AI Workshops Report

THE SOFTWARE HOUSE

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Introduction

GenAI workshops, created by The Software House team last two days. On the first day, we focus on the problem you want to solve and on business-specific requirements to fully **understand your company's situation.** The second day is dedicated to functional and technical topics that enable **estimation and project planning.**
Day-to-day problems inspire us to create solutions that are far **more efficient** and **put more products on the market each quarter.**

Here you can see the full workshop agenda.

These particular real-life workshops were custom-made for a Polish company operating in the e-commerce space – a manufacturer and distributor of consumer electronics.

Day 1

With ice breaker exercises out of the way we kicked off the first day of our workshops by **presenting several Gen AI use cases to our client** to provide a better introduction and demonstrate how The Software House and other companies have utilised this tool for their internal purposes or as a product/service for their clients. As a result the client gained **a better understanding of the possibilities offered by Gen AI** and instilled confidence that our company will handle their project professionally as we have already done similar assignments in the past and are the subject matter experts when it comes to Gen AI implementations.

Potential use case analysis was then followed by a **brainstorming session** – during which the workshop team generate ideas to utilise Gen AI within the clients' business setting. Our advice is to always **consider the problems the company faces and treat them as the starting point.** We are well aware that these issues vary depending on the department, so during pre-meeting discussions we encouraged the client to **create an interdisciplinary team** that participates in the first of workshop sessions.

After the brainstorming session, participants managed to gather substantial number of new ideas for Gen AI implementation. The next task was to **discuss all the ideas** and **group them** (some were repetitive or were connected to the same improvement area). Finally we ended up with 33 original ideas, based on the clients current real life problems.

Day 1

Eventually, we distilled the list down to **22** ideas that needed evaluation and validation to determine if GenAI was indeed necessary to bring them to life or if there was another more efficient way. We connected a **business problem** to the ideas and rated them on a scale of 1 – 5 in the following categories: **business value, cost, data availability, technical risks, and employee support**. Below you can see a few examples of ideas we came up with during the session.

Idea for improvement	Business reason
Device interface translator	Current solutions are not sufficient and cost too much; the client adds around 15 new products quarterly
Contract analysis	The clients signs many contracts and needs to stay up to date with changing regulations
Advertising campaign plans generator	Labor-intensive process, the clients' team can create a limited number of ideas
Extraction of orders from PDF files and emails	Time-consuming and tedious process for sales employees
Influencer verification, creation of potential advertising collaborations list	Suboptimal spending on marketing

Day 1

Eventually, we selected two ideas that scored the highest and were most important from a company management perspective. Due to time constraints, one idea was discussed during these workshops, and the other (more extensive one) was moved to separate workshops. We decided to focus on **creating a knowledge base for all products and incorporating a supporting chatbot tool.**

After determining the project we were supposed to focus on, we moved on to **Stage Two – understanding the chosen direction** using:

- success metrics with defined project goals,
- "before and after" solution implementation comparison,
- success metrics,
- KPI indicators,
- user satisfaction,
- user retention.

Day one finished with identified target groups and their characteristics (including geographical data, demographic data, and psychological and behavioral traits).

Project Background and Objectives

The tool is intended to **gather all data related to the products on sale** (including phones and smartwatches). With GenAI, it will be possible to quickly search for information in the knowledge base and, at a later stage, create a chatbot that sends messages to employees, consumers, and partners.

This solution supports employees and addresses their major issues: **wasting time searching for information, contacting other departments, and responding to consumers' repetitive questions.**

Implementing this tool will bring about changes in several key aspects of work, encompassing the complaint processes, customer contact (which involves assisting customers in product usage or selection), gathering product information during the sales process, and crafting product presentations and offers.

The project's primary objectives are as follows:

- Integrate all existing knowledge points to store consistent data accessible to employees, covering details on product nuances.
- Reduce the time required to assist customers.
- Save employees' time.
- Maintain knowledge continuity irrespective of employee turnover.
- Provide internal support for teams.
- Offer marketing support.
- Facilitate support for the complaint process.

Project Background and Objectives

Based on the success metrics exercise

At the project's initiation, success metrics were established, including:

- Assessing the efficiency of teams (sales, marketing, and support) **utilising** the tool.
- Enhancing task **prioritisation** within the customer care team.
- Decreasing the number of tasks related to responding to repetitive customer questions.
- Shortening the onboarding time for new employees.
- Mitigating delays in product launches across various markets.
- Elevating consumer opinions and satisfaction levels.

Benefits of implementing this tool include:

- Assisting the sales department in recommending products to customers, ultimately contributing to increased company profits.
- Reducing the number of employees spending their time on customer contact.
- Increasing the speed of response to inquiries and complaints.
- Increasing customer retention.
- **Optimising** the working time of employees in sales, marketing, and customer care departments.
- Freeing up time for other tasks and developing the company's offerings.

Target audience

During these Gen AI workshops, we wanted to **understand the target end-users.** User-centred design is the key to creating a good product or service, so this exercise is very important for later stages. Here at TSH we care about the discovery process and follow highest standards for design practices.

The target audience of this particular e-commerce company is located in Poland, Romania, and Portugal. They are interested in purchasing electronic equipment – from phones to smartwatches. Most of the clients' consumers are between 20 and 50 years old, but we need to remember that there are also significant number of seniors (60+) in this group – they usually want to order via phone call or email as they don't know that much about websites or the internet. If there are any problems with the device it is also more than likely that they will contact the company via a phone call and not a contact form or online chat. If we were to create a website AI-powered chatbot only younger users (more interested in smartwatches than our clients phone offering) would benefit from this.

All of the clients' consumers want quick solutions to their problems when contacting the support team. Most of the cases in the clients' contact centre were solved the support team level without the need for further escalation. This means the support team needs access to extensive information about the companies products and quick ways to passing it to the consumers.

If the users are not satisfied with the service they most likely won't come back and simply find a new site from which they will order their electronics in the future while the senior audience might come back to buying their electronics in stationary stores rather than online. That is why it's crucial here to provide help and solutions that work quickly and efficiently.

Target audience

A younger user

A younger user interested in buying smartwatches and willing to use **a chatbot without contacting support** via a phone call. If they are not satisfied with the outcome they will probably find a new place online.

A senior

A senior who **needs help with choosing the right device**. They want to contact a real human being so if they stumble upon any problems they will most likely call the support team and will expect to hear a person on the other side of the line. If they won't find help or are unsatisfied with the support for any other reason they will probably go back to buying in **regular shops.**

Day 2

During the second workshop session, we discussed topics related to **functional and technical requirements.**

The first step was to create **user journey maps.** These were based on **current processes** (“as-is state”) that were to be improved after implementing the knowledge base using GenAI. During mapping, we discussed **pain points** and elements that **cause the most problems for employees or consume the most time.** We created journey maps on topics such as complaint processes, gathering product information from a sales perspective, assisting customers in using or choosing a product, and creating product presentations and offers. The next step was a discussion on how the GenAI implementation would and should help the company in **achieving their goals** and **improving all of these user journeys.**

After familiarizing ourselves with information about current processes, we moved on to **defining technical (non-functional) requirements.** During this stage, we discussed security, end-users, reliability, data, infrastructure and external systems, performance, usability, and additional chatbot features. Throughout all discussions, our team answered client questions, discussed existing project risks, and provided advice on optimal solutions.

After acquiring all the information, the workshop meetings concluded, and our Architect proceeded to select the technical solutions to use, as well as to create **time and financial estimates.**

Technical Results of Workshops

Based on the knowledge gathered during workshops we proposed the following solution. First, we encourage splitting the solution into two separate applications: one for end users and one for internal (company-only) use cases for the following reasons:

Security

For public-facing and company-only applications, we use different data. It is technically possible to have everything in one vector database but makes it more difficult to control information flow. Our recommendation is to make separate vector databases: one for public information and the second for more confidential and internal information.

Cost management

Also from a cost perspective, it is beneficial to have two applications. Internal applications and customer-facing have different requirements for cost management. Customer-facing requires more control and cost tracking. In an internal application, we can control it per user and have higher limits.

Technology stack

- AWS Cloud,
- Serverless architecture,
- Cognito as authorization solution,
- Amazon Bedrock with Claude,
- Bedrock knowledge base,
- GetStream,
- Pinecone.

Frontend

Our highly qualified front-end developers use cutting-edge technologies, modern solutions, and tools suited to the project's needs. Our applications are built with performance in mind and are fully responsive for a range of devices. Over the years, we have developed frontend processes to suggest and deliver the best available solution at the lowest development time. Before we use anything in a project, we test and discuss it with the client to see whether it meets their requirements.

In this instance we proposed React as this is a simple widget/internal application so SEO is not so important. React will allow us to quickly build solutions and host on AWS S3.

Technology stack

Backend

As we are building the backend from scratch for this solution we propose using **serverless** architecture. It will allow us to quickly create the applications and save costs at the beginning. Our team specializes in creating **containerized** (express.js & NestJS) and serverless applications (Serverless Framework). Our long, practical experience in creating systems is based on modular or microservices-based applications.

We deploy our applications on one of the popular public cloud providers (AWS/GCP/Azure), with the majority being deployed on **AWS**. We tend to use TypeScript as it is the current standard in software development and so we also have extensive experience in helping our customers to modernize their code from JavaScript to TypeScript. Our specialists follow the DevOps Culture principles and so our developers are not only responsible for coding but also for building and maintaining the CI/CD processes and containerization of the application.

Customer-facing support chat

Application built on top of AWS Bedrock Knowledge Base (which acquires knowledge from the Device Manuals) will help customers with troubleshooting. Users communicate with AI using a chat function.

Technology stack:

- React.
- AWS Bedrock Knowledge Base – a new service from AWS that automatically builds a knowledge base from documents in S3. We plan to use this service to build a Knowledge Base from device manuals.
- Pinecone Vector Database – this vector database is used with AWS Bedrock Knowledge Base and pricing is attractive. At any time we can abandon Bedrock Knowledge Base and move to a custom solution.
- GetStream – our proposition for chat service.

Internal Chat

This project is an extension of Support Chat with additional knowledge from internal systems. We will build a separate knowledge base to keep confidential info separate from public one.

Technology stack:

- React,
- AWS Cognito/Auth0,
- Lambda,
- AWS Bedrock,
- Pinecone Vector Database,
- GetStream.

Team that can deliver your product

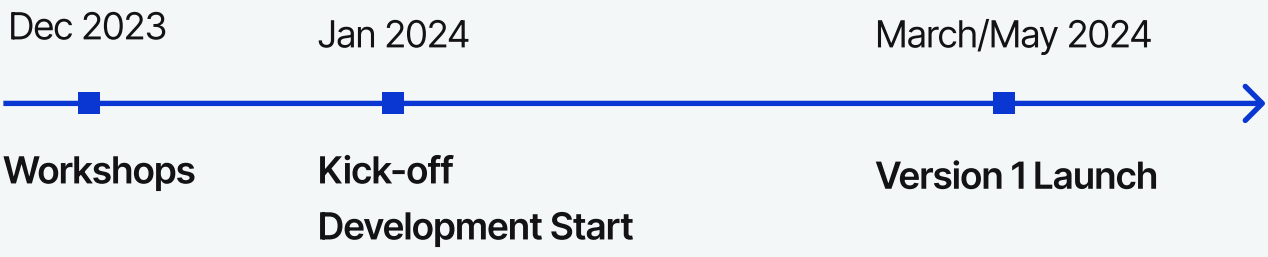
Frontend Engineer	£400/day
Backend Engineer	£400/day
DevOps Engineer	£500/day
QA Engineer	£300/day
PM	£400/day
Architect	£500/day
UI/UX Designer	£400/day

Estimation

We have estimated the potential engagement based on our recommendations, providing the client with a range for the suggested budget and timeline.

Due to the characteristics of software projects delivered in an Agile way on a time and materials basis – where requirements and design may be refined via the Agile work methodology – time and budget are estimated and may be subject to change.

As a result, it is essential to note that while it may be possible to implement the entirety of the desired scope within a lower budget than the one we projected, there is also a risk that the full scope will require more work and budget. Therefore, this estimate is our best guidance and does not equate to a fixed-price proposal.

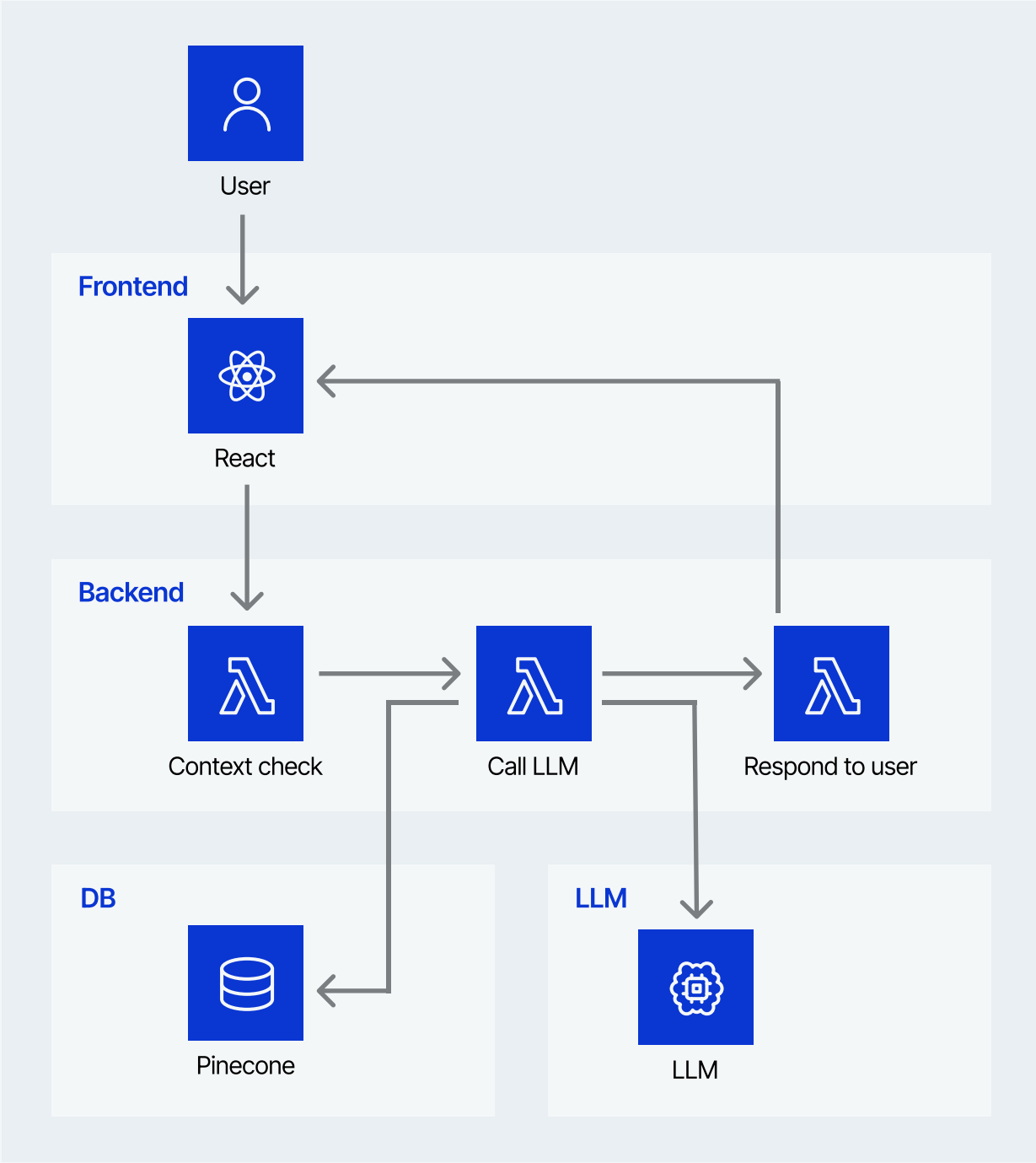


Total cost	**£35k-£50k**
Project duration	**3-4 months**

Projected Operating Costs

Product/service	Cost
Step Functions	the cost for 100,000 messages is around $13
getStream	free for up to 25 users, then 400$ monthly
Pinecone Serverless	starting from 5$

Solution overview



Project's risks

In this project, risks are mainly concentrated on data quality. The better data quality the better responses AI can produce. Without quality data, the AI model will malfunction and produce inaccurate results.

Risk	Mitigation
Low-quality or incomplete data	Ensure data consistency across systems before implementation of the chatbot, regularly update data in the systems post-implementation
Integration with current systems	Access the documentation as quickly as possible and analyse it before the start of projects
Data collection is challenging (employees share knowledge through verbal communication)	Build a knowledge base using written information and update it with new elements as they are documented
Meaningless or incorrect chatbot responses despite good data.	Gradually verify the quality of responses as you build further integrations
Unknown company security policies	Confirm project assumptions with the client's security team before the project start