Project details

Application team

Teesside University (Lead)

Organisation details

Type	Knowledge base

Team members

Full name	Phone number	Email	EDI survey
[redacted]			

CLIMATE SOLUTIONS EXCHANGE LIMITED

Organisation details

Type	Business

Team members

Full name	Phone number	Email	EDI survey
Andrew Howard	[redacted]		
[redacted]			

Knowledge transfer adviser

Full name	Phone number	Email
[redacted]		

Application details

Competition name
Knowledge transfer partnerships (KTP): 2022 to 2023 Round 5

Application name
Teesside University and Climate Solutions Exchange: KTP22 _23 R5

Project duration in months
30 months

Innovation area
Digital technology

Project summary

Project summary

[redacted]

[redacted]

Public description

Public description

To develop an AI-driven Automated Surveying Capability to improve Peatland condition monitoring and assessment; to enable peatland owners to scale peatland restoration, to increase capacity and access to peatland carbon markets, and to deliver major carbon benefits.

Scope

Describe how your project fits with the scope of the competition.

CSX's purpose is to help develop a trusted carbon market, offering land managers a fair return for environmental management and businesses transparent, verified carbon credits.

Its vision is to connect land managers with businesses who together can deliver Nature Based Solutions to accelerate the fight against the climate crisis.

Current carbon trading mechanisms are inaccessible to almost all land managers, buyers are unaware if they are paying a fair price for carbon credits. Current systems lack robust quantification of data trails, providing no regular monitoring and evidence-based auditability.

The KTP will utilise expertise in Machine Learning, AI, and Predictive Modelling to intelligently automate business processes and generate efficient, automated data collection processes to measure peatland characteristics.

This automation will enable scalability of peatland restoration projects resulting in significant business growth.

The innovation of this project is the creation of an AI derived Work Specification document. This AI specification document will deliver the following:

- Greater accuracy in the modelling of restoration works when compared with the current entirely manual system and process.
- Standardisation of the tendering process of peatland restoration works, allowing new contractors to enter the industry, increasing competition, reduce costs, and enabling an increase in restoration capability and delivery.

Application questions

1. KTP type

What type of KTP are you applying for?

Classic KTP

2. Number of associates

How many associates do you need to support this project?

[redacted]

3. Business partner type

What is the business partner type?

limited company

4. Virtual business

Is the business partner a virtual business?

No

5. Business partner size

Give the size of the business partner’s organisation

small

6. Business partner SIC code

What is the business partner’s Standard Industrial Code (SIC)?

[redacted]

7. Business partner registration number

What is the business partner’s name and registration number?

Climate Solutions Exchange Ltd

12413888

8. Partnership Details

What is the name and the full registered address of your organisation and your business partner working on the project?

Teesside Unniversity

Campus Heart

Middlesbrough

Tees Valley

TS1 3BA

Climate Solutions Exchange Limited

Barningham Coach House,

Barningham

Richmond

North Yorkshire

DL11 7DW

9. What is the expected working model for the associate?

Where will the associate mainly be working?

[redacted]

10. Meeting location

Where will the business partner hold the face-to-face Project Management meetings and Local Management Committee meetings?

[redacted]

[redacted]

11. Senior business employee

Who is the senior business partner employee?

Mr Andy Howard

[redacted]

12. Senior business employee's background

How does the experience of the senior employee at the business make them suitable for this role?

***A*ndy Howard is the CEO and Co-founder of CSX (Company Lead/LMC Chairperson).**

[redacted]

[redacted]

13. Business partner supervisor

Who is the business partner supervisor for each associate?

[redacted]

14. Business partner supervisor's background

What is the business partner supervisor’s background?

[redacted]

15. Knowledge base supervisor

Which knowledge base partner employee will give the associate academic supervision?

[redacted]

[redacted]

16. Knowledge base supervisor’s background

What is the knowledge base supervisor’s background?

17. Knowledge base lead

Who will be the knowledge base lead?

[redacted]

18. Knowledge base lead’s background

What is the knowledge base lead’s background?

[redacted]

19. Partnership administrator

Who will be the partnership administrator?

[redacted]

20. Person responsible for submitting claims

Who will be the person responsible for submitting claims?

[redacted]

[redacted]

21. Strategic aims

How does this project fit with the strategic aims of the business partner?

[redacted]

22. Business area

What area does the business partner work in?

[redacted]

23. Missing knowledge

What knowledge or expertise does the business partner currently lack that it will need to carry out this project?

[redacted]

[redacted]

24. Use of knowledge

How will the knowledge and expertise transferred during your project be embedded and exploited within the business partner?

[redacted]

[redacted]

25. Reason for partnership

Why is an academic and business partnership the most appropriate approach for this activity?

[redacted]

26. Business partner's challenges

What challenges does the business partner have that will be addressed through the partnership?

[redacted]

27. Associate’s challenge

What makes this a challenging project for the associate?

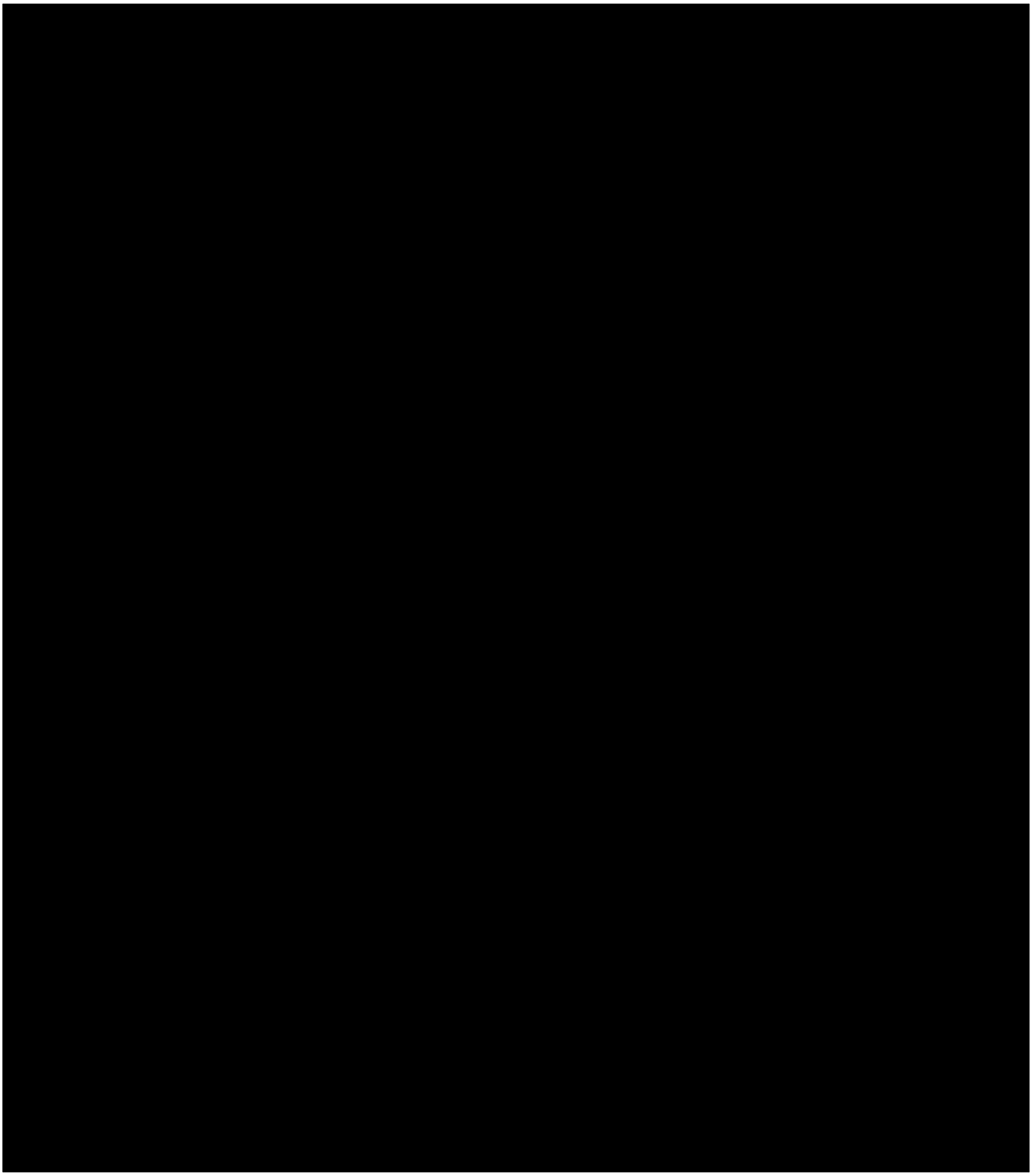
[redacted]

[redacted]

28. Associate arrangements

How will the associate or associates be supervised?

[redacted]



29. Associates

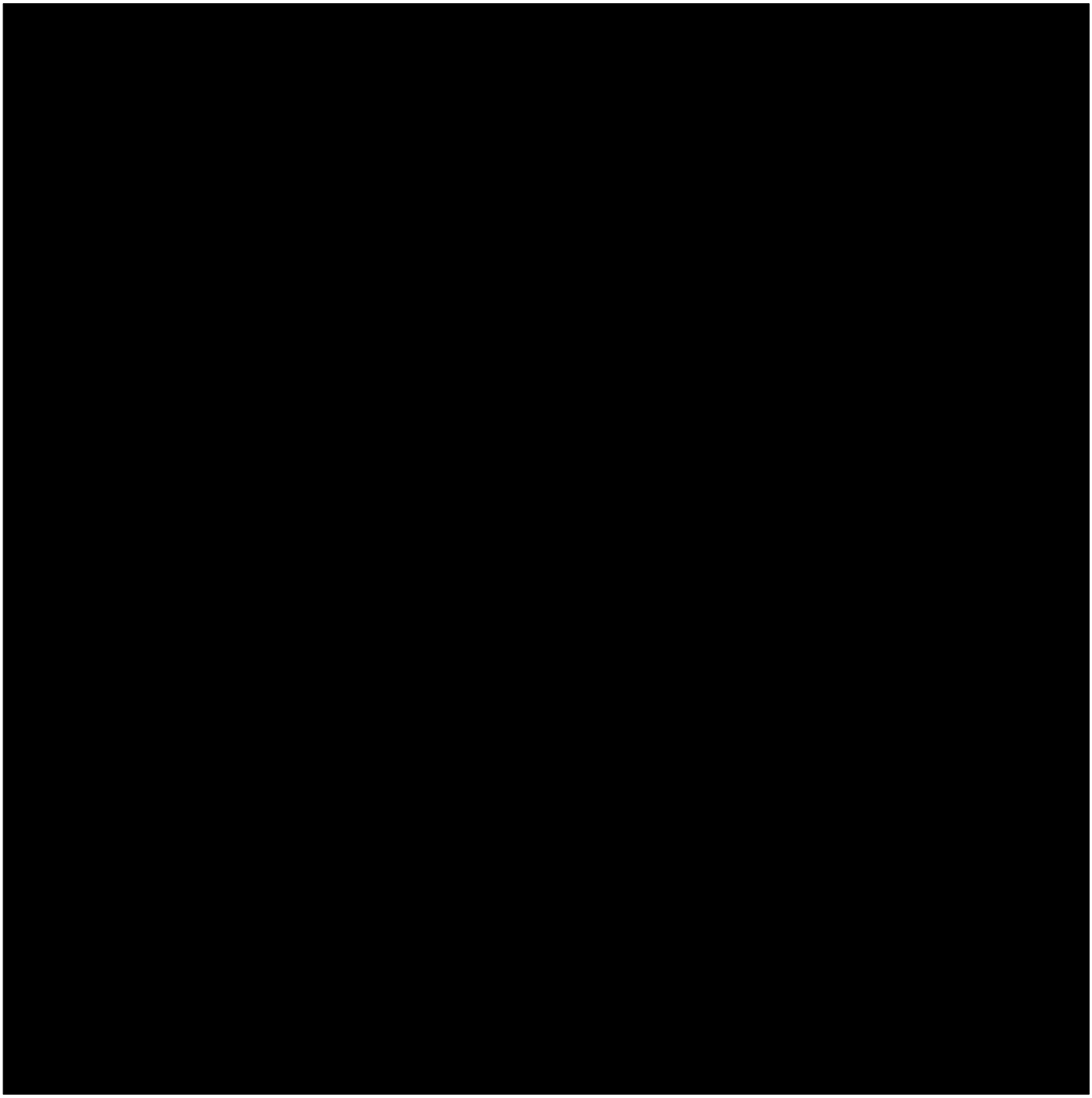
In order to deliver your project successfully, what are you looking for from your associates?

[redacted]

30. Knowledge base partner’s challenges and benefits

What challenges does the knowledge base have that will be addressed through the partnership?

[redacted]



31. Market opportunity

What market opportunities relating to the business case, will your project open up?

Peatlands store vast quantities of carbon; 'locking in' an estimated 3.2 billion tonnes in the UK alone. 80% of peatlands in the UK have however been damaged by human intervention -- primarily through drainage to allow for the growing of crops and trees. Drainage leads to decomposition of plant material and soil shrinkage which releases carbon into the air and is thereby a source of CO2 emissions into the atmosphere.

Many NGOs, private sector organisations and individual land-managers across the UK are now carrying out peatland restoration to reverse this damage but are restricted by limited long term funding.

The corporate demand for voluntary carbon offsetting is the fastest growing sector of the carbon market. The voluntary market worldwide grew 6% in 2019 to an estimated declared minimum of 104million tCO2e and the Taskforce on Scaling Voluntary Carbon Markets has stated that markets must grow at least 15-fold by 2030 to cut net man-made GHG emissions in half by the end of the decade.

Nature based solutions are critical in meeting that demand, but the financial needs for restoration activities are significant, the required funding to restore the peatlands within The Great North Bog project alone is £200 million.

In 2021 the UK government pledged £50m targeting 35,000 ha of peatland restoration, delivered through NGOs. There are however 1.4million hectares of upland peatland in the UK requiring urgent restoration, and the owners of these peat bogs have expressed a significant need to access the burgeoning corporate Economically Sustainable Governance (ESG) carbon buyers seeking to support carbon offsetting in the UK through projects such as peatland restoration.

In 2019 the Office for National Statistics estimated the cost of restoring these areas to be c.£2.3 billion, which would bring carbon benefits of c. £9.9 billion. However, the UK's current carbon offsetting schemes, the Woodland Carbon Code and the Peatland Code, have in place systems that can only supply less than 0.1% of UK Corporate compliance carbon offset needs per annum.

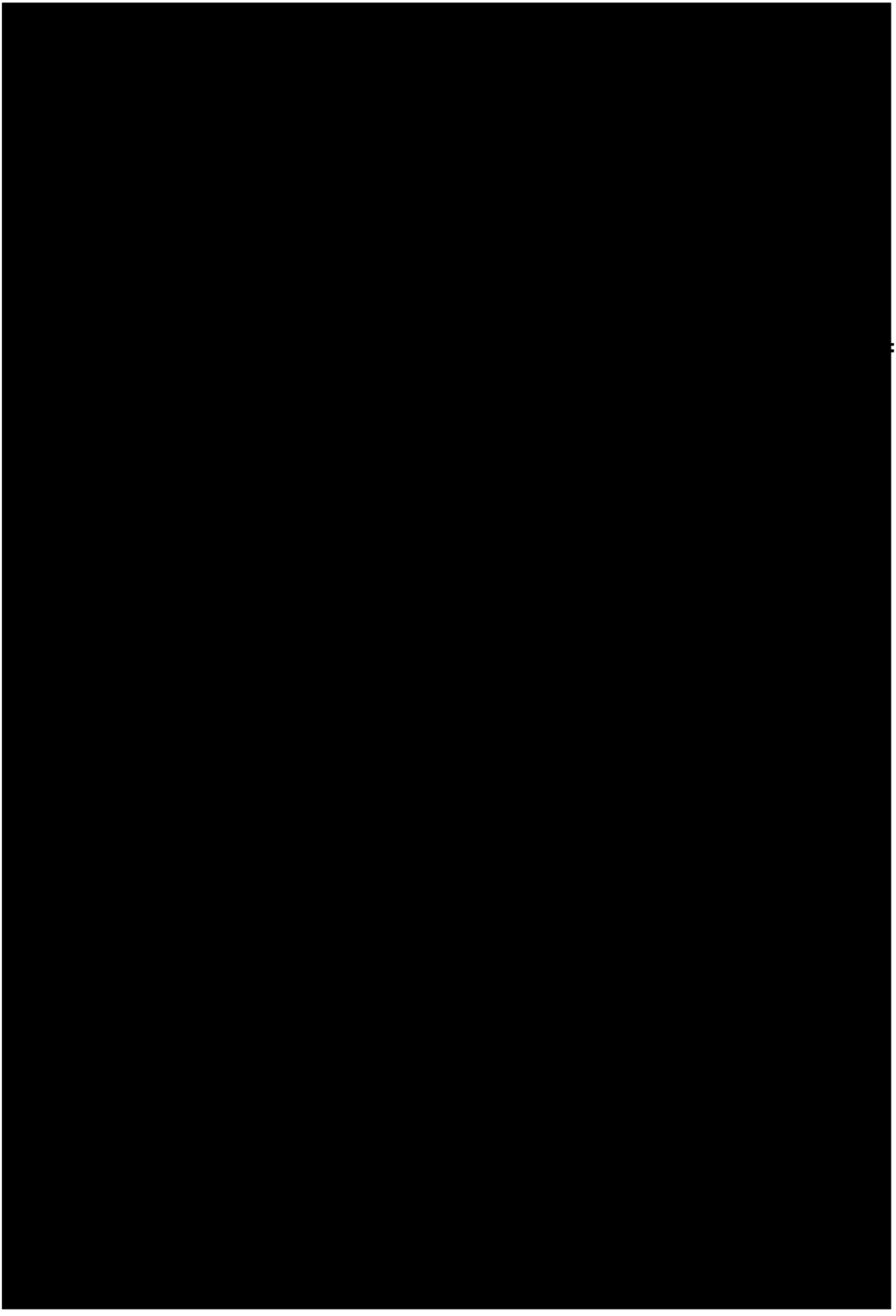
CSX have engaged with the International Union for Conservation of Nature (IUCN) and the Peatland Code, who have confirmed they do not have the resources to put in place a process for improving efficiency and scalability in the market or delivery of carbon offsets to it. These organisations have confirmed support to CSX's plans to improve and expand data gathering processes on peatland restoration, and keen to understand what lessons they can learn from the data we gather and analyse through our product, process and scientific program development.

The key target market for the product delivered through the project is the moorland owners and managers, who are acutely aware of the need to restore their peatland. However, inaccurate, and expensive assessments and a small and overpriced contractor base put the cost of restoration out of the reach of many land managers. The conditions and long lead times associated with public funding reduce the number of projects that are brought forward. And much of this investment goes into the planning and monitoring of works, rather than the restoration itself.

32. Route to market

What is your route to market?

[redacted]

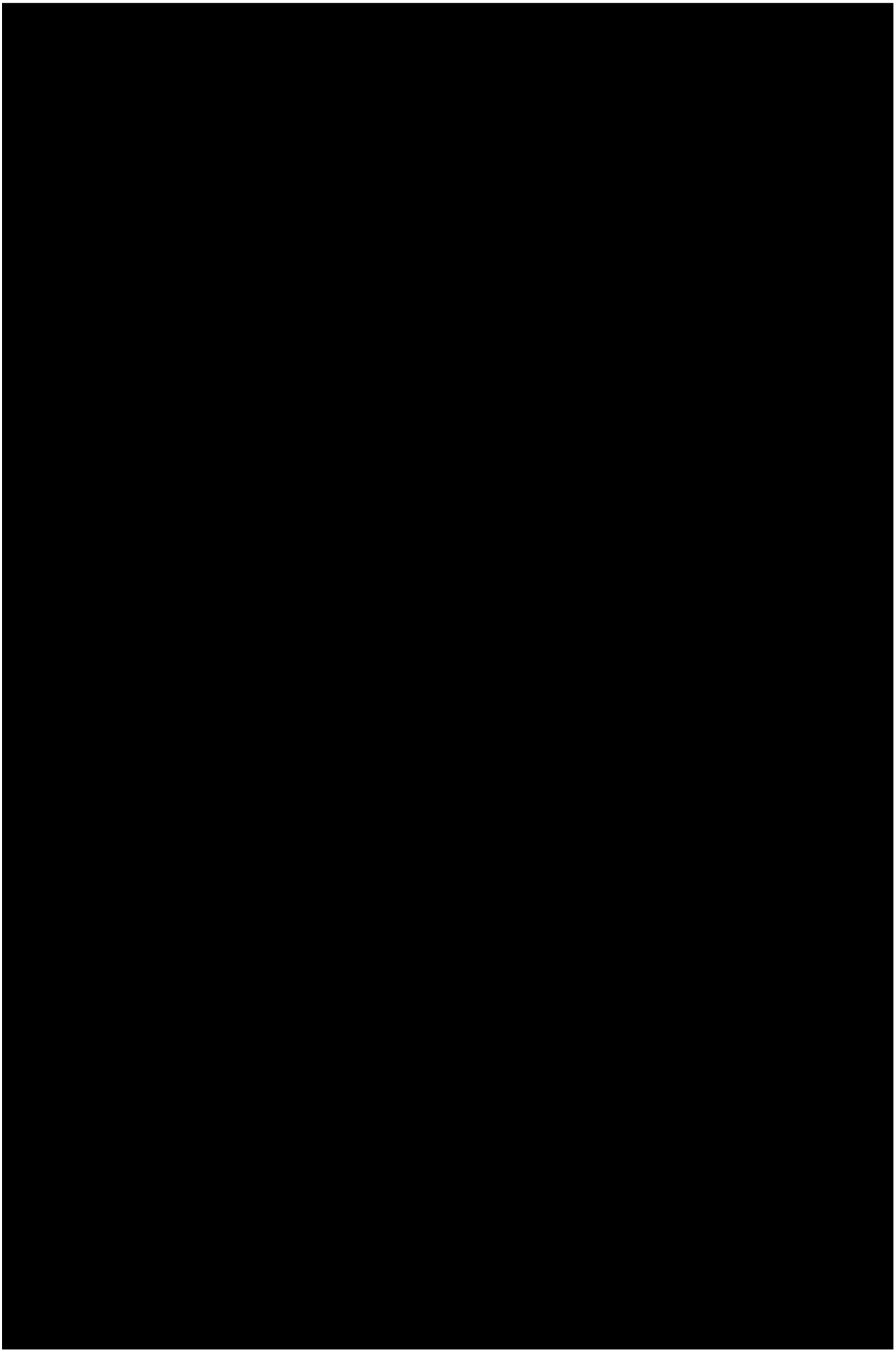


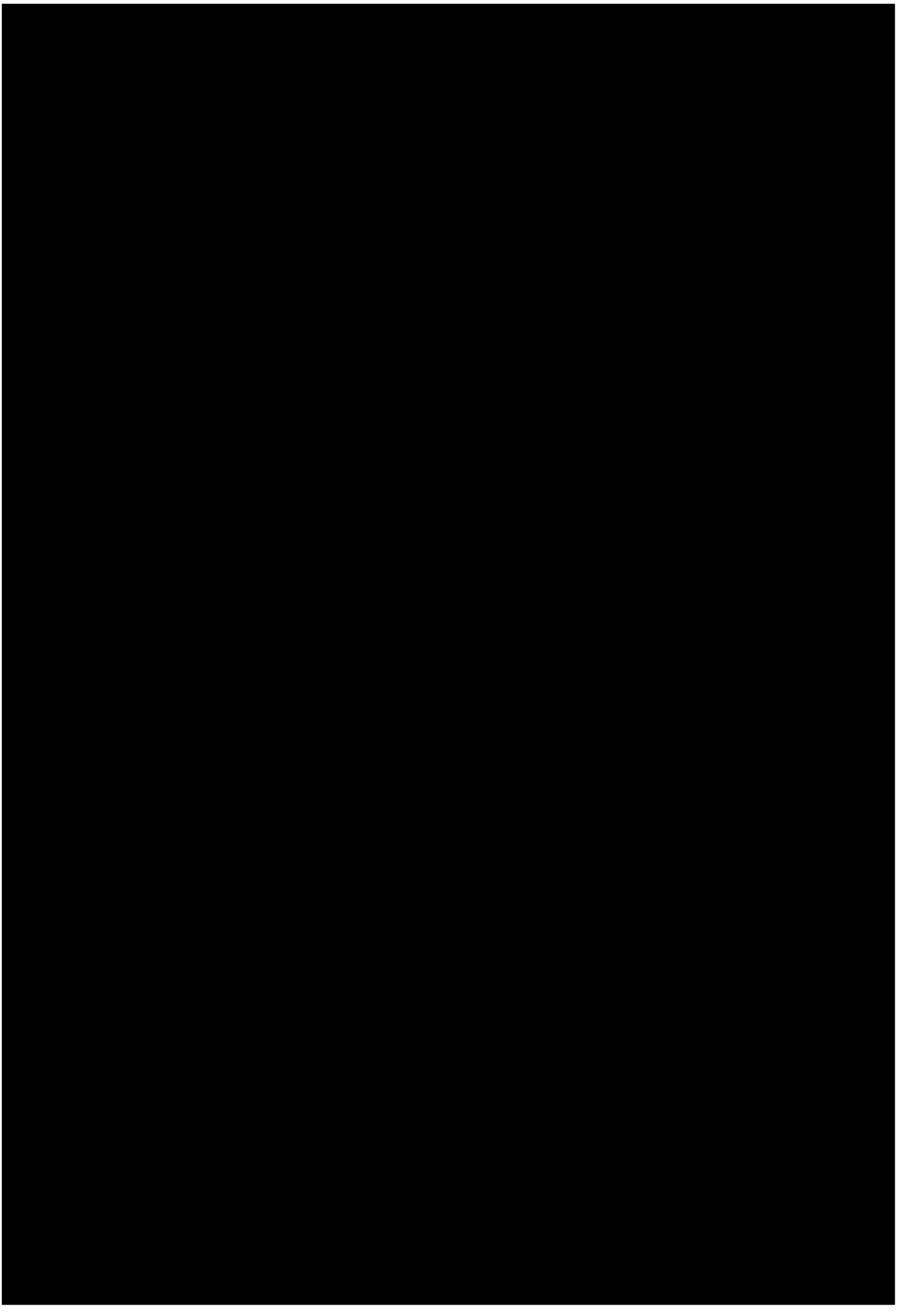
[redacted]

33. Commercial impacts

What are the likely impacts of your project?

[redacted]





[redacted]

34. Additional business actions and investments

What additional business actions and investments will be needed to commercialise the outputs from your project and deliver the benefits described?

[redacted]

[redacted]

35. Additional benefits

What additional benefits will be delivered as part of your project?

[redacted]

[redacted]

36. Project funding

Demonstrate how the business plans to address the funding of this project?

[redacted]

37. Workplan

How will you manage your project effectively?

38. LMC members

You must confirm that each member of the local management committee (LMC) is aware of their role and responsibility.

Yes

39. Previous business partner KTPs

Has the business partner now or ever undertaken a KTP?

no

40. Previous funding information

Have any of the partners previously received non-KTP awards that relate to this application within the last 5 years?

Application number: 79327

Competition: The Sustainable Innovation Fund: round 1 (temporary framework)

Funding body: Innovate UK (£481,505 award, of which £186,395 was to CSX)

October 2020 to 2021.

The project delivered CSX's MVP system that created a new remote sensing carbon sequestration *measurement and audit* system, promoting trading in the UK of measured carbon with an accompanying audit trail attaching to environmentally sustainable land management changes, in a transparent, cost efficient and scalable manner.

This involved development and integration of existing remote sensing Earth Observation (EO) data analysis on woodlands through the development of Machine Learning (ML) and Artificial Intelligence(AI) implementation systems.

CSX established with land manager partners Woodland Carbon Observatories assessing carbon and Natural Capital changes brought about by land management change.
The project successfully developed the processes and then ML necessary to combine the remote sensing EO data from the Woodland Carbon Observatories with the on-ground testing, in order to inform and refine the algorithms within the ML, enabling improved accuracy in measuring carbon flow and flux from environmentally sustainable land management interventions.
The business concept proven on woodlands in the previous project is now intended to be expanded and improved upon through the KTP on peatland.

41. Joint commitment statement

The knowledge base partner and business partner must declare a commitment to work together on the project by completing our joint commitment statement template.

42. Potential supporters

Which funder do you want to financially support your project?

UKRI KTP (Innovate UK)

43. Supporting documents 1

You can use this question to upload up to 3 other supporting documents as appendices

44. Supporting documents 2

You can use this question to upload up to 3 other supporting documents as appendices.

n/a

45. Declaration of accuracy

You must agree to the following declaration.

Yes

46. Declaration of knowledge transfer adviser approval

You must agree to the following declaration.

Yes

The finances of all project partners are included in this summary.

	Total costs (£)	Funding level (%)	Funding sought (£)	Company contribution (%)	Company contribution (£)	Other funding (£)
Teesside University Lead organisation	**243,328**	67.00	163,030	0	0	0
[redacted]						
CLIMATE SOLUTIONS EXCHANGE LIMITED Partner	**0**	0.00	0	33	80,298	0

[redacted]	Total costs (£)	Funding level (%)	Funding sought (£)	Company contribution (%)	Company contribution (£)	Other funding (£)
Total	**£243,328**		163,030	33	80,298	0

Project costs summary

[redacted]

Total	**£243,328**

Terms and conditions

Award terms and conditions

Partner	Terms and conditions
Teesside University (Lead)	[redacted]
CLIMATE SOLUTIONS EXCHANGE LIMITED	