

REPORT OF: Head of Communities and Place

To: Community and Resources Committee

Subject: Smart Biosphere funding request

Date: 22nd March 2021

Reference:

PURPOSE OF REPORT:

1. To request the use of £18,000 to provide match-funding to the Smart Biosphere Business Case development and investment development process.

1. INTRODUCTION

The Smart Biosphere is a concept which has been developing since January 2019 in partnership with North Devon UNESCO Biosphere Reserve, North Devon Council, Petroc, The Environment Agency, BT, Cosmic and Digital Northern Devon. It is a complex Big Data and Artificial intelligence proposal that has enormous potential to create genuine innovation and change for the region's economy, communities and environment. It adopts an Internet of Things approach (using data gathering tools such as sensors and satellites) to better understand and then address specific issues.

In essence it has 3 core goals at its heart;

- Creation of higher paid, higher skilled and less seasonal jobs
- The development of a core digital brand and economy for northern Devon
- Environmental protection and investment in natural capital

Torrige District Council has so far invested £10,580 in 2 phases of work- £8,580 for initial business case development to be funding ready in autumn 2020 and then £2,000 to develop a pilot project in order to comply with funding criteria offered by the Heart of the South West as part of the Getting Building Fund.

This requested £18,000 funding will be used to develop 3 strands of work;

- Smart Biosphere
- Digital Technology Accelerator (DTA)
- Impact Fund

On the 18th February, TDC's Member Climate Emergency working group received a detailed presentation on these proposals from Mr Rob Passmore, Commercial Lead for the North Devon Biosphere and the minutes to this meeting are available on mod.gov. Members took the opportunity to ask questions and following this voted unanimously to support the proposals. It was felt that this programme provides an unique opportunity to northern Devon and will provide a strong and innovative basis for local investment in our area which will positively impact on the region's response to the climate crisis. The working group therefore recommend that this funding is put forward, and match the commitment already made by North Devon Council.

Rationale for change and to "build back better"

That sense of needing to invest in change and create opportunities for all needs to underpin economic activity. The need for levelling up and for post-pandemic investment is clear from a range of key statistics;



- Torrington has the 3rd lowest workplace earning for a full time worker in UK (out of 370 districts) with £440.00 monthly.¹
- Torrington has the second lowest adult social mobility rate in England.²
- Ilfracombe, Barnstaple and Bideford all highlighted within the 10 most pandemic impacted towns in Devon, which demonstrates the need to create a more resilient, far stronger economy which delivers for all. To do that we need to invest in change.³
- Torrington District experienced the 10th highest percentage point increase in unemployment across the UK between March and April 2020 (2.9% increase) and Universal Claimant counts are consistently well above the national and regional average. Our economy remains frequently seasonal, low-wage and low-skill, elements which perpetuate deprivation, low aspiration and vulnerability to shocks.

Yet the pandemic has also strengthened the potential for digital solutions. The work from home shift, alongside an exodus from densely-urban environments, has created a unique opportunity for workers to no longer be place dependent. Northern Devon therefore needs to present an attractive case for relocation- both in terms of lifestyle and economic opportunities. Digital technology is currently Devon's fastest growing sector, yet there is huge scope for future growth. For example, PWC (2019) and McKinsey (2018) have predicted that the Artificial Intelligence market is set to exceed £13trn by 2030- a figure larger than the entire Chinese economy in 2020. There is currently limited focus on the potential for Artificial Intelligence to create either rural gains or on how it can be utilised to innovate as part of a rural Climate Emergency response.

With that Climate Emergency paramount in the region's considerations it is also essential to ensure that the wealth of natural capital which surrounds us is protected, enhanced but also then used to drive economic and social gains.

Northern Devon needs to ensure that it is considered a great place to innovate. Use of a "smart rural" approach gives the opportunity to innovate within the UK Industrial Strategy's four "Grand Challenges".

- Artificial Intelligence and data
- Ageing society
- Clean growth
- Future of mobility

All of these fields are relevant to the northern Devon economy and community yet currently there is limited infrastructure or support to facilitate innovation. As part of that innovation there is significant scope to build partnerships across a range of areas- from academic (branches of both Exeter and Plymouth Universities have expressed an interest involvement) through to public sector (the Satellite Systems Catalpult is a participant in the pilot project and the Connected Places Catalpult have indicated enthusiasm in collaboration on the Digital Accelerator programme as well as in future of mobility opportunities).

Furthermore, currently northern Devon is the largest area south of Stoke on Trent to not be included within an Enterprise Zone, offering economic advantages for business creation and growth- a situation with further potential to stimulate change and the right kind of economic growth for our people, planet and also for profit- the "triple bottom line".

¹ Annual Survey of Hours and Earnings, NOMIS, November 2020

² Social Mobility Index, Social Mobility & Child Poverty Commission, 2016 (last available data)

³ Devon County Council, February 2021



A World Class Knowledge Base



Source: SW England & SE Wales Science & Innovation Audit 2017

The HotSW has a world class knowledge base which includes three universities, two medical schools, ten FE colleges, a specialist maths school, the UK Met Office and numerous research centres. Science parks at Exeter and Plymouth are building a cohort of innovation-led businesses alongside this.

The South West England and South East Wales Science and Innovation Audit found that the area has major areas of world-class potential which have synergies with our 'golden opportunities' and which generate strong links with neighbouring areas.

The community needs to feel secure and confident with these proposals, and community engagement and awareness needs to be central. Throughout all of this there is a key importance to ensure that a watertight data security policy can be enacted and also to take the community along with the project. Education is a key facet of this, ensuring that young minds are trained to become the next generation of coders and data scientists, creating a pipeline of talent for change from within. Early smart city approaches failed by focusing exclusively on the profit element of the triple bottom line, without creating genuine community or environmental benefit, and too often working without genuine transparency. Those elements are therefore at the heart of the ambition for the Smart Biosphere- to create a project that people benefit from and can be proud of on a regional basis.

Digital connectivity is key to all of this. 2021 /22 will see the rollout of full fibre broadband due through the Connecting Devon and Somerset programme, as well as through expected town centre investments by broadband providers. Now is therefore the time to create a clear and cohesive draw for digital investment and through that the creation of higher paid, higher skilled and non-seasonal jobs.

2. REPORT

Element 1: Smart Biosphere

"One of the many applications of AI and data analytics technologies is to enable more efficient use of energy and resources. For example, intelligent algorithms applied to data on atmospheric conditions and soil moisture could dramatically reduce the amount of water needed for agriculture. Actions to support our first Grand Challenge will complement the



second challenge we have identified – maximising the advantages to UK industry of the global shift to clean growth."

HM Government's Industrial Strategy

Phase 1: Pilot project (funded)

The pilot project has been granted £150,000 of funding from the Getting Building Fund.

The project seeks to create a "UK first"; a landscape-scale environmental intelligence program harnessing artificial intelligence (AI), big data, Internet of Things remote sensing & satellite earth observation to build real-time and predictive models exploring links between agricultural land-use, soil health/carbon, run-off, water quality, natural flood management and flood risks. The initial work will take place on the River UMBER near Combe Martin, with the expected second location being on the River Yeo near Bideford.

The Pilot involves the Environment Agency, South West Water, Satellite Systems Catapult, the Environmental Futures Impact Lab, BT and Rothamstead (an agricultural innovation centre near Okehampton). These are important, and innovative, partners, to attract to a project in northern Devon, offering the scope to further the cause of their innovation work in the region.

The Pilot includes the deployment of a network of low-cost remote and continuous sensors which use Artificial Intelligence to monitor, in real-time, the health of the catchment ecosystem, as well as water quality and quantity. The installed sensors in the watercourses and adjacent land measure several critical variables and automatically transmit the data to the Digital Biosphere Cloud via the 'Internet of Things' using a Low Power Wide Area Network (LPWAN).

The goal is to create a proof of concept. This will, in turn, allow the Smart Biosphere to create a model for future rollout and to bid for future agritech or environmental contracts, including from bodies such as Defra or the Environment Agency, or even South West Water.

There are significant economic and environmental gains.

- lowering social and economic impact of flooding
- creating efficient predictive models for agriculture to maximise the impact of any soil additives and improve yields, well timed in advance of ELMS and the Agriculture Bill
- data analysis and technical jobs connected to the Smart Biosphere

Phase 2: wider project development (for which funding is sought in this instance)

With the Pilot project now funded there is a genuine need for the programme to be ready to expand. Imminent opportunities such as the Community Renewal fund, announced in the budget in March 2021, ensure that it is essential for Torridge District Council to be proactive, developing a high quality, innovative pipeline of capital and revenue projects which are ready to be funded.

There are a range of sectors which offer immediate opportunities for Smart Biosphere activity, and through that job creation. Funding from Torridge District Council and North Devon Council will enable that crucial development work to be undertaken.



| SECTOR | EXAMPLE APPLICATIONS | JOB | EDUCATION | ENVIRONMENT | ECONOMY |
|-------------|---|-------|-----------|-------------|---------|
| AGRICULTURE | Smart soil management to maximise yield/reduce run off. Site specific soil applications for nutrients. | ★ ★ ★ | ★ | ★ ★ ★ | ★ ★ |
| FORESTRY | Smart CO2 management in woodland mass. Felling compliance and identification of illegal felling. | ★ ★ | ★ | ★ ★ ★ ★ | ★ ★ |
| CATCHMENTS | River bacteria monitoring. Run-off compliance breaches and tracking back to source. | ★ | ★ ★ | ★ ★ ★ ★ | ★ |
| SMEs | Provide AI services/education to SMEs. Provide IoT services/education to SMEs | ★ ★ ★ | ★ ★ | ★ | ★ ★ ★ ★ |
| TOURISM | Smart apps to promote uncrowded locations. Tracking wildlife events (eg., Deer rutting, puffins, seals) | ★ ★ ★ | ★ | ★ ★ | ★ ★ ★ ★ |
| EDUCATION | Create smart tech education and research opportunities to ensure northern devon is left behind | ★ ★ | ★ ★ ★ ★ | ★ | ★ |

★ Limited impact | ★ ★ Medium impact | ★ ★ ★ Strong impact | ★ ★ ★ ★ Significant impact

The initial figures indicate that by 2025 the Smart Biosphere has the potential to create;

- 50 jobs directly related to Internet of Things / Artificial Intelligence and support services with an average salary of £35,000
- £5 million inward investment
- £10 million economic contribution to the region
- 15 new tech companies
- 20+ apprenticeships

Element 2: Digital Technology Accelerator (DTA)

An accelerator programme is a series of targeted interventions and initiatives designed to speed up the development of an emerging sector. As such, a northern Devon digital accelerator programme is designed to stimulate growth around the Smart Biosphere ensuring that benefits can be maximised locally both for the community and the environment. The approach shows established benefits and is supported by the Connected Places Catapult, with Falmouth providing a locally relevant example- <https://falmouthlaunchpad.co.uk> . Interaction with the University is a crucial element of that proposal, but also provides northern Devon with an opportunity to strengthen regional academic ties through a genuinely mutually-beneficial proposition.

The Northern Devon Digital Technology Accelerator has been developed by the North Devon UNESCO Biosphere Reserve, Petroc and Cosmic, with input from Torridge District Council and North Devon Council, as part of the Smart Biosphere concept. The Accelerator has a series of core strands which come together to create the holistic package of skills, finance and energy needed to ensure that the Smart Biosphere thrives and can create its environmental, community and economic goals on a sustainable basis.

The Accelerator has a series of core strands.

- Skills and access
 - Access to digital skills support, including working with schools
- Support
 - Flexible and integrated business support to provide growth assistance from pre-start up
- Finance
 - Flexible finance support, including through private, venture capital or community funding



- Inspiration
 - Creating a dynamic scene around the Accelerator programme to inspire new and existing businesses, as well as being a source of pride for the community
- Networking
 - Creating links with relevant stakeholders, including advisors, mentors, local authorities and academic bodies
- Peer learning
 - Working with other businesses to create a collaborative ecosystem of digital businesses, offering peer learning from past successes and mistakes and offering opportunities to come together to achieve more.

The emerging work hub network across the region offers an ideal starting point for this support network, and a number of Head Teachers have been consulted on the initial concepts and are highly supportive. However, more would also then need putting in place to create a growth network of employment spaces across the district and region, for example specialist Smart marine or Smart agritech centres. This scheme also provides a route to innovate for North Devon+ in terms of their business support programmes.

| PROGRAM AREA | COMPONENTS | JOBS | EDUCATION | ENVIRONMENT | ECONOMY |
|----------------------|--|------|-----------|-------------|---------|
| IDEAS | Digital impact tracking Digital/tech start-up launchpad | ★★ | ★★★ | ★ | ★★★★ |
| PEOPLE | Digital/technology Education Digital/Tech Careers & Apprenticeships | ★★★★ | ★★★★ | ★ | ★★★ |
| INFRASTRUCTURE | Digital connectivity AI/Smart Biosphere Digital work hubs | ★★★ | ★ | ★ | ★★★★ |
| BUSINESS ENVIRONMENT | Digital business transformation Smart business support Private investment networks | ★★★★ | ★★ | ★ | ★★★★ |
| PLACES | Digital Local Authorities Digital Enterprise Zone | ★★★★ | ★★ | ★★ | ★★★★ |

★ Limited impact | ★★ Medium impact | ★★★ Strong impact | ★★★★ Significant impact

Next steps;

- Ensure that the Accelerator is “Shovel Ready” for funding
 - Form multi-disciplinary public/private work team to oversee development, whilst learning from best case exemplars, such as Falmouth. (Q1, 2021)
 - Explore partnership opportunity with Connected Places Catapult (Q1, 2021)
 - Outline Strategic Case (Q1, 2021)
 - Business Cases development for the five program areas (ideas, people, infrastructure, business environment and places)
 - Seek funding from a range of private and public sources

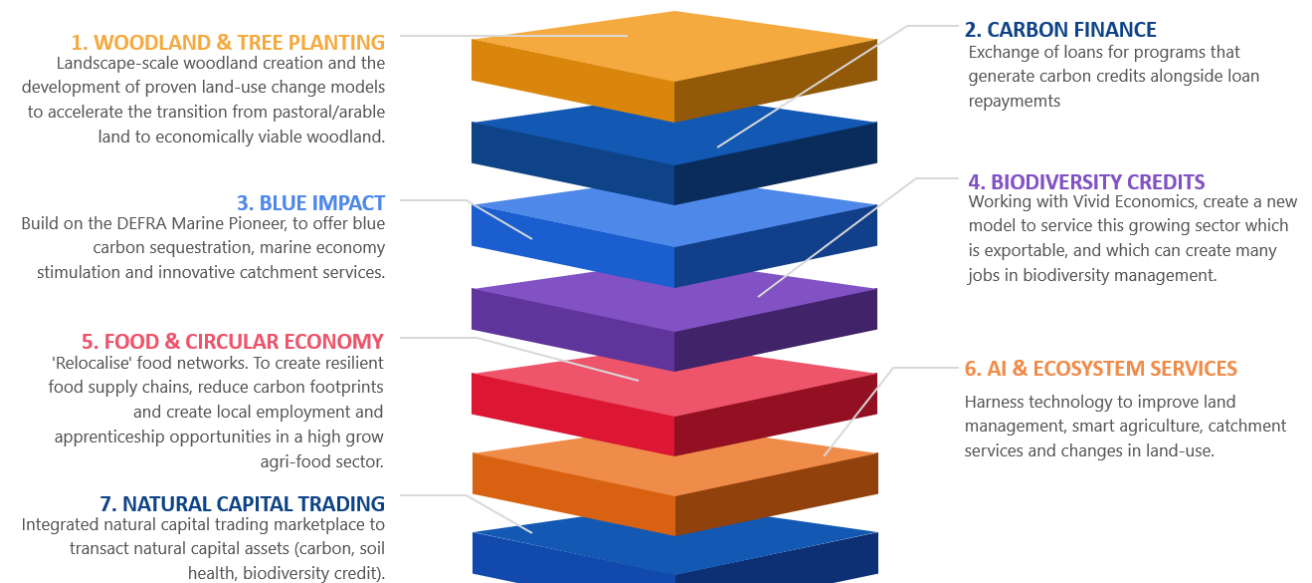
This is an important advance in order to ensure that we utilise the twin threads of opportunity available to northern Devon- digital and environmental, whilst boosting skills and creating employment, generated from within and also as the result of inward investment.



Element 3: Impact Fund development

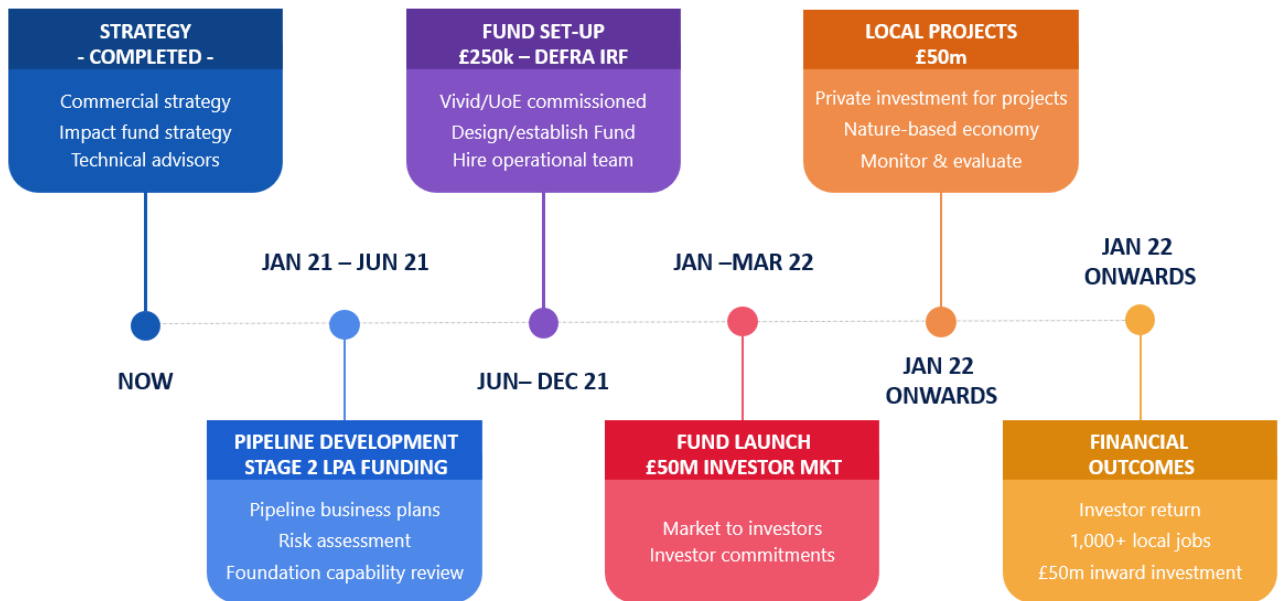
“...the re-allocation of tens of trillions of dollars of capital towards green investment offers the potential to reshape cities, energy systems and land use around the world. The nature of this investment over the coming decades will determine the future of our climate, the natural world and the resilience of our communities. It also presents a substantial commercial opportunity for the UK financial sector. The transition to a clean and resilient economy will hugely expand the opportunity for green finance investments -- from homes to power generation to our natural environment.”
HM Government’s Green Finance Strategy, 2019

Element 3 of the Smart Biosphere proposal involves the development of a £50million ESG (Environmental, Social and Governance) investment fund to support impact investment in 6 core themes (as below). This is an investment class which prioritises social, environmental or governance benefits as well as financial gains. It is a class of investment which has soared in value during the course of the pandemic as opinions towards the importance of community and the environment has shifted, with available investment funds being outstripped by demand.



Investment advisors Vivid Economics have been appointed following a competitive process with a view to an initial fundraising launch in Q1 of 2022, and proposals are backed by the University of Exeter’s Land, Environment, Economics and Policy Institute. However, there is a significant funding requirement to get to the point of being able to open the Impact Fund itself. As per the figure below, Stage 2, where the Impact Fund is in terms of project development, is the bridge to a potential £250k DEFRA funding on the pathway to the ultimate £50M investment.





3. IMPLICATIONS

Legal Implications

Full procurement processes would need to be undertaken for development roles within the Smart Biosphere project, in line with Biosphere Foundation / Devon County Council protocols.

Financial Implications

The Biosphere Foundation has requested £18,000 of additional match funding from Torridge District Council and also from North Devon Council. NDC have approved their contribution.

The funds will be drawn from the Habitat Regulations PYT fund that was assigned to the activities of the now defunct Biodiversity Steering Group.

Human Resources Implications

The Economic Development Officer will be involved throughout discussions and project development to ensure that the project remains faithful to funded objectives.



Sustainability/Biodiversity Implications

The Smart Biosphere proposal has environmental benefit through innovation at its heart, with the Impact Fund also having the goal of creating a wider wave of funding to flow to smaller-scale environmental projects, accentuating the regional benefits.

Equality/Diversity

The Smart Biosphere proposals have social mobility across the board as a key priority, ensuring that there are opportunities for all, including higher skills training and higher-wage, less seasonal employment opportunities. The power of digital will also ensure that this is not just confined to urban areas but must be maximised for rural areas as well.

Risk Management

Torrige District Council, along with North Devon Council, Petroc, Cosmic, South West Business Council and Environment Agency all participate in regular steering group meetings in order to ensure accountability and progress.

Compliance with Policies and Strategies

The Smart Biosphere concept supports a range of strategic commitments.

- Supporting the Northern Devon Digital Strategy, 2018, with the ambition to embrace “*a digital approach to deliver the right kind of economic growth with the greatest value for local communities, coupled with the best kind of environmental protection to safeguard our beautiful area’s future.*” (pg 3), using the power of digital to enhance the local economy, invest in local communities and enhance the natural environment.
- The Accelerator has the potential to contribute to the achievement of the Local Plan, specifically (5) Enabling a Vibrant Economy (Policy ST11, ST13) and (8) Strong & Inclusive Communities (Policy ST22, ST23).
- Furthers the ambitions of the Northern Devon Tourism Strategy (2018) to Develop Capacity and Capabilities as well as to improve the strand of “Engaging and Connecting with visitors” by using the power of data more effectively and upskilling the sector on a digital level.

Data Protection (GDPR) Implications

Data security and privacy will be at the heart of the Smart Biosphere approach.



Lead Member Views

Date of Consultation- Feb 2021

The Climate Change Working Group are in full support of this proposal and make recommendation that Community and Resources approve the requested contribution.

4. CONCLUSIONS

The Smart Biosphere as a holistic project, including the Digital Technology Accelerator and Investment Fund, has enormous potential to create a stronger place branding, vibrant digital economy and investment into both our communities and natural capital. This is a unique opportunity to explore and invest in genuine change, creating higher-paid, higher-skilled jobs and addressing deeply engrained deprivation and social mobility issues. This proposal will not solve all of those yet does have the potential to support the region to take a substantial leap forward. With the imminent Community Renewal Fund and Shared Prosperity Fund opportunities ahead it is essential that we seize the opportunity to have fundable plans in place and ensure investment in our economy and communities.



5. RECOMMENDATIONS

- It is recommended by the Climate Change Working Group that this Committee approve a contribution £18,000 from the Habitat Regulations Assessment PYT Fund to the Biosphere Foundation for the Smart Biosphere project.



SUPPORTING INFORMATION

Consultations: Date of Consultation – 12/03/21
 Officers Consulted - Chief Executive, Head of Legal and
 Governance, Head of Communities and Place.

Contact Officer: Economic Development Officer

