We will be carrying out maintenance today between 5:30pm and 8:30pm. Please save any changes before then.

Project details

Subsidy basis

Partner	Funding rules	
[redacted] (Lead)	Subsidy control	View answers

Application team

[redacted] LTD

Organisation details

Type	Business

Team members

Full name	Email	EDI survey
[redacted]		Complete

Application details

Competition name
Innovate UK Smart grants: January 2023

Application name
Aquacity: a scalable platform for water modelling, management and neutrality

When do you wish to start your project?
1 October 2023

Project duration in months
18 months

Innovation area
Resource efficiency

Has this application been previously submitted to Innovate UK?

No

Research category

Selected research category
Industrial research

Public description

Public description

[redacted] is a pioneering company that helps cities, governments, and vulnerable communities become more water resilient in the face of climate change and rapid urbanisation. We do this by leveraging cutting-edge technologies such as ESRI, blockchain, and artificial intelligence in our tools and systems.

[redacted] takes a three-tier approach to the market:

- We deliver a water consultancy base.
- We provide innovative technology solutions.
- We create the industrial base for manufacturing water-efficient components.

Each of these tiers contributes to our goal of partnership opportunities with local institutions and industry to foster economic growth, job creation, and upskilling within the sector. We are a company already committed to offering equal opportunities to minority groups and will be looking for evidence of equality, diversity and inclusion in all forthcoming partnerships we represent in the water sector.

Our latest concept, the AquaCity Platform, will enable communities to fully comply with regulatory conditions such as the Water Neautrality Directive, more easily than has been previously possible. AquaCity will be a subscription-based tool that integrates new developments with existing water-offsetting sites. It will use real-time measurement and monitoring to ensure compliance, and it will use blockchain technology to ensure data security and transparency.

AquaCity will be immensely valuable for councils, developers, architects, and private companies. It will help them to accurately plan water usage activities over the full span of the project lifetime and contribute to their sustainable development and responsible water management strategies.

With a passion for innovation, sustainability, and community collaboration, [redacted] is poised to transform the water management landscape.

Scope and Project Summary

How does your project align with the scope of this competition?

Regulatory Demand

AquaCity project addresses the pressing issue of water neutrality in the UK, particularly in regions where the concept has been adopted in response to The Natural England Water Neutrality Position Statement of September 2021. This regulatory requirement, enforced by Natural England, aims to ensure that housing developments do not contribute to increased water usage in designated water supply zones. This directive has resulted in significant delays and stalled many investments. It has created urgent demand for a solution that will empower individuals, organisations, and communities to actively participate in water conservation efforts and comply with the current restrictions in development projects.

Meeting the Challenge

With no competitor addressing this pressing issue, [redacted]td. will pioneer the way forward. AquaCity will be an innovative water offsetting platform that will revolutionise water management by providing our clients with the means to achieve water neutrality effectively.

The main project objective is to develop an interactive Geographic Information System (GIS) web tool that facilitates the delivery of water neutrality in compliance with the regulations.

A Differentiated Approach

AquaCity's disruptive nature lies in its integration of cutting-edge technology into the water management sector:

1.Development of a working prototype of a water offsetting platform: Our platform will allow users to monitor their water consumption, calculate their water footprint, and offset their usage through verified and transparent transactions.This approach encourages individuals and organisations to conserve water by purchasing water credits, similar to the concept of carbon credits.

2.To ensure the integrity and security of water offset transactions, we will leverage blockchain technology. By utilising distributed ledger and smart contract capabilities, our platform will establish an immutable record of water offsets. This innovation addresses the challenge of verifying water usage and offsetting activities, setting new standards for accountability and accuracy.

3.Subscription-based tool for comprehensive water usage tracking and analysis: we will develop a user-friendly tool that enables stakeholders such as councils, developers, architects, and private companies to track and analyse their water usage comprehensively to assist them in optimising their water management practices and further contribute to water conservation efforts.

AquaCity has the potential to make a significant positive impact on the UK economy, society, and environment. However, water scarcity is also a recognised global problem.AquaCity will be a market disruptor, developed, tried and tested in the UK and capable of asserting a lead position in export markets, initially through a collaborative, international partnership network.

Application questions

1. Applicant location (not scored)

Applicant location (not scored)

[redacted]

2. Your idea and innovation

What is your idea and innovation, and why is it game-changing?

Introduction

Addressing the Need for Water scarcity is a critical global challenge affecting both developed and developing nations. According to the United Nations, 2.2 billion people lack access to safe drinking water, and by 2025, half of the world's population will be living in water-stressed areas. The World Economic Forum has also identified water scarcity as one of the top global risks in terms of impact.

In the UK, vast swathes of the south of England have not recovered from the drought of 2022, and independent research indicates that these regions including London, the Southeast & SouthWest and East of England could be experiencing chronic water problems by 2030.

The Water Neutrality Directive was brought in to tackle this issue and overrides all other planning directives of all other agencies. A recent Natural England directive on 'water neutrality' in which housing developments must not add to the amount of water being used in the Sussex North Water Supply Zone, has the full force of this law behind it.

Some recurrent UK-consequences are:

- 6 million homes in the Southeast are at risk of a 50% increase in water bills owing to water stress.
- 900 Planning Applications are currently stalled in Crawley, as developers struggle to achieve water neutrality.
- 11,000 homes cannot be built each year in the Southwest owing to nutrient neutrality.

Water Neutrality Platform

AquaCity is an innovative software that brings the concept of Water Neutrality to life. A first-generation platform to integrate smart telematic monitoring with AI technology, to generate detailed insights into water usage activities, specifications,

and even water offset credits, ensuring ongoing compliance and sustainability in perpetuity.

This interactive Geographic Information System (GIS) tool revolutionises the way water use is monitored, ensuring compliance with the latest standards and specifications. It comes equipped with built-in triggers that alert users of abnormal or excessive consumption, pipe bursts, etc.

The Advantages

1. Local councils can now effectively monitor the application of water neutrality and address any challenges in meeting planning targets.

2. For developers, architects, etc, our tool empowers them to plan their water usage activities for new developments, ensuring efficient resource management from the very beginning.

3. One of the key advantages of our tool is its ability to monitor post-water offset proposals. This means that even after water offsetting plans are implemented, our tool continues to track and monitor their effectiveness, ensuring ongoing compliance and sustainability.

Unique Features

1. AquaCity allows users to calculate their water footprint across various activities and sectors, including residential, industrial, and agricultural. By identifying the water consumption associated with each activity, users can effectively offset their water usage by supporting water conservation projects.

2. [redacted] will establish a marketplace where organisations and individuals can invest in verified water conservation projects worldwide. These projects may include rainwater harvesting, wastewater treatment, ecosystem restoration, and community education programs.

3. The platform will leverage advanced data analytics to offer users personalised recommendations and insights on how to reduce their water footprint. By integrating real-time data, weather patterns, and consumption patterns, we can empower users with actionable information to make informed decisions and enhance their water conservation efforts.

4. Stops the increase in water demand for new developments by facilitating a water credits market, where new developments could offset their proposed new use by undertaking water efficiency works within existing properties.

Current Development

We have piloted Aquacity on several thousand units, resulting in a potential water saving of 48,1 million litres/year (37.7%), from the normal consumption volume of

127.5 million/year (Refer to system appendix).

[redacted]

3. Justification for funding

Why is your innovation and proposal suitable for Smart funding, and why do you need public funding to help you succeed?

Introduction

This application for Smart funding is a strategic choice based on careful research and evaluation of available funding options; the high-risk nature of disruptive innovations and the long-term nature of the benefits make public funding necessary to bridge the gap between research and market adoption.

Public funding will be instrumental in helping us succeed in addressing the pressing issue of water scarcity and promoting sustainable water management practices. Our project contributes to environmental preservation, social well-being, and economic resilience, as well as the wider societal benefits and alignment with global sustainability goals.

1. AquaCity's development has played a pivotal role in driving our expansion within the UK market. Additionally, export opportunities in Brazil, Mexico and Singapore have rapidly opened up following a successful UK Government funded Connected Places Catapult Competition, designed to help other nations tackle water resilience and net zero objectives. To capture that opportunity, we need to finalise the development of our AquaCity Platform without delay. With Smart Grant funding, we can complete the demonstrator and blockchain integration, all within the project's inaugural year.
2. Angel Investors were primarily interested only in shorter-term returns and lacked the long-term perspective required for sustainable water conservation initiatives. The complexity of entering a new emerging disruptive water market has undermined the opportunity to quickly secure funds on a long-term basis, and on equitable and favourable terms.

On the other hand, Crowd Funding would be more appropriate once we have finished developing the project as investors in this space are more inclined to an assured return on a performing asset.

1. Securing Smart Funding would not only validate our project's potential but also attract additional partnerships and resources, enhancing our capacity to deliver impactful outcomes. We have an open door with both the UK market and global markets desperately needing such a system to address water scarcity and deliver water-resilient communities, industries and cities.
2. The absence of Smart Funding would significantly impact our development trajectory and our project would face challenges in terms of resource allocation,

scalability, and timeline. Adjustments and compromises would delay the development and wider implementation of our innovative solution. Such delays would lose us the opportunity to capture a significant market share and hinder our ability to address urgent urban water management challenges, potentially limiting the benefits that AquaCity can deliver to communities, the environment, and the economy.

4. The potential market

What is your target market and what is your strategy for securing the market opportunity you have identified, including your route to market and commercialisation of project outputs?

The Demand

Water resilience solutions are driven by sustainability objectives and the escalating global water scarcity issue. While demand is growing rapidly, we acknowledge the need to overcome barriers to entry, such as regulatory challenges.

Geographies

International clients whom we are working with to deliver scopes of service and programmes of work include Porto Alegre/World Bank (Brazil), Monterrey (Mexico) and Saline Water Conversion Corporation (Saudi Arabia).The UK market is led by The Water Neutrality Directive enacted by Natural England in September 2021. The impact of this has been severe planning approval delays, pending developers submitting proposals to meet the Directive conditions.

- A report by Savills indicates that some 11,000 homes are adversely affected by Water Neutrality, we estimate that this number will raise 750,000 by 2050.
- Water companies including Southern Water, Thames Water & Affinity, in the south of England are now offering developers water neutrality incentives to reduce the water demand that is associated with new developments.
- Commercial developers do not have a right to water supply. Consequently, a number of high water consumption users (Data Centres, Hospitality, and Green/Blue Hydrogen operators) are now approaching us to help them find a solution.

Market Value

1.Total Addressable Market (TAM) - According to a report by Allied Market Research, the global geographic information system software (GIS) market was valued at $6.3 billion in 2020 and is projected to reach $25.5 billion by 2030, with a growth rate of 15.2% annually.

2.Serviceable Available Market (SAM)- $2.55 billion to $5,10 billion over the next 5 to years.

3.Serviceable Obtainable Market (SOM)- $10 million to $100 million over a 5 to 7 years period.

Competition

The competitive landscape is wide open at this stage. Messrs Skewb Ltd is one company maintaining a public face but so far has not brought forward any competitive solution threatening the development of Aquacity Platform, it remains a unique prospect.

Unique Selling Points

To position our business for success, we will focus on three core competencies:To position our business for success, we will focus on three core competencies:

1.Comprehensive water resilience system: Our system employs cutting-edge technologies and practices to reduce water consumption we can achieve a significant reduction to 60 litres/person/day compared to the average of 160 litres/person/day.

2.Unique platform for real-time monitoring, leak detection, water savings, and secure trading of offsetting credits.

3.Software solution for city-wide strategies policy development, and adaptive responses to different climate change scenarios.

5. Impact and benefits

What will be the impact of receiving the grant, both for your business and outside your organisation?

Introduction

Receiving the grant will enable [redacted] to develop and implement innovative solutions that address the need for water resilience and neutrality. These outputs, including the water offsetting platform demonstrator, blockchain integration, and water monitoring tool, will enhance our product and service lines, drive revenue growth, and create long-term positive impacts on the UK economy, society, and the environment.

The Environment Agency advises the UK is over-abstracting aquifers by 700 million/litres/day, this is unsustainable. Climate change is inextricably linked to water exacerbating water scarcity and threatening ecological, economic and human needs. Our innovation recognises that water is fundamentally a finite resource and that is why it focuses on improving the efficiency of the demand side.

Key Deliverables

1. We will complete the development of a working prototype of a water offsetting platform, adding a new product line to our portfolio.
2. The AquaCity platform will be a catalyst to extend our revenue streams by 5 to 10-fold within the first 2 years of launching. Our anticipated revenue for this year of just over £300k is dedicated to building up the pipeline and visibility of the business, generating offsetting credits, refining our offer and process and building strategic alliances.
3. With this diversified portfolio, we will expand to be a resilient and more viable business with 100 projected staff count in the UK over the next 3 to 5 years and 10 people at each of the regional offices that we are targeting in Brazil, Mexico, Singapore and South Africa.
4. The realisation of these benefits will require a phased approach. We anticipate completing the water offsetting platform demonstrator and blockchain integration within the first year of the project. The Subscription-based Water Monitoring Tool will be developed and launched concurrently with different packages added on progressively. Allowing users to access and benefit from its features. This phased approach enables swift delivery of outputs, attracting customers, and establishing a strong market presence.
5. In the short term, the introduction of our innovative solutions and services will enable [redacted] to attract customers seeking effective water management solutions. This increased market share will lead to higher revenues and growth, providing a positive economic impact.
6. In the long term, the project's outputs, including the consultancy base and manufacturing capabilities, will foster sustained productivity, growth, and permanent job creation within [redacted] and the wider sector. By incorporating our solutions, customers can enhance their water resilience and sustainability, resulting in long-term economic and environmental benefits. The sustained impacts of our innovation will extend beyond [redacted], to the UK economy, society, and the environment.
7. IP Security and Exploitation: To protect and exploit the outputs of the project, we will secure intellectual property rights through patents and copyrights. Strategic partnerships and collaborations will further leverage the outputs and promote their widespread adoption. There is scope to configure the product to other Environmental Credit systems like Biodiversity Net Gain and Nutrient Neutrality; we have begun the process of engaging large estates with the scope of generating Water, BNG & Nutrient Credits increasing market exposure and revenue.
8. [redacted] recognises the importance of identifying and mitigating any negative impacts associated with the project. We will conduct thorough environmental assessments to ensure sustainable practices and compliance with regulations, minimising any adverse effects on the environment.
9. We are a company already committed to offering equal opportunities to minority groups having implemented EDI policies throughout the business, including diverse hiring practices, training programmes, supplier diversity, and community engagement initiatives. We will be looking for evidence of equality, diversity and inclusion in all forthcoming partnerships we represent in the water management sector.

6. Delivering your project

Who is in the project team, why do you have the right skills and experience to succeed, and how will you successfully deliver your project?

To be considered together with both Q6 Appendices.

Delivering the Project

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Allocated 139 person days.

Budget requirements, disbursements, recruitment, and operational administration

Allocated 186 person days.

GIS L

Will integrate Geographic Information Systems into the project.

Allocated 227 person days.

Project Manager: A new hire.

A water management expert with domain-specific knowledge in water management, sustainability, and environmental impact.

Allocated 182 part-time person days.

Data Analyst: New Hire

Organise and interprets data for algorithm development

2 x Graduate-level Technical Assistants (new hires).

Allocated 116 person days each

Contractors: Budgeted Cost £140k

A Project Team will be subcontracted from Mes[redacted] who has the specific expertise and capabilities required to complete the project successfully. Accordingly, the following expertise will be provided by [redacted]

1. Software Engineers: Proficient in web development and programming languages such as HTML, CSS, and JavaScript with experience in designing scalable and secure web applications.
2. UI/UX Designers: Create intuitive and visually appealing user interfaces, ensuring a user-centred design approach throughout the project.
3. Quality Assurance Tester: Ensuring software quality through the implementation of testing methodologies, creating test plans, and executing test cases.
4. Backend Developer: Will work on APIs using Node JS
5. Blockchain Developer: Will design Blockchain integrations.
6. AI Developer: Designing AI protocol to assess patterns of behaviour.
7. Mobile Developer: Develop REACT Native App.

Our search and selection process will attract a diverse pool of candidates. The company will implement fair and unbiased selection processes, ensuring that candidates are evaluated solely on their skills, expertise, and suitability for the roles.

Resources, Equipment, and Facilities

- The project does not require significant additional equipment or facilities.
- Key tools and mechanisms include project management software for scheduling and tracking and collaborative platforms for communication and documentation.
- Agile Project Management methodologies will ensure efficient project execution without the need for extensions, delays or budget overruns.
- Additionally, a post-project strategy for commercialisation is already in development.

[redacted]

7. Value for money

How will you spend your grant funding and how does this represent good value for money for the taxpayer?

Our project represents excellent ROI for the taxpayer through optimising our funding allocation, competitive tendering, alternative funding sources, and having established critical partnerships, all in preparation for the successful launch of our project and the efficient use of grant funding.

Allocation and distribution of major funding costs:

- We use a tender process to obtain the best value price for subcontractors, computer and office suppliers. This considers their expertise, track record, and competitive pricing to ensure value for money.Arising from the need to outsource the Project in pursuit of programme efficiency, a subcontract Project [redacted] will be used, quoted at £110k.
- Other external consultants and steering-group/advisors have been quoted at £30k.
- By utilising existing resources, infrastructure and hardware, we will reduce our CAPEX Budget to £20,000.
- [redacted]

B[redacted]

1. [redacted]
2. [redacted]
3. [redacted]
4. [redacted]
5. [redacted]
6. [redacted]

Total Project Budget: £498,400

Total funding applied for @ 70% £ 348,880

Company contribution @ 30% £ 149,520

Funding Contribution and Readiness:

- We are selling Water Credits; this will support the match-funding.
- We have cash flow contributions from business sales and consultancy services.

These funding sources are in place and ready to be utilised by the latest possible start date stated in the competition's eligibility criteria.

Post-Project Activities and Commercialisation:

- We are engaging with local UK water companies, which provides us with valuable insights and opportunities for collaboration.
- We have been invited to join the £200 million Coast to Catchment project as Project Partners, which not only provides additional resources but also offers the potential for long-term monitoring using Aquacity.
- We are also working on a joint bid with the Society for the Environment, to raise awareness and advocacy for water neutrality and water resilience. This collaboration will further increase our profile and exposure to the market.

- Export potential: We have already prepared the ground for post-project activities, meeting city clients in Mexico and Brazil in 2023. We have formed a partnership with a Biotech Company (ALIS) in Mexico, which is helping us penetrate that market and expand our reach.

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

Total costs (£)	Funding level (%)	Funding sought (£)	Contribution to project (£)	Other public sector funding (£)
[redacted]				0

Funding breakdown

	Total	Labour (£)	Overheads (£)	Materials (£)	Capital usage (£)	Subcontracting (£)	Travel and subsistence (£)	Other costs (£)
[redacted]								0

Terms and conditions

Award terms and conditions

Partner	Funding rules	Terms and conditions
[redacted]		