

Proposal for Development of an AI Solution for Knowledge Management

Horizon Project Number 10348

Revision 2

Approval / Acceptance Status				
	Title & Company	Name [print]	Signature/Initials	Date
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Approver / Owner	UK Head of Innovation & Transformation	Philip Reid		

Rev #	Date	Summary of Changes
1	16 th Oct 2024	First Issue
2	17 th Oct 2024	Revision to Org Chart

1. Summary

As a business there are few things that are uniquely ours; people, contracts and equipment are transitory, our collective Knowledge however, if captured, can be owned and retained.

The ongoing challenge is how to facilitate the knowledge transfer from:

- Person to person directly
- From person to person via a repository

Over the years a number of attempts have been made to put in place a system to try and achieve this, and processes of capturing lessons learned, good practice, Case Studies, innovation records, failures, improvements, mid contract reviews, post contract & project reviews all exist within the business.

In large parts of the business we have a culture of capturing this information, however we do not have a good method or solution for storing this information that makes it easy for a person to find, extract & acquire the understanding that they need.

There are some great examples of good practice in this field, with guides, manuals and handbooks existing in many parts of the business however it is not an area in which we have invested the required time or resources to have a comprehensive solution.

In the recent past a team of librarians would have been needed to curate, capture and disseminate information using a central knowledge bank at Division level.

With the developments in Artificial Intelligence we are now in a position to be able to build and deploy a solution that will make it much easier for a user to find and extract the knowledge that they need quickly and easily, significantly reducing the need to have a large central team to provide the service. A central team will still be needed, however they can be much smaller to provide the same benefit.

This proposal is to build a technical knowledge management solution that will provide both the repository for the information and the means to partly automate collation, curation and dissemination of the knowledge.

2. Background

One of the unique aspects of our business is the vast wealth of knowledge we hold throughout many sectors, in which we can be confident of the accuracy and quality of due to our success over many years.

It is established that the most effective approach to knowledge management is to be able to make the information that the user needs available at the time and location that the user needs it and for it to be specific to the need of the moment.

However, this knowledge in many cases exists in three states:

1. In purpose written documents like handbooks & guides where the information required may be buried within a larger document and stored in a way that is not easily accessible on a mobile device
2. Embedded within other documentation like audit reports, post project reviews, safe systems of work, alerts and similar where the information is not collated by topic or easily available on a mobile device.
3. Undocumented, tacit, within the heads of our professionals from years of experience within the industry.

This means that the users are more likely to search the internet for an answer than use our own knowledge.

Knowledge that exists in repositories is often unintentionally only benefiting a small team or department, with limited or no access for others. Often if someone from outside this group wants to learn from the great work another team has done, they will have to request permission and read a vast quantity of information, or there is no enquiry at all as the knowledge seeker isn't aware that the documentation exists at all.

There are three main target audiences for this knowledge management solution:

1. New starters to the industry, business or Business Unit, who do not have an established network of people to ask for the answers to their questions or where to look.
2. Project orientated staff who through the normal course of their duties may, due to the wide variation of activities that we undertake may find themselves supervising or planning an element of work they have not been exposed to before. Or come across a problem or challenge to which they do not have a ready answer.
3. Staff who carry out operations that are carried out routinely across multiple Business Units who could benefit from a greater understanding of what good practice exists elsewhere in other Business Units.
4. Staff who have to cover for absence of a team member. If a colleague or manager has a period off work, or leaves the business, despite handover efforts, there is often a knowledge gap left behind.

Research suggests the professionals spend 19% of their week searching for, or identifying colleagues who can help them with internal knowledge (MCKinsey & Company). An International Data Corporation report (2018) suggested 15-35% of a worker's day is spent looking for and consolidating information. A central point at which a user can interrogate and explore knowledge from across the business would accelerate learning opportunities, as well as alleviate pressure on teams who find themselves without important expertise.

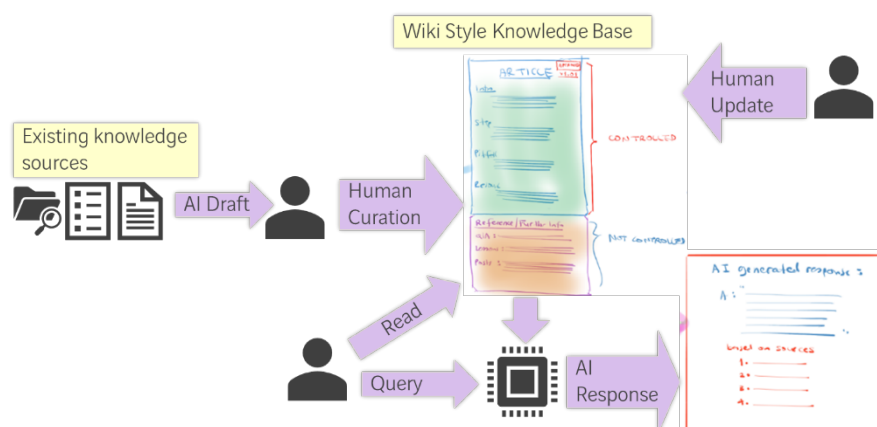
Whilst these numbers seem high and not directly applicable in many of our lines of work there is expected to be a significant amount of time spend in looking for solution or bluffing and managing without that knowledge.

3. Proposal & Scope of work

3.1 Solution Development

The vision for the solution is to provide one solution that will:

1. Summarise and extract information from existing documentation to automatically produce drafts of Wikipedia style articles - it will do this on an ongoing basis so that where new documents / best practice guides are produced they can be incorporated.
2. Provide Wikipedia style articles that can:
 - a. Be read by users that have the time to and want to understand more than is provided in the summary by the AI
 - b. Form the basis of the answers given by the AI in summary form
 - c. Largely replace the scattered and unlinked documents that contain the lessons learned and good practice information with updates to these articles being made directly
3. Incorporate a mobile friendly front end solution that enables our users to securely ask natural language questions and to receive a response that provides a natural language summary response with references to the source data.



In the initial stages, subject matter experts and internal clients will send in any existing documentation that they have on SharePoint and other repositories. This may include good practice, methodology, guides, project reports, case studies, or any other written material that could be used to inform and educate a user.

3.2 Implementation

Unlike other AI projects that we have undertaken this solution poses an additional challenge in implementation in that in order to realise benefit from this solution we need to also develop processes and deploy people.

There is currently no central knowledge management team within the Division, in some Delegations there are people for whom part of their role involves knowledge management but we are not aware of any dedicated function managers. The closest we have is in the TWWW Manager and associated administration team.

All of the research around knowledge management speaks of the clear need to have people, process and technology to make this a success. This proposal for developing a solution through the LEONARD AI programme only addresses the technology element.

It is proposed that a 'Head of Knowledge Management' (or similar) and at least one administrator style role is recruited within the Quality, Improvement and Innovation team in Q2 2025 to allow us to gain value from the creation of this solution. Subject of course to the project showing good confidence of developing a viable technical solution.

4. Steps already taken

There is no existing internal solution comparable to the one being proposed in the UK Division so we have therefore we have carried out an initial high level review, looking further afield to ensure we are not creating something that already exists.

The closest internal solution was Freyssinet's from which we can learn many lessons, but we cannot simply lift it into our business.

Workshops were held in 2023 & 2024 with representation from across the Division where knowledge management and AI subject matter experts discussed the aims and functionality of the potential solution.

Based on output from the workshops and follow up work carried out by Muazam Rafique and Louis Jones, the vision for the project was shared with LEONARD, and they have concluded that this is a good use of AI and a project worth exploring further.

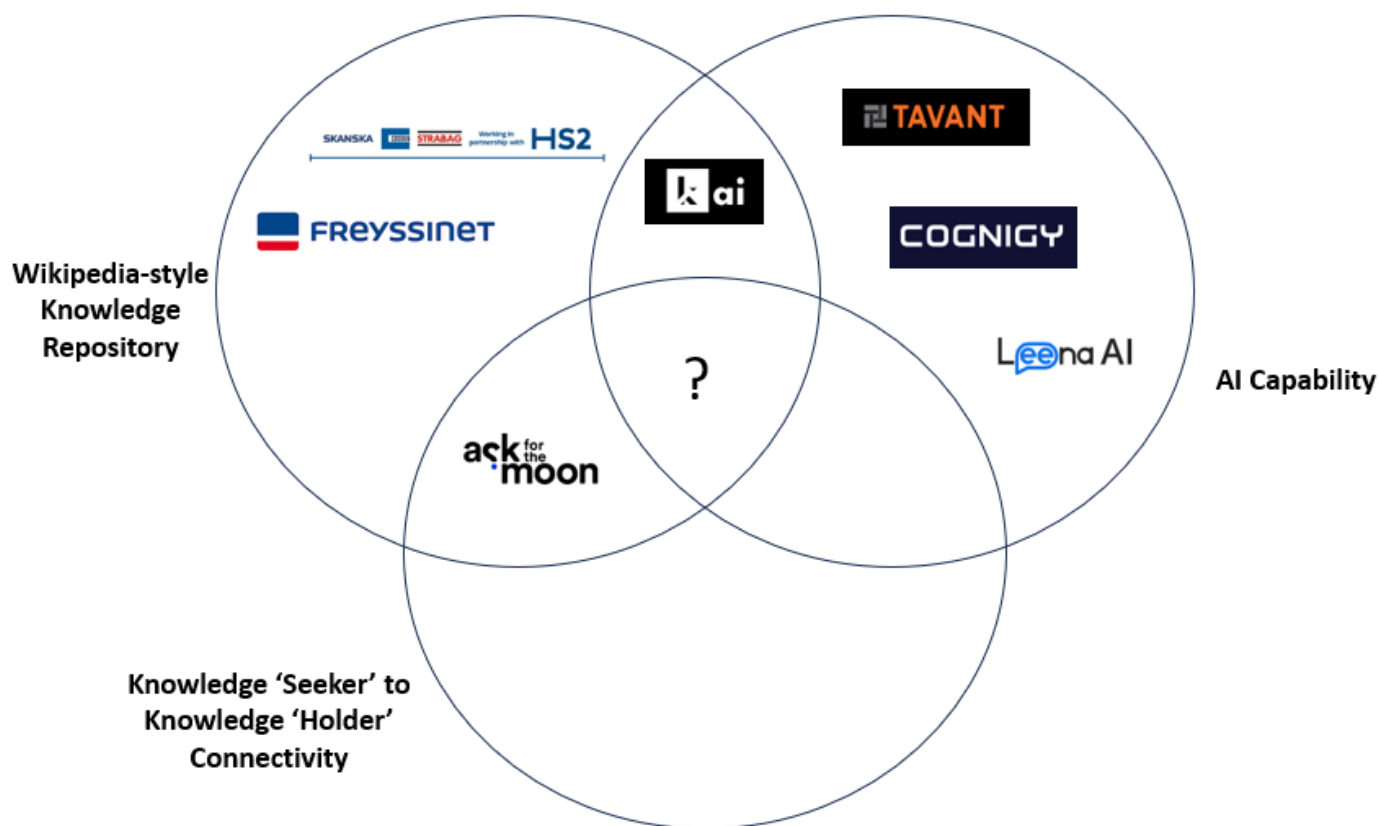
4.1 Market Review Findings





A market review was conducted by Louis Jones in October 2024 to establish whether there were any existing technological solutions on the market that met our needs.




No solution was found to exist that matches the vision and requirements that we have, some where seen to included a Wikipedia style knowledge database, but no AI functionality, others had AI functionality but no structured approach to the knowledge storage, others focussed on connecting users across the business.

A brief summary with screen shots is [available here](#).

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Solution	Summary	Positives	Negatives
SCS x HS2 : Knowledge Management 	Sharepoint based Document identification, aimed at creating job packs and guidance for setting up new jobs/packages on the project.	Intelligent search and filtering Includes many types of data.	No AI Integration
Freyssinet : Knowledge Management 	Sharepoint based Wikipedia style knowledge base. Split into templated technical data, and 'knowledge byte' input.	Intelligent search and filtering Informal & Formal knowledge separated, with validation process	No AI Integration
Tavant : Knowledge.AI 	Project specific, ChatBot that gives answers based on search language	LLM functionality is good. Could be useful for small scale frameworks or within specific department	Doesn't generate entire articles of data. No connectivity between users.
Cognigy : Knowledge AI 	ChatBot for querying a single lengthy document.	LLM functionality good. Useful for efficient knowledge retrieval from large document	For querying a single piece of written data, not necessarily the size database we would need.

Solution	Summary	Positives	Negatives
Leena AI 	ChatBot for generating procedures based on industry standards. LLM integrated search.	LLM functionality good. Generates entire documents but needs specific, accurate information fed into it.	Not the interface we are looking for. Has limited connectivity between users.
K.AI : Audit and Search 	Two tools : K.AI Audit – for cleaning and streamlining data to be used in the LLM. K.AI Search – User can ask a question and the AI will answer it short form.	Data cleaning tool would be ideal for ensuring no duplicates or errors within. Provides source material linked to answers and related content.	Short form answers in a chat interface. Not the same functionality that we need.
Ask for the Moon 	Designed to connect users to the right experts. An assistant rather than an AI building information.	Connectivity element is best on the market. Possible to generate questions and answers from documents through AI.	Relies on heavy user engagement. Doesn't build long form written material with AI.

5. Governance

The Project will be delivered by the delivery team and will be overseen by a Steering and Internal Client Group.

The Steering and Internal Client Group are responsible for validating the outputs of the project and providing oversight and general direction to the Delivery Team. They are also responsible for assisting the Delivery Team in overcoming any barriers to successful delivery and ensuring that they have the resources, cooperation and assistance that they require.

Because there was so much interest in this topic from across the Division, and there is such a wealth of different uses across the Division, an advisory group formed of those who want to provide input to the process will be formed to provide advice, examples of knowledge and support with testing and feedback. Membership of this group is expected to be somewhat fluid however initially it will include those who previously expressed an interest through the 2023 working groups.

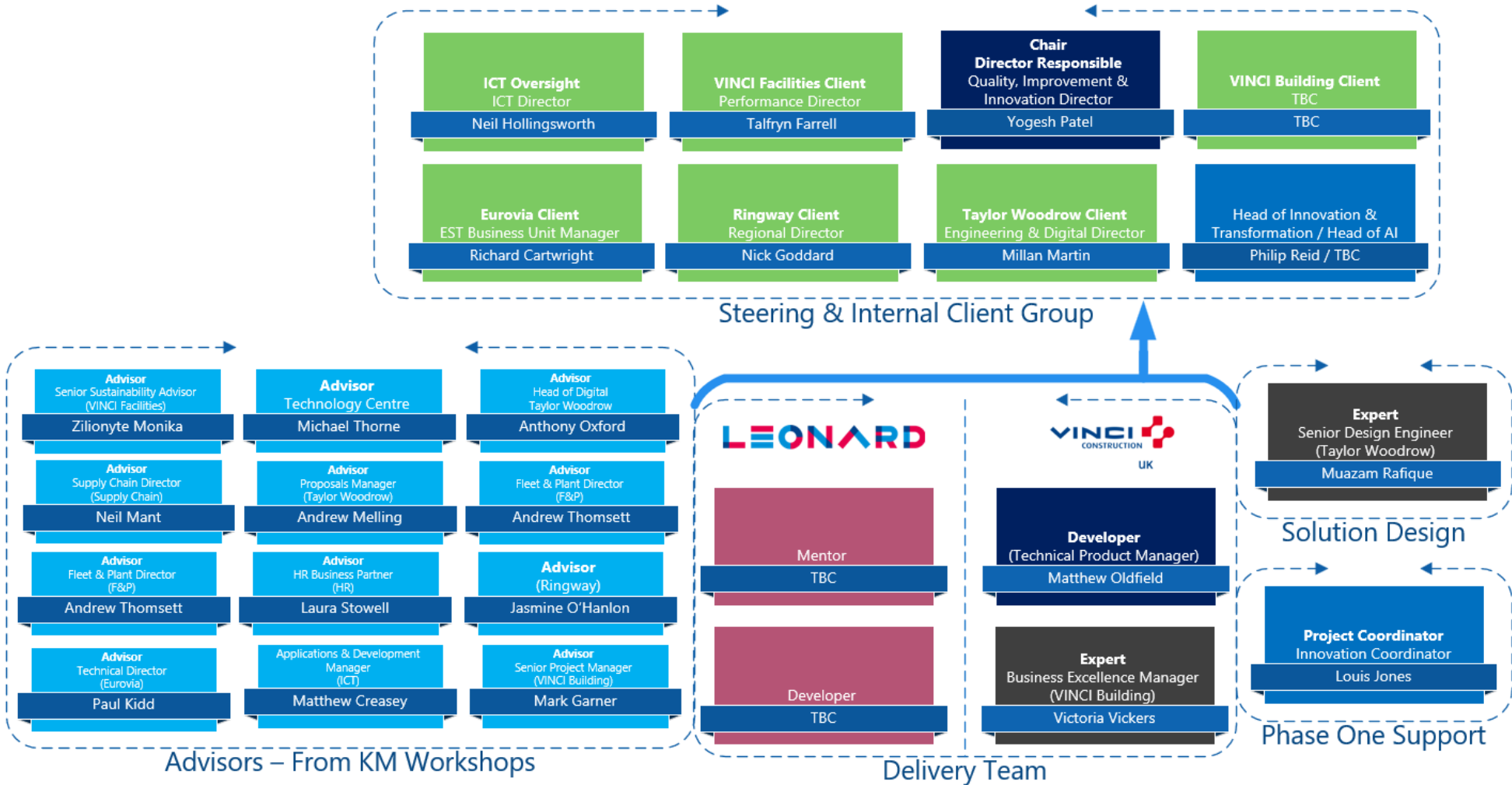
The Developer will be allocated to the project full time and will need to be available to travel for occasional in-person sessions but who otherwise will work from their normal place of work.

The role of the Expert is to complement the technical knowledge of the Developer, providing their expertise to jointly deliver the project. Whilst we only normally have one 'Expert' per project, an additional, part time 'Expert' has been added to this project. Muazam will attend the kick-off event in November and then drop to around ten hours per month, primarily providing support on the appearance and functionality of the solution.

Additional support will be provided through Phase One of the project (up to Go/No Go in December) to act as a bridge between the work that has already been completed in the Innovation team and the Delivery Team. Especially around embedding the agreed vision and scope and to get the meetings and structure set up.

Experts may be required to travel for in-person meetings or presentations but less so than the Developers. They will be expected to be utilised several hours per week in the early stages, but less than an hour a week in later stages. We anticipate that their engagement will be one or two hours per week on average.

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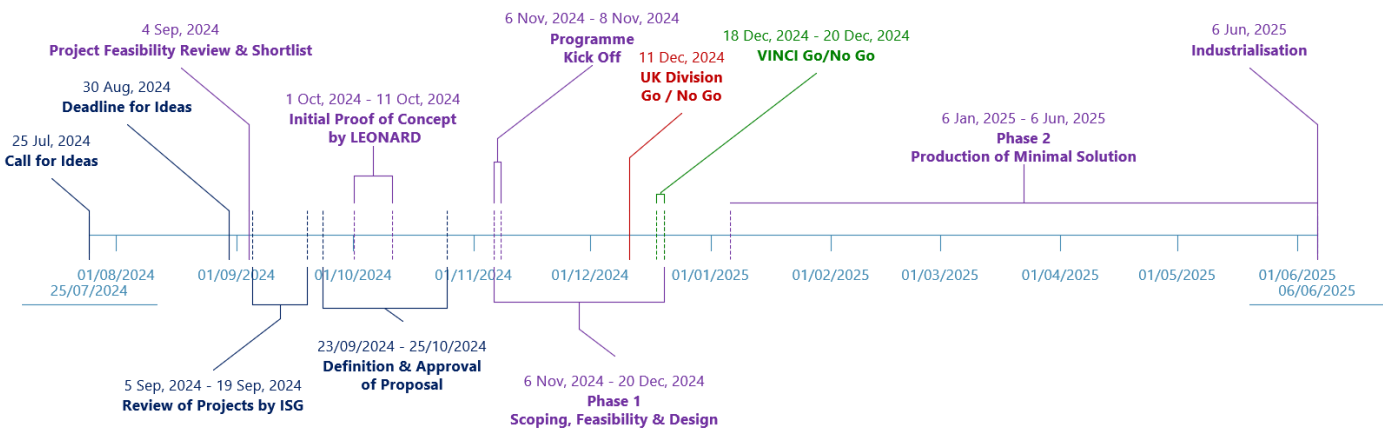


6. Budget

The direct cost of the €30,000 fee payable to LEONARD will be paid from the Shared Service Centre QII budget.

From 4th November 2024 until completion of the programme the cost of employment of Matthew Oldfield will be covered by the Shared Service Centre QII budget.

7. Timeline



8. Approvals

8.1 Approval to proceed up to ‘Go/No Go’ decision on 19th December 2024

This authorisation permits work to commence on this project in line with the LEONARD programme, which in this first section of the programme is focussed on market research, testing, data gathering and validation and design of the proposed solution.

AI Programme Director Director Responsible Chief Executive

8.2 Approval to proceed to produce Minimum Viable Product January to June 2025

This authorisation permits work to continue on this project to develop the prototype / minimum viable product and proceed as far into industrialising the project as possible within the time and resources provided within the LEONARD Programme.

AI Programme Director Director Responsible Chief Executive