BUSINESS COACHING REPORT
SELF-SUSTAINABLE BUSINESS MODEL FOR A LAKE DIGITAL TWIN

1. Coaching context

The proposed entrepreneurial concept is a Lake Digital Twin solution that integrates hydrological, water-quality, pollution, biodiversity, meteorological, and restoration data into a dynamic digital representation of a natural lake. The planned prototype would allow users to assess current ecological conditions, simulate management or restoration scenarios, anticipate environmental risks, compare alternative interventions, and monitor recovery over time.

Potential applications include pollution-risk forecasting, restoration planning, biodiversity recovery assessment, climate-impact analysis, and evaluation of management measures. The concept has strong technical and environmental relevance because lake managers often work with fragmented datasets, separate models, periodic monitoring reports, and information that is difficult to translate into timely operational decisions.

The main business challenge is not demonstrating that an integrated digital representation is technically possible. It is identifying a recurring customer problem that is important enough to support repeated payment after research funding or grant-financed development ends. A financially sustainable model therefore requires a clear distinction between users, beneficiaries, project partners, and organisations with both the budget and authority to purchase the service.

The coaching assignment focused on three commercial questions: which organisations are most likely to become recurring paying customers; which decision-making problems should define the first marketable product and how the platform, data integration, modelling, and expert support can be packaged into predictable recurring revenue.

2. Coaching objectives

The overall objective of the coaching assignment was to support the participant in transforming a broad technology concept into a focused, financially self-sustaining business proposition.

The first specific objective was to prioritise recurring paying customers. The analysis examined which organisations have continuous responsibilities for lake condition, pollution control, restoration planning, regulatory reporting, infrastructure operation, or climate adaptation, together with sufficient purchasing authority and budget continuity.

The second specific objective was to define a magnetisable value proposition. The coaching process moved from a general description of integrated environmental data towards specific decisions that the Digital Twin can improve, accelerate, or de-risk for each priority customer.

The third specific objective was to design a recurring revenue architecture and a practical validation pathway. This included the relationship between initial setup fees,

annual subscriptions, specialist analysis, support services, and multi-lake licences, as well as the evidence required before investing in a complete platform.

3. Coaching methodology

The coaching methodology followed a structured business model development process combining customer segmentation, decision-job analysis, value proposition design, service packaging, and pilot validation.

The first stage distinguished organisations that benefit from lake information from organisations that can become customers. Environmental NGOs, universities, and research institutes contribute data, scientific expertise, credibility, and access to projects, but their budgets are often temporary or grant-dependent. Their role should therefore be assessed separately from that of institutions with permanent management or operational responsibilities.

The second stage analysed recurring decision jobs. These include detecting pollution risk, evaluating restoration alternatives, prioritising investments, documenting compliance, coordinating stakeholders, planning climate adaptation, and demonstrating the effect of interventions. A recurring revenue model becomes more credible when the platform supports decisions that occur repeatedly rather than producing a one-time visualisation.

The third stage defined the minimum commercial product. Instead of integrating every possible dataset and modelling function, the first offer should solve one priority decision problem for one customer type using a limited number of reliable data sources and a transparent modelling approach.

The fourth stage examined revenue mechanisms and cost drivers. The analysis considered initial data integration, model configuration, software access, cloud infrastructure, data licences, sensor or monitoring inputs, scientific validation, customer support, model updates, and procurement requirements.

The final stage translated the concept into a paid pilot, renewal criteria, and a scale-up decision. Commercial validation should demonstrate both customer willingness to pay and the ability to deliver each additional lake without repeating a bespoke research project.

4. Key insights

The proposed technology can create substantial value, but a Lake Digital Twin is not a single product category with one universal buyer. Its commercial value depends on the operational decision it supports, the frequency of that decision, the cost of existing uncertainty, and the customer's responsibility for acting on the information.

The most attractive initial customers are organisations with permanent responsibility for water bodies and recurring budgets. These include lake and water authorities, water utilities, municipalities or regional administrations, reservoir and hydropower operators, and catchment-management bodies. Their needs include

pollution-risk management, operational planning, environmental reporting, restoration investment, or climate resilience.

Environmental engineering consultancies and restoration contractors represent a second commercial route. They can use the Digital Twin as a specialist analytical tool within wider projects, or act as resellers and implementation partners. This channel can reduce customer acquisition costs and provide access to procurement frameworks that is difficult for a new technology company to enter independently.

Research institutes, universities, NGOs, and environmental associations remain valuable partners and users, particularly for scientific validation, data collection, pilot access, and stakeholder engagement. However, they should not automatically be treated as the primary recurring customer segment when their purchasing capacity depends mainly on temporary projects.

The initial product should not attempt to reproduce every physical, chemical, and biological process in a lake. A broad technical scope increases development cost, slows validation, and makes the customer outcome difficult to communicate. The first commercial version should address one measurable decision, such as early detection of pollution risk, comparison of two restoration options, or tracking recovery against agreed ecological indicators.

Trust is a central part of the value proposition. Customers must understand the origin and quality of the data, the assumptions behind models, the degree of uncertainty, and which outputs require expert interpretation. The platform should separate observed data, modelled estimates, forecasts, and scenarios rather than presenting all outputs as equally certain.

The commercial product is therefore more than software access. It includes on boarding, data mapping, configuration, model calibration, quality assurance, training, interpretation, and ongoing support. These services are essential in early deployments but should gradually become standardised so that revenue can grow faster than delivery costs.

Public grants and research projects can still finance technical development, shared infrastructure, or first demonstrations. Financial sustainability requires a deliberate conversion mechanism: a grant-funded pilot should lead to a defined operational service, budget owner, subscription proposal, and renewal decision rather than ending when the project closes.

5. Recurring revenue model development

The framework below presents the recommended alignment between recurring customers, recurring decisions, and commercial services (Figure 1). A sustainable model requires all three elements. A technically impressive platform will remain project-dependent if customers use it only occasionally or cannot assign a continuing operational budget.

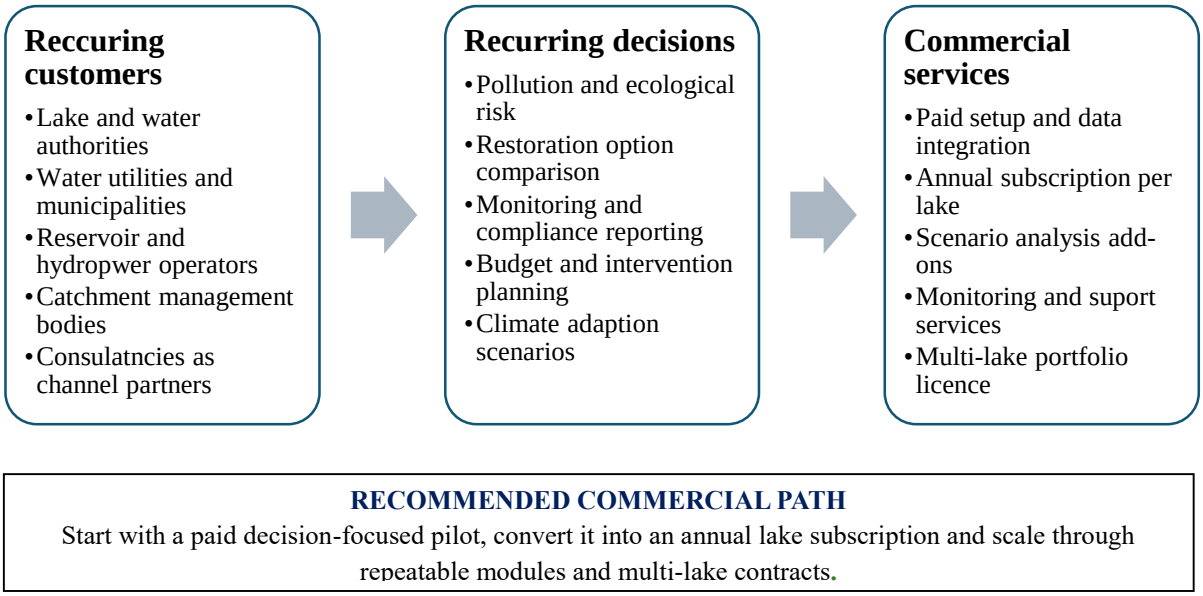


Figure 1 – Lake Digital Twin recurring revenue model
Source: developed by the business coach

The recommended commercial architecture combines an initial implementation payment with recurring software and service revenue. The setup phase covers the work required to connect and structure data, configure the lake model, define indicators, establish user roles, and train the customer. The annual contract then covers platform access, updates, hosting, standard support, and agreed decision modules.

6. Coaching recommendations

The participant should begin with one priority customer segment rather than marketing the platform simultaneously to authorities, utilities, researchers, NGOs, consultants, and restoration companies. The recommended first segment is a public or utility organisation that manages one or more lakes or reservoirs, has continuous monitoring or planning responsibilities, and can identify an operational budget owner.

Customer discovery should include 12 to 15 structured interviews with lake authorities, water utilities, municipalities, reservoir operators, catchment-management organisations, and environmental consultancies. Interviews should involve both technical users and budget or procurement decision-makers. Positive reactions from scientists or environmental specialists are useful, but they do not demonstrate commercial demand unless a responsible buyer also confirms a purchasing pathway.

The interviews should examine:

- the decisions that require integrated lake information and how frequently they occur;
- the financial, environmental, or regulatory consequences of delayed or uncertain decisions;

- current data sources, software tools, consultants, and staff time used to produce the analysis;
- minimum evidence, accuracy, transparency, and validation requirements;
- who controls the budget, how procurement works, and when the next purchasing window occurs;
- whether the organisation would pay for a feasibility study, pilot, annual subscription, or service contract.

The first commercial pilot should focus on one lake, one customer, and one recurring decision problem. A suitable pilot could integrate existing monitoring, meteorological, hydrological, and spatial data to forecast pollution risk or compare a limited set of restoration scenarios. Biodiversity and additional modules can be added after the core decision workflow is validated.

The pilot should be paid, even if the amount is limited or co-financed. Payment provides stronger evidence of value than participation in a free demonstration. The agreement should define the decision to be supported, required data, baseline performance, outputs, user responsibilities, model limitations, success criteria, intellectual property, data governance, and the conditions for conversion to an annual contract.

The recommended revenue structure is:

- a one-time implementation fee for data assessment, integration, configuration, calibration, training, and deployment;
- an annual subscription per lake covering platform access, hosting, standard updates, dashboards, user management, and support;
- optional paid modules for pollution forecasting, restoration scenarios, biodiversity recovery, climate impacts, or regulatory reporting;
- professional services for specialised modelling, data-quality improvement, custom reports, and facilitation of management scenarios;
- a multi-lake portfolio licence for authorities, utilities, or operators managing several water bodies;
- partner or white-label agreements with engineering consultancies and restoration contractors.

Pricing should be informed by customer value rather than based only on development hours. The participant should consider current monitoring and consultancy costs, staff time, delayed intervention, and avoidable restoration mistakes. Price levels should be tested through customer interviews and paid proposals.

The platform architecture should support repeatability. A standard data model, documented application programming interfaces, reusable scenario modules, configurable dashboards, common reporting templates, and clear on boarding procedures will reduce the cost of deploying the next lake. Bespoke scientific work should be priced separately and should not become an unrecognised obligation within the subscription.

Contracts should define data ownership and use, cybersecurity, model versioning, forecast uncertainty, service availability, human review, and the fact that the platform supports rather than replaces statutory or expert decisions.

The pilot should be considered commercially promising when:

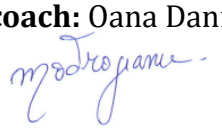
- at least two organisations agree to act as design partners and provide real operational data;
- at least one organisation accepts a paid pilot or feasibility engagement;
- users apply the output to a real planning, monitoring, reporting, or intervention decision;
- the customer identifies a recurring budget line and a credible route to annual renewal;
- the time and cost required to on-board a second lake are materially lower than for the first;
- the recurring fee can cover hosting, data maintenance, model updates, support, and a sustainable contribution margin;
- users understand the model's uncertainty and consider the outputs sufficiently trustworthy for the defined purpose.

If customers value the analysis but resist software subscriptions, the participant should consider a managed service that delivers recurring decision reports. If every deployment remains highly bespoke, the offer should be narrowed to one lake type, geographic market, or decision module.

The recommended market position is not simply “all lake data in one platform”. A stronger value proposition is: a decision-support service that helps organisations responsible for lakes anticipate ecological risks, compare restoration options, and demonstrate recovery by combining reliable data, transparent models, and recurring operational insight.

7. Reference considerations

The recommendations were informed by Destination Earth, the European Digital Twin Ocean, and the EU-funded IDEATION project for inland waters. These initiatives support the concept's relevance while reinforcing the need for reliable data, transparent models, clear user needs, and operational services.

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