS4SSCC onboarding complete	1.1 Overall coordination and management of pilot: consortium front office internal/external, planning consortium meetings, guarding use case mutual alignments/milestones, guarding collaboration, general communications. 1.2 Reporting: Progress reporting and (intermediate) evaluations and independent CFS reporting 1.3 DS4SSCC onboarding activities conform manual



<p>WP2 Set-up phase</p>	<p>2.1 OUP 'hubs' ready in pilot sites for use case deployment. Data requirement inventory for Replicable Recipe Template 2.2 Timelapse viewing slider for 2D, 3D and Unreal viewing installed 2.3 Checks and guidance by Governance & Ethical board report</p>	<p>2.1 Setting up OUP-hub for use case deployment in pilot sites 2.1.1 Connecting stakeholders incl. user-accounts and role definition. 2.1.2 Connect selected (general) data sources to OUP-hubs a. Checks and determination of requirements for access and processing for each source b. Checks on correct views in OUP-Viewer 2.1.3 Connect contextual sources to OUP-hubs a. Each source will be checked on requirements checking in OUP-Viewer that all is shown correct b. uploading BIM models of 'to be build' buildings, incl. all specs c. Buildings that need to be removed 'marked' and uploaded 2.1.4 Connect the Unreal Engine a. Checking all data can be shown correctly 2.2 Implement and test Digital Twin timelapse viewing slider a. Implement 3 Digital Twin test-scenarios over time using all sources, combining requirements in joint process b. Check whether the 'timelapse slider' works with Unreal and DT's can be shown in 2D, 3D, 4D, IX at different moments in time. 2.3 Quadruple helix governance & ethical board a. Consulting Governance & Ethical Board b. Adjustments</p>
<p>WP3 Model usage phase</p>	<p>3.1 Interoperability between OUP and sectoral models realized and Inventory of data model requirements for usage in Replicable Recipe Format 3.2 Timelapse viewing slider for 2D, 3D and Unreal viewing validated 3.3 Model input created 3.4 Models validated 3.5 OUP data flows validated 3.6 Ethical assessment report on models</p>	<p>3.1 Connecting Water, Traffic, BIM and Climate models to OUP followed by pilot site contextualization in 3 separate sequels. For each model the following steps will be executed: a. Checking DT 'communication' with the model (the info is received) b. Sessions on how to use the model (training) c. Adding contextual specific settings in the model 3.2 Upgrading the datasets to the required level a. And checking all can be seen in Unreal and 'distributed' to the required models 3.3 Creating the model input a. Checking the datasets, settings in models, determining the 'points in time' b. Creating the definitive Digital Twin in OUP c. Pushing all info into the models 3.4 Running the models, for all points in time 3.5 Upload the model results into OUP a. Checking in OUP-Viewer if all results are shown correct (not if the results themselves seem correct) b. Then forwarding the results to Unreal c. Checking if all is shown correct 3.6 Evaluation of results a. Consultation of Governance and Ethical Board</p>



		b. Adjustments if required
WP 4 Replicable Recipe Template & Model2Model phase	<p>4.1 and 4.2 Replicable Recipe Template tested and validated.</p> <p>4.3 Report on:</p> <ul style="list-style-type: none"> • Replicability • Human – Machine readable functionalities • Usability within 'Data Space blueprint' building blocks 	<p>4.1 Rotterdam writes a Replicable Recipe Format for the Digital Twin pipeline based on the Climate Adaption use case containing 3 elements:</p> <ol style="list-style-type: none"> a. Data preparation for model requirements b. Model preparation for Model2Model interaction c. Legal and ethical requirements for automated enforcement within data-deals <p>4.2 Recipe Template trials for Replicability.</p> <ol style="list-style-type: none"> a. The recipe is stored digitally (enabling machine-Readability) b. The Recipe is distributed to Tampere and 's-Hertogenbosch c. Recipe is checked by both Cities. Major adjustments are discussed and reported to Rotterdam. d. The recipe is then used in all three pilot sites involving all software components. Results are to be shown as a Digital Twin layer in Unreal, rendered to 'fit for purpose' visualizations. e. During the trial the model2model functionalities are trialed by forwarding the output of Flooding model (1 outcome per city) to the mobility model. The mobility model will use this input to make new calculations. <p>4.3 Outcomes of all 3 cities are compared</p> <ol style="list-style-type: none"> a. Results are evaluated to assess human-machine readability, replicability and useability within Data Space building blocks b. Process is assessed by Governance and Ethical Board c. If big issues occur, steps in WP3 can be revisited
WP5 Communication and dissemination	<p>5.1 Dissemination, Communication & Learning Community of Practice</p> <p>5.2 'Cookbook' for design and implementation of Recipe's</p>	<p>5.1 Planning and execution of dissemination and communication plan. Develop a CoP with stakeholders in the pilot cities.</p> <p>5.2 Scale up learnings to DMI -ecosystem and the DS4SSCC community by extracting 'design' steps and implementation guidelines for Replicable Recipe Formats in a pragmatic "Cookbook" (playbook)</p>

3.3. Timetable

Fill in cells in beige to show the duration of activities. Repeat lines/columns as necessary. Shorten the timeline, if necessary.

Note: Use actual calendar years and quarters. In the timeline, you should indicate the timing of each activity per WP.

			Year-1								Year-2							
			M1	M2	M3	M4	M5	M6	M7	M8	M9	M10	M11	M12	M 13	M 14	M 15	M 16
WP1	T1.1	1.1 Overall coordination and management of pilot* (front office and general communications internal/external, planning consortium meetings and progress, guarding use case alignments and mutual collaboration.)																
WP1	T1.2	1.2 Reporting: Planning (intermediate) evaluations, progress reporting, coordinating final report and independent CFS's																
WP1	T1.3	1.3 Onboarding: DS4SSCC onboarding activities conforming manual																
WP2	T2.1	2.1 Setting up OUP-hubs for pilot sites: Connecting stakeholders and data sources, adding contextual BIM data; building annotation for removal for temporal usage, connecting to Unreal Engine																
WP2	T2.2	2.2. Implementing and testing DT Timelapse Viewing Slider: Visualization in 2D, 3D, 4D, IX with at least 3 different moments in time.																

WP2	T2.3	2.3 Consulting quadruple helix governance & ethical board: Ensuring compliance with data and ethical standards, and undertake necessary adjustments															
WP3	T3.1	3.1 Connecting sectoral models to the OUP: Connecting Water, Traffic, BIM, Climate models to OUP. Adding context specific settings, upgrading datasets, creating model input. Conducting stakeholder training. Ensuring interoperability and Replicable Recipe Format, followed by pilot site contextualization and functional model in 3 separate DT sequels.															
WP3	T3.2	3.2. Testing fit for purpose visualization with timelapse functionality: Validation of Timelapse viewing slider for 2D, 3D and Unreal viewing validated. Result evaluation and adjustments in consultation with Consultation of Governance and Ethical Board															
WP3	T3.3	3.3 Creating the model input: Checking dataset and integrating in OUP															
WP3	T3.4	3.4 Model testing: Running the models															
WP3	T3.5	3.5 Upload models into OUP: Upload models into OUP															
WP3	T3.6	3.6 Ethical assessment models: Consultation Governance and Ethical Board															
WP4	T4.1	4.1 Replicable Recipe trial: Testing replicability of Climate Adaption use															



		case Recipe format, developed by Rotterdam for Digital Twin pipeline																
WP4	T4.2	4.2 Reporting on outcome comparison of three cities: Comparing outcome towards Human -Machine readability and useability within DS4SSCC blueprint building blocks. Taking corrective measures in case of identified issues.																
WP4	T4.3	4.3 Validation of outcomes: Comparing outcome of three cities																
WP5	T5.1	5.1 Planning and execution of communication plan: Supporting collaboration and dissemination. Developing a CoP with stakeholders in the pilot cities.																
WP5	T5.2	5.2 Scale up learnings to DMI - ecosystem and the DS4SSCC community: Extracting 'design' steps and Recipe's implementation guidelines in pragmatic "Cookbook" (playbook) format.																

Note *Overall coordination (1.1) in form of intermittent input is shown spread over entire project duration

3.4. Project Team and Staff

Describe the project teams and how they will work together to implement the project.

List the staff included in the project budget (budget category A) by function/profile (e.g. project manager, senior expert/advisor/researcher, junior expert/advisor/researcher, trainers/teachers, technical personnel, administrative personnel etc. and describe briefly their tasks.

Name and function	Organisation	Role/tasks/professional profile and expertise
The persons highlighted in grey are part of the overall core team		
Jan Wester Pilot manager	's-Hertogenbosch Municipality	C level sr. Professional. Vast experience in international cooperation, complex Public-Private Partnerships and EU-programs. Overall coordination of pilot, (progress) reporting, coalition orchestration
Niek Verschure PM Den Bosch	's-Hertogenbosch Municipality	Senior professional who will oversee the project from the 's-Hertogenbosch side, connecting all roles within the municipality, monitoring progress and engaging the other consortium partners
Use case owner	's-Hertogenbosch Municipality	Senior professional in the field of urban development, mobility and climate adaptation who can translate the policy questions and urban design questions to data questions. Oversees the specific pilot site
Project assistant	's-Hertogenbosch Municipality	Medior/junior professional who will engage in internal coordination, writing reports, setting meetings and communicating with stakeholders within the organisation (like the use case owner and information analysts).
BIM Engineer (BE)	's-Hertogenbosch Municipality	Adds the new buildings in 'future' specific interface role with Data Broker and Data Translation
3D citymodel (3DCM) engineer	's-Hertogenbosch Municipality	Adds lifecycle info to current buildings, making it possible to remove demolished buildings in 'future'; specific interface role with Data Broker and Data Translation
Sewerage system Bim Engineer (SSBE)	's-Hertogenbosch Municipality	Addressing matters related to specific sewage details to be used by the flooding model; specific interface role with Data Broker and Data Translation
GIS architect	's-Hertogenbosch Municipality	Senior professional with expertise in geo data, GIS and other tools, who will oversee the implementation of the OUP and the development of the digital twin and data space, and the implementation of the blueprint.
Information analyst	's-Hertogenbosch Municipality	Medior/junior professional who will analyse the data that are needed for the data space and OUP, and who will engage in design and implementation of the blueprint.
Administrative and finance professional	's-Hertogenbosch Municipality	Medior/senior professional supporting the project in reporting and administrative tasks.
Anni Joela PM Tampere	Tampere City	Senior professional who will oversee the Tampere project, connecting all roles within the municipality, monitoring progress and engaging the other consortium partners
Use case owner	Tampere City	Senior professional in the field of urban development, mobility and climate adaptation who can translate the policy questions and urban design questions to data questions. Oversees the pilot site
Project assistant	Tampere City	Medior/junior professional who will engage in internal coordination, writing reports, setting meetings and communicating with

		stakeholders within the organisation (like the use case owner and information analysts).
BIM Engineer (BE)	Tampere City	Adds the new buildings in 'future' specific interface role with Data Broker and Data Translation
3D citymodel (3DCM) engineer	Tampere City	Adds lifecycle info to current buildings, making it possible to remove demolished buildings in 'future'; specific interface role with Data Broker and Data Translation
Sewage system Bim Engineer (SSBE)	Tampere City	Addressing matters related to specific sewage details to be used by the flooding model; specific interface role with Data Broker and Data Translation
GIS architect	Tampere City	Senior professional with expertise in geo data, GIS and other tools, who will oversee the implementation of the OUP and the development of the digital twin and data space, and the implementation of the blueprint.
Information analyst	Tampere City	Medior/junior professional who will analyse the data that are needed for the data space and OUP, and who will engage in design and implementation of the blueprint.
Administrative and finance professional	Tampere City	Medior/senior professional supporting the project in reporting and administrative tasks.
Corné Helmons PM R'dam	City of Rotterdam	Senior professional who will oversee the Rotterdam project, connecting all roles within the municipality, monitoring progress and engaging the other consortium partners
Use case owner	City of Rotterdam	Senior professional in the field of urban development, mobility and climate adaptation who can translate the policy questions and urban design questions to data questions. Oversees pilot site
Project assistant	City of Rotterdam	Medior/junior professional who will engage in internal coordination, writing reports, setting meetings and communicating with stakeholders within the organisation (like the use case owner and information analysts).
BIM Engineer (BE)	Tampere City	Adds the new buildings in 'future' specific interface role with Data Broker and Data Translation
3D citymodel (3DCM) engineer	Tampere City	Adds lifecycle info to current buildings, making it possible to remove demolished buildings in 'future'; specific interface role with Data Broker and Data Translation
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GIS architect	City of Rotterdam	Senior professional with expertise in geo data, GIS and other tools, who will oversee the implementation of the OUP and the development of the digital twin and data space, and the implementation of the blueprint.
Information analyst	City of Rotterdam	Medior/junior professional who will analyse the data that are needed for the data space and OUP, and who will engage in design and implementation of the blueprint.
Administrative and finance professional	City of Rotterdam	Medior/senior professional supporting the project in reporting and administrative tasks.
Rick Klooster Project Manager OUP	Future Insight	First point of contact OUP and organizes the internal Future Insight organization

(Senior) technical consultant	Future Insight	Closely involved in setting up the hubs, onboarding the organizations, transferring knowledge and preparing data.
Product owner	Future Insight	Responsible for the strategy and planning of the further development of the Clearly.Hub. Translated customer requirements into concrete development items in close cooperation with the development team.
Architect	Future Insight	Works closely with the product owner and the development team in the executable and technical requirements of Recipe operationalisation.

3.5 Outside resources (subcontracting, seconded staff, etc)

If you do not have all skills/resources in-house, describe how you intend to get them (contributions of members, partner organisations, subcontracting, etc.) and for which role/tasks/professional profile/expertise. (max 2500 characters).

A combination of internal expertise, external partnerships, and subcontracting shall be used to address the resource and infrastructure gap for OUP pilots. External resources for example include subcontractors who specialize in BIM modelling, data brokerage, modelling, data analytics etc. Additionally, seconded staff may be involved from external partner organizations such as universities or industry partners to provide additional technical expertise in the fields of urban planning, data science, and software development. These resources will be key to ensure OUP operations and scaling. Each phase will involve specialized subcontractors to ensure successful deployment and validation.

The key subcontracting shall be done in following areas.

Alignment and Scoping (Rotterdam): Rotterdam will lead the alignment and scoping of the pilot, collaborating with data management and other technical experts, legal specialists etc. to ensure the platform meets data protection requirements.

Building Recipe and Integration- This subcontracting area includes for example cloud providers, data integrators etc. to support the design of platform's technical architecture, ensuring smooth data flows and system integration.

Testing the Model- IT professionals and model evaluators shall be engaged for infrastructure testing and model validation to ensure the platform functions as intended.

Evaluation of Results- Evaluation experts will analyse the pilot's outcomes, with data analysts validating the platform's effectiveness and ethical compliance specialists ensuring adherence to ethical guidelines.

Building Digital Twin- This subcontracting area includes digital modelling experts, IoT providers etc. to create and integrate the DT with real-time data.

Validation- Model evaluators will conduct cross-validation and efficiency tests to ensure accurate and efficient model outcomes.

Use Case Value -Community engagement professionals will collect feedback to assess the value of the use cases in each pilot city.

Cookbook Design- Technical writers and platform specialists will document the process, ensuring replicability for future deployments.

Others (Scaling and Dissemination)- Communication experts will manage dissemination, while scaling specialists help prepare the platform for broader use.

Through strategic subcontracting, we aim to ensure the OUP is effectively deployed, validated, and scalable, while maintaining legal and ethical compliance.

3.6 Technical implementation of the Pilot

For detailed requirements, please refer to the Call for Pilots Manual available at <https://ds4sscc.eu/cfp-three>.

Describe the current digital platform in the involved communities and its maturity. If possible, please include a public reference (URL link) to the platform or screenshots from the platform's front-end. If feasible, a visualisation of the platform architecture could be complemented. (max 5000 characters)

Pilots will implement the [architecture as mapped to DS4SSCC Blueprint](#). The OUP building blocks are fully operational. Each city will have a separate OUP-hub for specific catalogs with an overarching DT-aCoGo data space hub enabling cross-validation.

The OUP integrates 3D models, data brokers, and analytical tools.

Data ingestion uses ETL (Extract, Transform, Load) tools to integrate, standardize, and ensure data quality. Cloud storage employs distributed databases with encryption for security. Data processing involves cleaning, transformation, and analysis, with federated learning enabling collaborative model training.

The technical implementation will involve connecting viewers (Unreal, FI Viewer) to the OUP using open standards (3DTiles, WMS), and integrating data brokers (Clearly.BIM, Clearly.3D-Foundation) for real-time 3D models. Datasets for current and future city development will be incorporated into the platform using BIM and CityGML.

Data brokers will manage BIM models and remove buildings from 3D models based on time points (e.g., demolition dates). Flooding, heat stress, and mobility models will be integrated for real-time data and predictions, published via web services within the Digital Twin interface. The OUP will use Federated Services catalogues to connect to current data and BIM models for future predictions. Flooding model outputs will be tested for mobility impacts (e.g., flooding effects on traffic). Demolished buildings will be removed using web services, log files, or Mask layers.

Secure data sharing is facilitated through APIs and data marketplaces, ensuring tamper-proof transaction logging and automated access control via smart contracts.

Visualization tools, such as dashboards, offer real-time insights, while security measures like encryption, access control, and authentication ensure data protection.

Architecture explanation

The architecture uses 1 center object and 4 sides (these sides can be located anywhere, as long as they are connected to the center).

Center Data space for Smart Communities

This is where we will use the 'Open Urban Platform (OUP) as main software component creating central portal to the Data & Product marketplace. It functions as:

- Federation layer to connect all sources, models, viewers, to the storage facility for transactions and recipes. All connections are done using open standards
- Initial identity provider, stakeholder management system

Sources side

- Data sources: will be linked using 3D CityGML, CityJSON, BIM model IFC or OROX. We specify the most import ones-
 - 3D citymodel (3DCM) engineer: for adding lifecycle info to current buildings, making it possible to remove demolished buildings in 'future'
 - BIM Engineer (BE): for adding the new buildings in 'future'

- o Sewerage system Bim Engineer (SSBE): for the specific sewage details to be used by the flooding model.
- Data Broker: the data sources are connected to a Data Broker, using the above ways of connecting
 - o 3DCM: VC Database imports the data source and lifecycle info can be added
 - o BE: Clearly BIM for storing the new Bim models including start construction date and 'ready for usage date'
 - o SSBE: Rioned adds OROX to GWSW Database
- Data translation: the Data broker is connected to the Data translation
 - o 3DCM: VC publisher is used to control CityGML and convert to 3Dtiles streaming format
 - o BE: Control is done of the IFC, then it is converted to 3Dtiles and Geopackage
 - o SSBE: Control is done of the OROX, then it is converted to 3Dtiles and Geopackage
- Data Api: This is for all sources the same. The creation of the 3Dtiles service and the GET API is created for the models to use
- Data publication: All services and APIs are stored in the OUP (CKAN).

Model side

During the project we will be connecting the center to 3 models.

- Data sources will be using the created Services or API's that are in the OUP.
- Data broker imports the Services / API's into the models:
 - o Watermanagement model Nelen & Schuurmans: 3DI imports Geopackages
 - o Mobility model TNO imports Geopackages
 - o Heatstress model Tygron imports Geopackages
- Data translation: same for all: checking the Geopackages, using them to calculate and deliver results to WMS and Geopackage.
- Data API: same for all: creating an WMS service (for viewers) and Get API Geopackage (for other models to use)
- Data publication: registering the WMS and Get API Geopackage in OUP (CKAN)

Viewer side

- 3Dtiles and WMS service will be used to show all results (from sources and models) to the viewers.
- Both FI viewer and Unreal viewer will be used for all purposes, to show 100% flexibility.

Transaction / Recipe storage side

- This side is to store all transactions and will also be used to store the recipe to make it re-usable by other 'environments' / 'instances' of the OUP.
- Recipe guarantees a defined quality and outcome but can be tweaked to specific requirements in another environment. These adjustments will be reported and stored in the changed / renewed transactions / recipe.

Explain how you plan to incorporate the required components described in the Reference Architecture of the DS4SSCC blueprint (Authorization Policies Store, Federated Catalogue, Universal Trust Data Registry) to evolve the existing platform and be engaged in a data space in an implementation plan. Please be as specific as possible, referencing the timeline, development process etc. (max 5000 characters)

The OUP acts as the trusted initial identity provider through an Open/Auth2 approach, with transition to self-sovereign identity with iSHARE/GAIA-X integration, for access to marketplace.

Role-based access levels for data controllers, processors, and users will be defined in the Recipe and technically enforced by connector-as-a –service and ‘trustbroker’ functionalities. These functionalities are operationalised as SaaS services deployed from the Product & Data marketplace. Deployment is done in steps to lower technical barriers and onboard participants.

- deploy basic technical enforcement infrastructure and identity and authentication frameworks
- implement advanced Recipe enforcement. Test with selected participants.

Steps will be ready for WP 4,2 trials.

The Federated Catalogue aims to enhance data discoverability by onboarding datasets, developing metadata schemas aligned with European standards, and implementing federated search capabilities. The pilot offers data catalogs that can be tested adding a recipe catalog as a new service.

To complement the Federated Services Catalogue, interoperability frameworks will be implemented to ensure seamless integration of datasets from diverse sources. This will include the adoption of the DS4SSCC-compliant metadata standards and APIs, enabling cross-domain interoperability and real-time data discovery. The pilot will also assess the catalogue’s integration capabilities with city infrastructure data, including IoT sensors, to ensure comprehensive coverage of real-time urban data.

Finally, the Universal Trust Data Registry will establish trust criteria and security standards by defining certification processes. The Registry will also provide a comprehensive framework for verifying the quality of data, considering factors such as source credibility, data freshness, and consistency. Recipes can be instrumental in checking cross-domain dataflows and secure desired qualities.

Further, the Universal Trust Data Registry will incorporate blockchain-based verification mechanisms to enhance the traceability and authenticity of data transactions. The integration will occur in parallel with stakeholder workshops to establish trust benchmarks, ensuring the system aligns with industry expectations and technical feasibility. Machine readability of recipes will be tested in the pilot

Map the data spaces building blocks (also include standards and implementations used for each mapped building block) into the platform architecture (see Catalogue of Specifications¹). (max 2500 characters)
At least standard Data Models, Data Format and APIs used have to be interoperable. It is recommended to follow the standards proposed in the Reference Architecture or provide a plan to evolve and solve interoperability with the standards.

Mapping of data spaces building blocks ([see also OUP-architecture picture](#))

The OUP facilitates role-based access control. This integrates federated permission management with OUP data sources, enabling centralized authorization policies for streamlined access control. It supports data discovery catalogs and fosters trusted data sharing across applications.

A standards-based catalog enables metadata representation and efficient data discovery, ensuring providers index and share data uniformly. OUP hubs develop these catalogs for use cases and provide access to compliant users.

A Universal Trust Data Registry ensures secure, tamper-proof exchanges and verifiable transactions, maintaining trust and compliance with robust security frameworks. This is developed within the OUP hubs and facilitated by a ‘landingzone’ to audit compliances in a sandbox facility. Security in Federated Data also ensures that data is protected from unauthorized access, tampering, or breaches, involving encryption, access control, and authentication mechanisms. Identity management as a building block plays an important role in creating trust and security.

¹ <https://inventory.ds4sscc.eu/catalogue-of-specifications>

The Data Integration Platform enables seamless interaction across systems, with OUP open APIs ensuring scalable, real-time data exchange and interoperability.

In terms of Data Governance, the platform adheres to legal and ethical standards, such as GDPR and ISO 27001. These frameworks ensure compliance and define roles and responsibilities for stakeholders through Service Level Agreements (SLAs), ensuring that data usage and sharing follow strict guidelines for privacy and security. A legal framework, including smart contracts, ensures secure, sovereign data access based on valid credentials and agreed terms.

The OUP app-like marketplace enables access to validated applications for secure analyses of sensitive data including encryption by PETs.

Minimum Interoperability Mechanisms and Pivotal Points ensure standardized access and seamless data sharing across systems.

The OUP enhances interoperability by alignment with the Reference Architecture standards, and applies the FAIR principles, integrating standardized (trust) frameworks, ensuring long-term compatibility and evolution of the platform's architecture across domains.

Recommended compliance with Minimal Interoperable Mechanisms (MIMs) Plus². Please indicate which MIMs you will put in place to make its data and services interoperable. (max 1500 characters)

The pilot implements following MIMs Plus2 to ensure compliance and enhance the interoperability of data and services.

MIM1 - Context Information Management - The pilot will use standardized open APIs to manage context data, enabling seamless integration and access across sources.

MIM2 - Data Models – The pilot integrates domain-specific Trust Frameworks to ensure semantic interoperability and cross-system data usability.

MIM3 - Contracts - The pilot will use standardized communication protocols to ensure seamless data exchange between devices and platforms.

MIM4 -Trust - The pilot shall adhere to standardized data formats and encoding schemes to facilitate easy data sharing and processing.

MIM6 – Security - The pilot implements robust security and privacy measures, including encryption and anonymization, to ensure data integrity and confidentiality.

MIM7 – Places - Geospatial data will be shared in standardized formats to ensure interoperability, focusing on location-based services.

MIM8 – Indicators - Pilots shall involve indicators to monitor and assess the performance of smart systems and platforms.

MIMs and PPIs are standard components within the OUP to facilitate access to and sharing of data between systems.

List the types of datasets that will be considered, referencing also the list of models and formats you plan to use in the validation of the abovementioned use case(s). Please specify the access levels for all considered datasets (i.e., closed, restricted, personal, open data, ...) (max 1500 characters)

² <https://living-in.eu/group/7/commitments/mims-plus-version-6-final>

Dataset Type	Description	Formats Used	Models / Tools Used for Validation	Access Level
BIM Data	Architectural and infrastructure models	IFC (BIM), Geopackage, 3D Tiles	Clearly BIM Tools	Restricted / Closed
Mobility Data	Transportation and mobility	Geopackage	Mobility Model (scenenexus/TNO	Open "
Asset Management Data	Infrastructure and maintenance records	IFC, JSON	Geo-BIM tools	Restricted
Master Registrations	Official city databases (cadastre, property)	JSON, Database Records	Climate model KNMI Mobility model TNO	Open / restricted
Provider / Utility Data	Infrastructure networks (wastewater, water, ect.)	OROX, Geopackage	Water model -	Restricted
IoT Platform / Sensor Data	Real-time data from city sensors	JSON, API-based formats	Mobility model Goudappel	Restricted / Personal
Identity & Authentication Data	Data for verifying identity and access control	OpenID Connect, OAuth2, DCP (Data Consumer Protocol)	iSHARE, GAIA-X Frameworks	"
Meteorological Data	Weather and climate data	Geopackage, WMS	Tygron (Heat Stress Model)	Open / Restricted
Geospatial Data	Urban and environmental spatial data	Geopackage, 3D Tiles, WMS	3D City Model, GIS Platforms	"
Satellite Data	Remote sensing images for urban analysis	Raster, Geopackage	GIS Platforms, Tygron	"
3D City Modelling Tools	Urban visualization and lifecycle management	3D CityGML, CityJSON, 3D Tiles	VSC Viewer, Unreal Viewer	"
Data Exchange Contracts	Data related to contracts for data exchange between participants	ODRL (Open Digital Rights Language)	Data Space Protocol (DSP)	Restricted
Transaction & Recipe Data	Logs of system interactions and workflows	JSON, Database Records	OUP (Smart Communities)	Personal / Closed

Please elaborate on your rationale for involving abovementioned stakeholders (see question 1.3) and the benefits and business motivations for them to be involved (value proposition). Please also describe their

particular roles in the pilot activities (e.g., service/data providers, service/data users, service/data intermediaries, etc.) and the ways you plan to work with them. (max 2500 characters)		
Rationale for involving abovementioned (1.3) stakeholders		
Stakeholder	Value Proposition	Collaboration format
Municipalities	<i>Improved urban planning, disaster prevention and response, and citizen participation</i>	Provide and use data. Deliver pilot site
Public agencies (mobility, water)	<i>Better response time and prevention, improved asset design and lifecycle management</i>	Share data as peers. Provide and use data for alerts, predictions and asset management. Participate in hub.
Urban Innovators (Research) Institutions Businesses	<i>Improve their business through strengthened interoperable chain cooperations, replicable scalability and normalisation of processes. Use insights to improve and innovate services, improve product exchange and policies. Improved twin transition strategies</i>	Data users for solutions and services. Participate in Product & Data marketplace
First responders Mobility	<i>Improved emergency services and traffic flows in crises.</i>	Use and provide (restricted) data. Are involved in scenario building
Area Development Stakeholders-	<i>Faster development process. New USP for sustainable area development, constructive community-feedback.</i>	Provide and use data (o.a. BIM data). Are involved in plot site
Platform, viewer, Software and cloud providers Data brokers and integrators Data exchange agencies	Improve their business through improved interoperable eco-system, replicable scalability and normalisation of processes	Data intermediaries Are involved in the OUP-ecosystem

3.7 Engagement of Additional Stakeholders

What are the key priorities regarding ethics and data protection challenges that need to be addressed during the pilot based on your Ethics and Data Protection Self-assessment? (1500 characters)

OUP follows independent governance and ethical board guidelines, ensuring compliance with privacy, security, and ethical data use standards. The key priorities include-

- Data Sovereignty and Privacy Protection- Ensuring that all data handling respects participants' control over their personal information. This includes the use of self-sovereign identity solutions for better individual control and ensuring privacy by design in all aspects of the platform.
- Transparency and Accountability: The OUP is a distributed data-sharing system, ensuring transparent data transactions and logging to build trust and accountability across stakeholders.
- Secure Data Handling and Encryption: Implementing robust security measures like TLS 1.3 and mutual TLS to protect data integrity during transfer.
- Compliance with GDPR: Adhering to GDPR, focusing on data minimization, consent management, and data subject rights, with transparent governance and regular compliance monitoring.
- Authorization and Access Control- Using Open Digital Rights Language (ODRL) for strict data sharing policies, ensuring transparency and accountability through clear transaction logging.
- Ethical Oversight: Adhering to data protection protocols and ensuring decisions align with core values, including inclusion, sovereignty, security, and democracy, while protecting vulnerable groups.

These priorities ensure ethical standards and data protection are met throughout the pilot phase

What ethical and legal responsibilities can be postponed to a follow-up project after this pilot phase? (1500 characters)

For a focused approach and defined scope for the pilot, certain ethical and legal responsibilities can be postponed to a follow-up project, including-

- Full articulation of Ethics and Data Legislation- Full articulation of legal frameworks like GDPR compliance, Data Governance, and DPO procedures can be refined later.
- Paid/Protected Data- Agreements on handling paid or protected data can be formalized post-pilot.
- Privacy Measures Expansion- While privacy by design is in place, pilot does not use sensitive data sources. New data sources' sensitivity can be postponed.
- Refinement of Ethical Oversight- The Ethical Supervisory Board's role and processes can be further refined as new stakeholders and data sources emerge.
- Dispute Resolution- Formalizing dispute resolution for complex governance issues or new use cases can be addressed later, shaped by insights from the pilot.
- Self-Sovereign Identity Solutions- Full implementation of systems like iSHARE and GAIA-X can be deferred.
- Informed Consent and Data Anonymization- Ethical considerations such as informed consent and data anonymization can be deferred.
- Articulation of Data Governance Frameworks- Finalizing governance and legal agreements for cross-jurisdiction data sharing can occur later.
- Protocols for New Partners and Technologies- These can be postponed until a later phase.

These areas ensure foundational structures are in place while allowing time for further development.

With regard to key priorities concerning ethics and data protection challenges to be addressed during the pilot, provide an overview of the tasks and deliverables and where they will be addressed in the work plan. (1500 characters)

The pilot will address key priorities concerning ethics and data protection through tasks and deliverables distributed across distinct phases of the work plan.

- GDPR Compliance and Privacy Protection – A focus during the preparation phase, with tasks to identify data types and align them with GDPR. The 'Recipe' template service will ensure data minimization and security to meet privacy regulations. WP 2.1
- Data Minimization – To reduce latency and optimize computational capacity, only necessary data will be processed. This will be implemented in the technical design and data management phases, with a deliverable being a report on how data minimization principles are applied. WP 2.1

- Transparency and Accountability – In the preparation phase, tasks will include defining roles for data controllers and processors and logging data-sharing transactions in the Recipe. WP4.1
- Ethical Oversight – A Governance and Ethical Board will oversee the enforcement of ethical standards, including inclusion, sovereignty, security, and democracy, through Defined Recipe outcomes and ongoing monitoring. The Board will be consulted 3 times. WP2.3, WP 3.3 and
- Data Security and Integrity – Security measures and encryption will be deployed to enhance technical enforcement by connector-as-a service provision. Deployment in 2 steps ready for WP 4.1
- Vulnerable Groups Protection – This will be addressed in WP 2.1 through training and tools.

3.8. Alignment with Ethical Principles

Please answer the following questions after completing the Ethics and Data Protection Self-assessment (available at <https://ds4sscc.eu/cfp-three>).

3.9 Budget and Resource allocation

Please submit your Budget (in Excel format) using the Budget template (available at <https://ds4sscc.eu/cfp-three>).

Please confirm the co-financing allocation below. Note that the following must apply:

- Co-financing by the consortium + Reimbursement from the Digital Europe = Eligible Costs
- Sum of Co-financing Contributing partner(s) and amounts = Co-financing by the consortium
- Submitted Letters of Commitments must reflect the commitment in this table
- Total sum of co-financing must cover at least eligible costs * 0.5
- The co-financing are dedicated costs, indicated directly in the budget for the pilot and are auditable (in kind not allowed)

Co-financing Contribution Partner	Amount
Co-financing Contributing Partner 1 's-Hertogenbosch	450.758,63
Co-financing Contributing Partner 2 Rotterdam	319.495,00
Co-financing Contributing Partner 3 Tampere	270.000,00
Co-financing Contributing Partner 4 Future Insight	258.523,00
Total sum (i.e., Co-financing by the consortium)	1.298.776,63

Please add below your full budget per each partner within the Digital Europe Programme cost structure, considering also that the reimbursement rate is up to 50%. Please also consider the necessary budget for providing a Certificate on Financial Statements (CFS) with your final report, carried out by an external auditor (under the cost category C3 'Other goods, works and services'). Further, please consider the necessary effort for participating in the Pilot Support programme.

Partner 1 Name: 's-Hertogenbosch

Cost Category		Amount
A. Personnel Costs		€ 613.088,05
B. Subcontracting Costs		€ 170.729,20
C. Purchase Costs	C.1 Travel and Subsistence	€ 32.100,00
	C.2 Equipment	€ 0,00

	C.3 Other goods, works and services (e.g. consumables, dissemination, audit costs)	€ 85.600,00
D. Indirect Costs (= 7% * (A + B + C.1 + C.2 + C.3))		€ 58.977,76
Eligible Costs (A + B + C + D)		€ 901.517,25
Reimbursement from the Digital Europe (Max: Eligible costs * 0.5)		€ 450.758,63

Partner 2 Name: Rotterdam

Cost Category		Amount
A. Personnel Costs		€ 386.896,28
B. Subcontracting Costs		€ 171.842,00
C. Purchase Costs	C.1 Travel and Subsistence	€ 16.050,00
	C.2 Equipment	€ 0,00
	C.3 Other goods, works and services (e.g. consumables, dissemination, audit costs)	€ 64.200,00
D. Indirect Costs (= 7% * (A + B + C.1 + C.2 + C.3))		€ 41.802,97
Eligible Costs (A + B + C + D)		€ 638.988,28
Reimbursement from the Digital Europe (Max: Eligible costs * 0.5)		€ 319.494,14

Partner3 Name: Tampere

Cost Category		Amount
A. Personnel Costs		€ 288.312,93
B. Subcontracting Costs		€ 170.729,20
C. Purchase Costs	C.1 Travel and Subsistence	€ 16.050,00
	C.2 Equipment	€ 0,00
	C.3 Other goods, works and services (e.g. consumables, dissemination, audit costs)	€ 64.200,00
D. Indirect Costs (= 7% * (A + B + C.1 + C.2 + C.3))		€ 35.280,79
Eligible Costs (A + B + C + D)		€ 539.292,13
Reimbursement from the Digital Europe (Max: Eligible costs * 0.5)		€ 269.646,07

Partner 4 Name: Future Insight

Cost Category		Amount
A. Personnel Costs		€ 317.983,20
B. Subcontracting Costs		€ 1.112,80
C. Purchase Costs	C.1 Travel and Subsistence	€ 16.050,00
	C.2 Equipment	€ 0,00

	C.3 Other goods, works and services (e.g. consumables, dissemination, audit costs)	€ 181.900,00
D. Indirect Costs (= 7% * (A + B + C.1 + C.2 + C.3))		€ 33.825,44
Eligible Costs (A + B + C + D)		€ 517.046,00
Reimbursement from the Digital Europe (Max: Eligible costs * 0.5)		€ 258.523,00

4. 4. Impact

4.1 Direct and indirect impact and sustainability

Pilot activities' direct impact: what change will the pilot activities create in the involved communities / pilot sites? Please elaborate on your direct value proposition as well as reference specific indicators and the way those would be measured. (max 5000 characters).

Pilot activities bring transformative changes to the pilot sites by enhancing data access, trusted data-sharing -interoperability, and -usability among stakeholders. The normalisation and scaling impact of Recipe-templates will significantly:

- grow network-effects for businesses. The data-sharing infrastructure fuels a digital ecosystem and chain-cooperation allowing external developers and application providers to create applications and improve data-driven solutions and services.
- Strengthen social fabric: Pilot activities are expected to leave a lasting impact on community fabrics and climate awareness (social). OUP as Low-code DT-platform enables visualization needs of different user groups and makes advanced data analysis accessible for non-professionals and communities
- Improve cities climate adaptivity and resilience (sustainability): the Digital Twin supports equitable and sustainable urban design. Replicability through Recipe-templates improves validation of mitigation scenarios. Data integration for multistakeholder collaboration and decision-making improves adaptation to heatwaves and flooding, as well as minimizing their cascading effects on mobility, hence strengthening resilience.
- Improve traffic predictions: Pilots predictive urban mobility scenarios and intervention measures to reduce congestion, lower emissions and disruption for citizens.
- Raise climate risk awareness: The DT increases public understanding. It fuels active participation from citizens in decision-making to create liveable neighbourhoods. It improves risk awareness, disaster response and event management capabilities among public agencies. Improved early warning leads to better resource allocation, infrastructure planning and asset lifecycle management. The OUP Data Space for DT helps public agencies identify areas with higher temperatures during heat waves leading to heat stress and greater runoff areas contributing to flooding, enabling them to target collaborative mitigation measures like landscape and infrastructure improvements.
- Adheres to international BIM, Mobility and Water data sharing frameworks as well as NLDT reference architectures and Minimum Interoperability Mechanisms (MIMs Plus)
- Scaling of DT-processes and pipelines through Replicable Recipe Templates enables broader adoption. This speeds up validation, dissemination of best practices across other cities, multiplying the impact of DS4SSCC initiative.

By deploying the OUP, the pilot not only improves the lives of citizens but also help city administration respond more effectively to modern challenges, such as climate change, heat stress, flooding and urbanization as well as preparedness for simulated events.

Key Performance Indicators (KPIs)

FUNCTIONAL TESTING	
Data ingestion accuracy	80%+
Data processing time	< 1 second per transaction
SECURITY TESTING	
Encryption coverage	100%
Access control compliance	100%
INTEROPERABILITY TESTING	
API success rate	95%+
Cross-platform compatibility	80%+
DATA ACCURACY	
Flood prediction accuracy	70%+
Heat stress prediction accuracy	80%+

Traffic prediction accuracy	70%+
OUP RESPONSE TIME	
Time to detect flooding events	< 20 minutes
Time to issue heat warnings	< 20 minutes
Time to detect traffic congestion	< 10 minutes
Time to optimize routes	< 15 minutes
SYSTEM PERFORMANCE	
System uptime during flood events	99.9%
Improvement in emergency response times	2%
Latency for real-time data updates	< 100 ms
System uptime during heatwaves	99.9%
Latency for real-time data updates	< 100 ms
System uptime during peak hours	99.9%
Latency for real-time data updates	< 100 ms
IMPACT ASSESSMENT	
Reduction in flood-related damages	2%
Improvement in emergency response times	2%
Reduction in heat-related health incidents	2%
Improvement in air quality	0.1%
Increase in green spaces	2%
Reduction in traffic congestion	1%
USER ACCEPTANCE TESTING	
User satisfaction score	4.0/5
Pilot deployment success rate	60%+

Pilot activities indirect impact: what will the pilot activities change in communities involved beyond their direct scope? Please elaborate on your longer-term impact objectives. (max 2500 characters)

Data access and data sharing are known to have a multiplier effect due to their induced indirect impact on the wider economy. The indirect impacts include transferability to other cities thus accelerating European validation processes due to Replicable Recipes Templates for DT-pipeline models.

Economic benefits resulting from increased network effects and normalization for companies (SMEs) delivering services using the OUP Product & Data Marketplace. Lower infrastructure, asset and vehicle damage and reduced repair cost. New job creation in tech and urban planning areas Reduced healthcare expenses.

Enhanced social equity and inclusion through data-driven climate adaptation in (low income) neighborhoods, reduced health disparities by utilizing health crisis measures e.g. reduced heat strokes. Stronger social fabric as equitable access to data-driven insights by minimizing inequalities in data utilization. Enhanced data-sharing mechanisms and practices and the availability of low code DT tools will empower communities' dependency on experts. This will contribute to enhanced community resilience by preparing communities to better handle socioeconomic and environmental challenges.

Environmental sustainability through reduced emissions and encouraging adoption of nature-based solutions in urban planning.

Further, the activities are expected to strengthen local innovation ecosystems by nurturing digital entrepreneurship and promoting technological experimentation on local with scaling available via the OUP

PDX- marketplace. By embedding principles of digital inclusion, this initiative also ensures that the benefits of data access and data sharing are not only transformative but enduring.

Describe your action plans for sustaining and scale up your data space initiative after the end of the pilot (strategy to attract data providers and users, business model, federation efforts). Reflect on investments needed in terms of infrastructure, personnel and other categories. (max 3500 characters)

The project's innovation lies in normalisation of cross-domain integration of data into sectoral models, model2model interoperability and secure data transactions for Digital Twin-pipelines and scenarios, through Replicable Recipe Templates. The specific use case focusses on a DT for Climate Adaptive Urban Design. To sustain and scale up the pilot activities beyond their initial implementation, we envisage a multifaceted action plan focusing on long-term adaptability and scalability. Scalability is achieved through replicable Recipes, open standards, and a modular platform architecture, and offering a NLDT-testbed facility, allowing Recipes to be easily adopted and trialled by other cities facing similar urban challenges.

The Replicable Recipe concept and pilot results will actively be disseminated internationally to the OASC, DS4SSCC, Live-in Europe through Tampere and Rotterdam. Rotterdam will actively disseminate and link results to the NLDT & Citiverse EDIC activities and the Urban Innovator Global community. Rotterdam, 's-Hertogenbosch and Future Insight will actively disseminate results among the Dutch Metropolitan Innovations – ecosystem among peer cities as members.

The pilot will deliver a pragmatic 'cookbook' describing the steps and elements to develop and deploy a Replicable Recipe-template. The cookbook will be made available for free and published on the OUP portal. This will enhance broader adoption and dissemination of best practice enabling other regions and cities across Europe to adopt similar frameworks.

5. Letter of Commitment(s) and Declarations

5.1. Letter(s) of Commitment

Please attach a signed Letter(s) of Commitment (template available at <https://ds4sscc.eu/cfp-three>) from each local or regional public administration (at least one pilot site in at least two EU Member States or DEP Associated countries). The Letter of Commitment must be written on the letterhead of the local or regional public administration (or other eligible partner from whom it is required).

In addition, when other consortium members are expected to cover a part of the pilot project's co-financing, they must also submit a signed LoC.

For eligibility, the total amount to be co-financed by consortium partners during the pilot's period must be at least 50% of the grant provided, as proven by the LoC(s).

5.2. Ownership Control Declaration

We as a whole consortium hereby declare that all entities in the consortium are eligible by the criteria described in the Call for Pilots Manual (available at <https://ds4sscc.eu/cfp-three>).

- Yes

Note that Ownership Control Declaration (OCD) must be self-declared at proposal time, and if the pilot is awarded, the OCD must be provided within 14 days. The OCD template will be provided on the DS4SSCC-DEP website in due course.

Our consortium includes an entity/entities controlled by a non-EU country or DEP associated countries and we foresee the need to provide a guarantee for their participation in the pilot.

- No

5.3. Other EU Funded Programmes/Calls Declaration:

We as a whole consortium hereby declare that funding requested through the DS4SSCC-DEP Project Call for Pilots application would not result in the double-funding of existing, EU funded activities.

- Yes

5.4 Any other EU funded programmes/Calls relevant for intended pilot (Optional)

Please identify any other EU funded programmes/Calls you either have or intend to apply to in the area of the outlined pilot activities as stated here (similar proposal). Please specify any overlaps and complementarities – these may become important in the definition and finalisation of any future grant agreement.

EU funded programmes/calls – overlaps and complementarities	5.5.
None	

Compliance with Eligibility Criteria

We declare to be fully compliant with the eligibility criteria set out in the call, and to have the financial and operational capacity to carry out the proposed project.

- Yes

5.6 Ethics Declaration

We as a whole consortium declare that we will follow the GDPR and trustworthy AI principles referenced in the Ethical framework of the CfP Manual (available at <https://ds4sscc.eu/cfp-three>):

- Yes

Note that if the pilot is awarded, the Data Management Plan must be provided within 30 days that will be evaluated by the Ethics Board.

5.7. Consent and Transparency

We as the Lead Partner declare to have provided all applicants with the Privacy Statement regarding the processing of personal data for the Call for Pilots, and have obtained their consent on their participation and the content of this proposal (including processing and sharing of personal data). For more information on the processing of your personal data, please read our Privacy Statement³.

- Yes

We are aware and agree that the information shared in this Application Form can be used and shared for the purpose of evaluating the proposal. Applications will be shared with experts engaged in the evaluation process. All engaged experts will sign a Non-Disclosure Agreement and the Conflict of Interest Statement.

- Yes

We are aware and agree that specific information shared in the proposal, such as pilot title, names of the Lead Partner and other beneficiaries, and a short description (as provided by the applicant in the application template) may be made available for publication purposes, if the pilot is awarded. No personal data will be

³ Available at <https://www.ds4sscc.eu/privacy-statement>

publicly made available, unless otherwise agreed upon with the data subjects.

- Yes

The Lead Partner (i.e., coordinator) is only responsible for the information relating to their own organisation. Each applicant remains responsible for the information declared for their organisation.

Annex 2 (of Grant Agreement)

Reporting obligations and audited financial statements

1. Obligation to submit reports

The Beneficiary must submit to OASC the technical and financial reports set out in this Annex including requests for payment. The relevant forms and templates shall be provided to OASC three months prior to the report submission deadline.

2. Reporting periods

The Project is divided into the following 'reporting periods' (RP):

- RP1: from the Effective Date to Interim Month (Project duration / 2)
- RP2: from Interim Month + 1 to project End Month

3. Periodic reports

The Beneficiary must submit a periodic report within 30 days following the end of each reporting period.

The periodic report must include the following:

A. a 'periodic technical report' containing:

- (i) a description of the work carried out by the Beneficiary in line with the Project described in Annex 1;
- (ii) an overview of the progress towards the objectives of the Project, including milestones and deliverables defined in Annex 1;
- (iii) when available, a description of the exploitation and dissemination of the results;
- (iv) if required by Annex 1, an updated 'plan for the exploitation and dissemination of the results' and relevant communication activities.
- (v) justification for any deviations from the agreed Project.

B. a 'periodic financial report' containing:

- (i) an 'individual financial statement' for the reporting period concerned.

The individual financial statement must detail the eligible costs for each budget category. The Beneficiary must declare all eligible costs, even if they exceed the amounts indicated in the estimated budget.

The reimbursement rate is 50%.

Amounts which are not declared in the individual financial statement will not be considered by OASC.

If an individual financial statement is not submitted for a reporting period, it may be included in the periodic financial report for the next reporting period.

The individual financial statements of the last reporting period must also detail the receipts of the Project.

The Beneficiary must certify that:

- the information provided is full, reliable and true;
- the costs declared are eligible (see Annex 2);
- the costs can be substantiated by adequate records and supporting documentation that will be produced upon request or in the context of checks, reviews, audits, and investigations (see Article 4), and
- for the last reporting period: that all the receipts have been declared.

(ii) an explanation of the use of resources and the information on subcontracting for the reporting period concerned;

(iii) a 'periodic summary financial statement' consolidating the individual financial statements for the reporting period concerned and including — except for the last reporting period — the request for interim payment.

4. Final report

In addition to the periodic report for the last reporting period, the Beneficiary must submit the final report within 30 days following the end of the last reporting period.

The final report must include the following:

A. a 'final technical report' with a summary for publication containing:

(i) a description of the work carried out by the Beneficiary in line with the Project described in Annex 1;

(ii) an overview of the progress towards the objectives of the Project, including milestones and deliverables defined in Annex 1;

(iii) a description of the exploitation and dissemination of the results;

B. a 'final financial report' containing:

(i) a 'final summary financial statement' consolidating the individual financial statements for all reporting periods and including the request for payment of the balance and

(ii) a 'certificate on the financial statements' of actual costs on the basis of Beneficiary's usual cost accounting practices.

The reimbursement rate is 50%.

5. Currency for financial statements

Financial statements must be drafted in euro.

The Beneficiary with accounting established in a currency other than the euro must convert the costs recorded in their accounts into euro, at the average of the daily exchange rates published in the C series of the Official Journal of the European Union, calculated over the corresponding reporting period.

If no daily euro exchange rate is published in the Official Journal of the European Union for the currency in question, they must be converted at the average of the monthly accounting rates published on the Commission's website, calculated over the corresponding reporting period.

The Beneficiary and linked third parties with accounting established in euro must convert costs incurred in another currency into euro according to their usual accounting practices.

6. Language of reports

All reports (technical and financial reports, including financial statements) must be submitted in the language of the Grant Agreement.

7. Certificate on Financial Statement

The Beneficiary is required to provide a report by an independent auditor ('Certificate on Financial Statements' or 'CFS') with their final report. The CFS's aim is to enable the OASC, the Agency, the European anti-fraud office (OLAF) and the European Court of Auditor to check whether costs declared in the financial statements are eligible.

The costs for producing the CFS are eligible in the last reporting period only. It is recommended that the Beneficiary includes the CFS costs in the budget estimated for the Project.

Annex 3 (of Grant Agreement)

Cost eligibility

Eligible and Ineligible Costs

General conditions for costs to be eligible

‘Eligible costs’ are costs that meet the following criteria:

(a) for actual costs:

- (i) they must be actually incurred by the Beneficiary;
- (ii) they must be incurred in the Project term as set out in Article 2, with the exception of costs relating to the submission of the periodic report for the last reporting period and the final report;
- (iii) they must be indicated in the estimated budget set out in Annex 1;
- (iv) they must be incurred in connection with the Project as described in Annex 1 and necessary for its implementation;
- (v) they must be identifiable and verifiable, in particular recorded in the Beneficiary’s accounts in accordance with the accounting standards applicable in the country where the Beneficiary is established and with the Beneficiary’s usual cost accounting practices;
- (vi) they must comply with the applicable national law on taxes, labour and social security, and
- (vii) they must be reasonable, justified and must comply with the principle of sound financial management, in particular regarding economy and efficiency;

Specific conditions for costs to be eligible

Costs are eligible if they comply with the general conditions (see above) and the specific conditions set out below for each of the following budget categories:

A. direct personnel costs;

B. direct costs of subcontracting;

D. other direct costs;

E. indirect costs;

‘Direct costs’ are costs that are directly linked to the Project implementation and can therefore be attributed to it directly. They must not include any indirect costs.

‘Indirect costs’ are costs that are not directly linked to the Project implementation and therefore cannot be attributed directly to it.