Initial Business Case: AI Chatbots Research

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1 Version Control

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4 Outline

In recent times, there has been an explosion of interest around AI tools, particularly around Large Language Models, and Generative AI such as Chat-GPT. Earlier this year, myself and others in my team visited SITS (Service Desk & IT Support Show) where we encountered various developments in ITSM tools that may be of use, both for STS and the public sector more generally.

While traditional Chatbots for customer service functions have been around for some time, their functionality was limited, restricted by their reliance on following predetermined paths to reach conclusions. This meant that these tools were more suited to much larger Customer Service organisations who have the resources to implement them, and more to gain from reducing the demand on their call centres.

Modern AI could streamline the setup process, lowering the bar to entry, while being more effective and offering the same kinds of benefits. While it is highly likely that these tools will be deployed widely across many industries soon, the technology's cost/benefit is mostly unknown. We suggest that a more in-depth exploration is worthwhile, testing different tools swiftly to understand the extent that AI tools deliver better value and benefits for our organisation, and lead the public sector in this modernisation.

5 Requirements

- Low initial cost (including low minimum licence commitment, and/or:
- Trial period – for a low-risk way gain a first-hand understanding of its viability.
- Integrations with other systems – interoperability with SSO, Teams, ITSM and HR tools will be crucial.
- Low technical skill for set up & maintenance – again reducing resource demands.
- Auditing - both for paper trail and analysis, including reporting and product improvement.

6 Wishlist & Nice to Haves

- Easy interface, so that changes can be made swiftly and not necessarily by specific technicians – ideally empowering managers to make the changes they need by themselves.
- Tools that enable quick resolution, and reduction of tickets generated, via automation and responding to requests intelligently to provide first time fixes.
- Knowledge Base generation, automating the way in which common issues, tickets, or queries are turned into useful and discoverable knowledge for users to access. This feature can be gained from separate services, so is not essential, though it would be beneficial for this information to be available during conversation.
- Standardised data allowing for easy reporting, integration, and easy vendor switching; ideally built to internationally-agreed Open Referral standards for the public sector (See LGA-founded Open Referral UK).

7 What are we looking for?

During the initial phase of this research, we will want to quickly determine whether these tools are fit for purpose. We will determine whether the tools are simple enough to get positive returns in the short term – the idea is to provide a proof of concept and see if we can be agile enough to get quick results – or whether they require specialists to get off the ground in a meaningful way.

We will also consider if they are sophisticated enough to scale up to our needs, or whether the tool is part of a suite of such tools that might have different strengths and benefits.

The main questions we will ask during the research will be around the following:

1. **User Satisfaction**: What do users think about their interactions with the chatbot? Is it intuitive? Do they feel their issues are resolved?
2. **Ease of Use**: Is the interface easy to use, for end-point users and for those building & maintaining it? Is its functionality well-supported?
3. **Efficiency**: How quickly can the chatbot process, triage and respond to user queries? Does it reduce the burden on staff?
4. **Accuracy**: Does the chatbot provide accurate solutions to user issues? How consistent and reliable is it versus our existing service?

5. **Scalability**: Can the chatbot handle a large number of queries simultaneously?
6. **Integration**: How seamlessly can the chatbot be integrated with existing ITSM tools, databases, and reporting tools?

8 What are we getting out of it?

We hope to leverage the most modern technology tools to expand on our current service offering, and also to investigate the wider utility of such tools which may be of additional benefit in other ways to the residents that we serve.

While these apply directly to our remit within STS, the same benefits stand for citizens, if the proof on concept is successful enough to justify further applications elsewhere:

1. Improved User Experience: Faster response times and accurate solutions can enhance the overall user experience.
2. Ease of Maintenance: Many providers are integrating AI to assist in the creation and maintenance of
3. Cost Reduction: Reducing the need for human agents will lead to significant cost savings and reduce the burden on managing HR.
4. Scalability: Chatbots can consistently handle a surge in queries without the need for proportional staffing increases.
5. 24/7 Support: Round-the-clock support, ensuring users get help whenever they need it. This will reduce our reliance on 3rd party support.
6. Data Collection: Chatbots can collect and analyse user interaction data, providing insights into common issues and potential areas for service improvement. They may also build and populate institutional knowledge bases, reducing the reliance on siloed information.

9 How do we define success?

For the first phase, where we would internally explore the tool, measuring “success” would be more nebulous than when conducting a live pilot. However, one possible measurement is seeing if a rough though workable tool can be produced in a very limited amount of time – testing this output would reveal whether the tool is simple enough to make use of without a specialist skillset.

Additionally, we can quickly rule out some options based on if they lack certain features, or integrations, based on a review of their administration tools. We

have undertaken this kind of research on a very basic level – for example with Microsoft's Azure and PVA tools, which quickly gave us an idea of both its capability, and that it would be somewhat difficult to get a Minimum Viable Product into users' hands.

After the initial pre-release investigation, we would need to determine a good candidate and to pilot the technology. We can test this on a specific function such as for example, password resets, before rolling out more functionality. We can evaluate its performance with quantitative analysis, with qualitative research conducted if deemed necessary (for example, user interviews):

1. Number of user queries resolved without human intervention.
    - A simple comparison of how many queries ended successfully in-tool vs how many were routed to existing services.
2. Reduction in average resolution time.
    - Tickets solved in-tool would be counted as resolved in mere minutes, and compared to averages of existing services.
3. Positive user feedback/satisfaction scores post-chatbot interaction.
    - Most tools include simple surveys to append to interactions; we can also do more in-depth analyses as mentioned.
4. Cost savings from reduced need for human customer service representatives.
    - It would be possible to do a simple calculation of how much time saved from in-tool resolved tickets compared to wage cost for a similar amount of time. It would be hard to measure the true full savings as much of the time cost is hidden and therefore immeasurable – such as time taken waiting for ticket to be resolved, time taken by moving between teams before resolution. Regardless, we hope to see a positive return on investment even with the most conservative of estimates/.
5. Increase in the number of queries handled per day.
    - With these tools serving to essentially supplement human time, we should see a direct increase of total tickets resolved.
6. Comparison with Traditional Systems: Compare the efficiency, accuracy, and user satisfaction of the chatbot system to traditional ITSM support systems.
    - If the chatbot outperforms or is on par with less cost, the research is successful.

10 Problem Statements

What is it we are trying to solve, achieve, or improve upon?

1. **High Volume of Routine Queries:**
    - ***Problem Statement:*** Our IT support team is consistently inundated with a high volume of routine and repetitive queries, which imposes a significant labour demand.
    - ***Opportunity:*** Chatbots may be a way of easily resolving the most common issues, both reducing the workload of IT support and reducing the number of tickets raised (if the Bot helps users solve the issue without having to raise a ticket)
    - ***Consideration:*** While there are ways we can pursue this solution using our existing tools, specifically Hornbill, some limitations have become apparent – such as FAQ functionality lacking, rigidity of how tickets are raised (Intelligent Capture), and complexity of designing interfaces.
2. **Delayed Incident Resolution:**
    - ***Problem Statement:*** Incident resolution times are often delayed by the manual handling of support tickets, leading to decreased user satisfaction and productivity.
    - ***Opportunity:*** Always-on functionality means that responses are immediate, 24/7, providing an adjunct to our phone service, Risual, without the waiting time or cost associated with that.
    - ***Consideration:*** While realistic to expect many tickets will be resolved quickly, especially simple ones such as Password Reset, perfecting the system will get increasingly difficult and its reliability will need careful monitoring at the early stages.
3. **Resource Strain during Peak Periods:**
    - ***Problem Statement:*** During peak periods, such as system updates or service disruptions, our IT support resources are strained, resulting in slower response times and increased user frustration.
    - ***Opportunity:*** The benefits of such a tool is that it exists to reduce demand on other resources; with scalable functionality, i.e., it will be as effective in busy periods as in others.
    - ***Consideration:*** As with other platforms, it is dependent on internet access so users may be unable to access the service in certain circumstances such as hardware or internet failure.
4. **Knowledge Base Underutilisation:**

- ***Problem Statement:*** The existing knowledge base is underutilised, as users may find it challenging to locate relevant information, leading to repeated inquiries and prolonged resolution times.
- ***Opportunity:*** Many tools offer intelligent knowledge finding & creation, such as populating responses with common queries and resolutions, and suggesting topics to add to FAQs.
- ***Consideration:*** Such features require source material to feed into the model, some of which may be hard to obtain – such as Hornbill ticket activity, or team-specific documentation.

5. **Inefficient Triage of Issues:**
   - ***Problem Statement:*** Triage of incoming issues is inefficient, causing a delay in identifying and prioritising critical problems, which can impact overall service quality.
   - ***Opportunity:*** These tools can refine customer's queries by getting the right information from them by asking questions like an agent would, and routing it to the right place - rather than having to design rigid workflows that customers may not use effectively. They may also be able to identify pain points in various aspects of the service such as certain types of queries being passed from team to team, or analysing interactions to see how users interact with the system.
   - ***Consideration:*** The effectiveness of this is greatly dependent on the tool's functionality and sophistication, as well as how they are set up to route to certain endpoints. Ongoing testing and monitoring would be needed, especially early on, to assess whether it is working as intended.
6. **User Empowerment and Self-Service Gap:**
   - ***Problem Statement:*** Users lack a convenient and user-friendly self-service option, leading to a missed opportunity for empowering users to resolve common issues independently.
   - ***Opportunity:*** As mentioned, these tools offer another channel to solve their problems. Also, some users may feel embarrassed to ask certain questions of their managers or colleagues, or that their question is not worthwhile, but a chatbot lacks that sense of judgement and can operate much like a more sophisticated search engine.
   - ***Consideration:*** Such tools would have to be useful, intuitive, and accurate to be trusted by users, which may be unfamiliar with it or sceptical of its reliability.

11 Potential Vendors

1. Microsoft Azure
2. IBM Watson
3. Gaspar.AI
4. SysAid

There are many more in addition to these, and are less directly comparable with one another due to their varying sectors served, functionality, and purpose. For example, some are aimed at directly replacing consumer-facing call centre functionality by focusing on voice capabilities. While this is something we can investigate, for now we are focusing on chat-style tools that can integrate with our existing systems.

My suggestion at present is to explore the smaller players in the market, which offer smaller pricing and trials, as well as being most aimed towards easy set up. We could explore several of these at minimal outlay, before deciding to stick with one of these, or to explore more sophisticated offerings from larger players like IBM or Microsoft. They have larger potential but may be overkill for our requirements for now.

12 Vendor Comparison

12.1 Microsoft Azure Bot Service:

Note: Hornbill has a PVA (Power Virtual Agent) integration, a Microsoft feature. We have the option of using this or using Microsoft's tools separately.

- **Cost:** Azure Bot Service pricing is based on resources used, which might align with your budget constraints. It also offers a free tier for experimentation.
- **Ease of Use:** With a range of templates and an intuitive interface, it's relatively user-friendly. However, customisation might require some technical expertise. In my initial testing, these tools will require some training for even basic implementations, but with a base level of knowledge it could be fairly simple to use for specific tasks.
- **Integration:** Integration with ITSM tools and ticketing systems is achievable, but might require custom development. We are already encountering some difficulties with Hornbill's limitations in terms of ticketing from outside sources so this may pose an additional challenge.

- **Maintenance:** Azure is known for its robust documentation and community support, which could aid in maintenance. While the knowledge demand could be high, it might be easier to acquire the skillsets needed to employ this technology vs more niche tools.

12.2 IBM Watson:

- **Cost:** Watson Assistant has a cost associated with the level of usage, though IBM offers a Lite plan which is free. We would have to contact IBM directly for pricing.
- **Ease of Use:** It provides a visual dialogue builder but might require a learning curve for those unfamiliar with AI. While more complicated and sophisticated that some other options, IBM is actively making it easier to adopt across different organisations.
- **Integration:** Integration with existing systems and third-party applications is possible with some development effort.
- **Maintenance:** IBM offers support and has extensive documentation, but a higher level of technical expertise is required for complex setups. Some features require adherence to specific hardware requirements, which running the tool in a specific environment.

12.3 Gaspar AI:

- **Cost:** Starting at $4/month per user, with a 21-day free trial
- **Ease of Use:** GPT-powered platform, likely to have a user-friendly interface. Provides workflow automation and proactive insights to streamline operations.
- **Integration:** Integrates with over 30 applications, including Slack, Teams, Google Workspace, and Office 365. How easy these integrations are to implement is to be determined.
- **Maintenance:** The platform's emphasis on automation might reduce the maintenance workload. It is designed to auto-resolve 40% of help desk requests, which could potentially lower the maintenance and operational demands on human staff.

12.4 SysAid:

- **Cost:** SysAid's pricing is not disclosed, so we would need to reach out. They offer a free trial.
- **Ease of Use:** Known for its ITSM solutions, SysAid might have a straightforward setup process. Features like an intuitive dashboard,

workflow design, and self-service plugin enhance usability. Automated ticket routing, prioritisation, and notifications are other features that contribute to ease of use.

- **Integration:** It offers various integration options, and being an ITSM solution itself, might provide seamless integration with our existing setup. Specific integration features include Single Sign-On (SSO) and Active Directory (AD) integration for enhanced security and user convenience. Reviews mention it integrates well with email systems, making tracking workload more organised.
- **Maintenance:** SysAid provides support and training resources which could simplify maintenance.