Torchbox

Council Chatbots - Oxford City Council

Case Studies:

Can chatbots and AI help solve service design problems?

❯ **Planning**

❯ **Revenues and Benefits**

❯ **Waste and Recycling**

❯ **Highways**

Council Chatbots - Oxford City Council

Case Studies

Background

In early 2019, a group of councils led by Oxford City Council partnered with Torchbox to conduct a discovery research project into chatbots and conversational AI.

The expressed goal of the project was to explore opportunities of using such technologies to better serve customers and to reduce costs faced by councils in provisioning particular services.

This discovery project aimed to help councils start from scratch and attempt to answer:

Can chatbots and AI help solve service design problems?

This research was focussed on the following service areas:

❯ **Planning**

❯ **Waste and recycling**

❯ **Revenues and Benefits**

❯ **Highways**

Part of a wider body of work

These four case studies are the result of the discovery research project in collaboration with 13 English councils. Our conclusions may be found in our final report: **Project Summary Report | April 2019 | Council Chatbots | Torchbox**. If you want to read all of our findings in detail please refer to our reports:

❯ **ROI Analysis and Market Summary | April 2019 | Council Chatbots | Torchbox**

❯ **Technology Landscape Review | April 2019 | Council Chatbots | Torchbox**

❯ **Example Shared Architecture | April 2019 | Council Chatbots | Torchbox**

❯ **User Research Summary Report | April 2019 | Council Chatbots | Torchbox**

A blog has been published by the project lead, Neil Lawrence of Oxford City Council. To read articles covering each stage of the project please visit the blog here.

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Planning Case Study

Planning is a complex and subjective topic requiring human assistance from councils and industry professionals to help users progress through typically long experiences with high personal investment and multiple touch points.

User experience findings

- **Two key journeys were identified**: 1) Users who are managing their own planning application, and 2) Users who are checking or challenging someone else's planning application.

- Both journeys involve **complex and subjective** interactions and exchanges.

- In both journeys, there are **high stakes** and users are generally very invested. However, challenging a planning application is a more 'emotional' journey from the outset.

- Users will typically engage with the council to try and **progress or check progression** of a task.

- Web and self help are the first port of call, however; if users are **stuck, confused or need reassurance they will not hesitate to call**.

* User insights are based on findings from Oxford City Council.
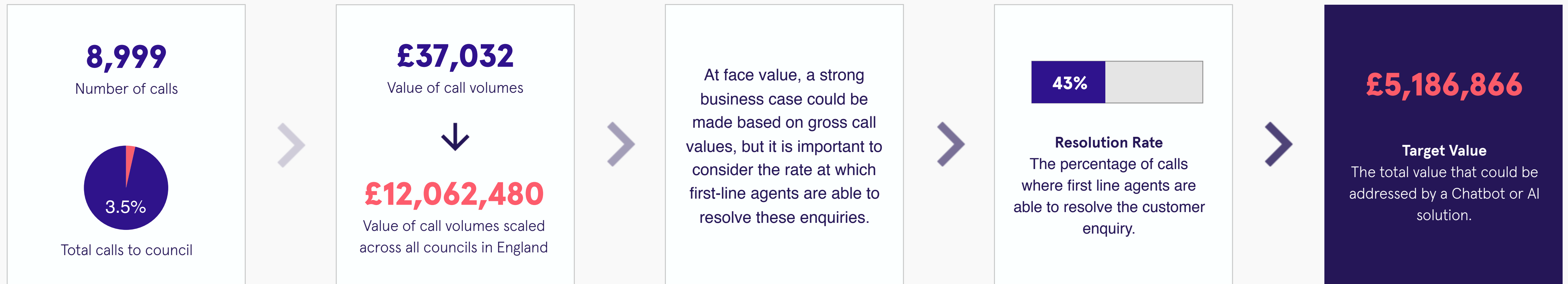
Operational findings

- Planning makes up a **small proportion of total calls** (Oxford 3.7%, Hertsmere 6.5%, Cheltenham 6.7%). Of these, stakeholders estimate **60% can't be resolved by a first-line** telephone agent with a high number of calls (~20%) being **for a specific named planning officer**.

- The ability to query an application digitally is a **prerequisite for a meaningful Chatbot or AI solution**. However, in the case of at least one council this information is not available without consulting a physical file or the specific planning officer responsible.

- Customers call frequently to check the status of an application. Stakeholders aspire towards an "Ocado" solution of **proactive status updates**.

- Whilst having tried to surface more content online to aid users throughout their experience, the **volume of calls is still high** due to the variable and subjective nature of this topic.

* Operational and commercial data has been collected from Oxford, Hertsmere and Cheltenham.

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What do the numbers say?

A data survey was distributed to all participating councils - the data provided enabled us to take averages across the four services to model an Exemplar Council. The following data calculates the potential value that could be addressed by a Chatbot or AI solution for Planning.

8,999
Number of calls

3.5%

Total calls to council

£37,032
Value of call volumes

↓

£12,062,480
Value of call volumes scaled across all councils in England

At face value, a strong business case could be made based on gross call values, but it is important to consider the rate at which first-line agents are able to resolve these enquiries.

43%

Resolution Rate
The percentage of calls where first line agents are able to resolve the customer enquiry.

£5,186,866

Target Value
The total value that could be addressed by a Chatbot or AI solution.

* Operational data has been collected from all 13 participating councils to calculate exemplar council. For more information on these calculations please refer to the ROI Analysis and Market Summary document.
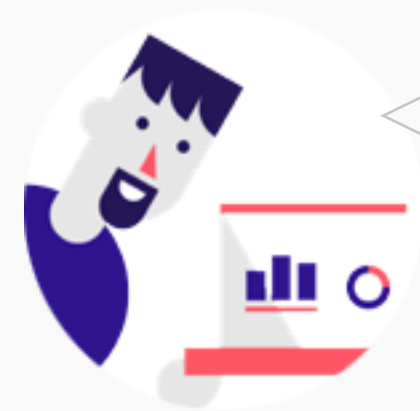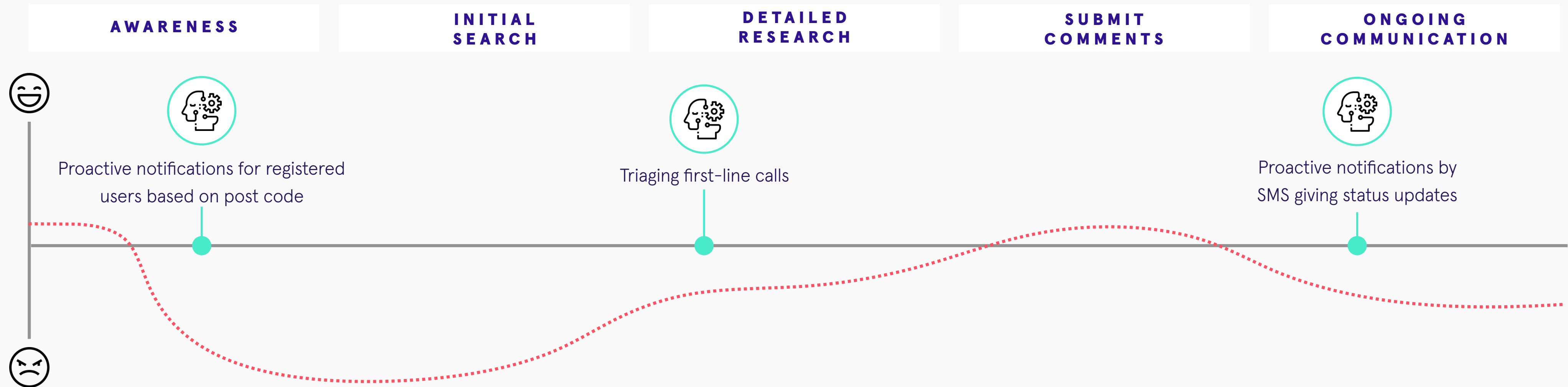
"There's no one answer fits all. There are so many variables. Interpretation is something that I don't think you can take the human out of."

– Stakeholder
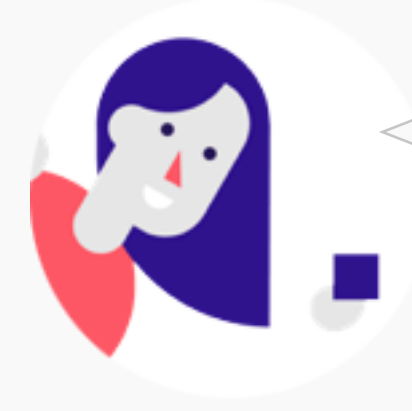
"The council might or might not call, it's unsettling. If I call them I can find out sooner."

– User

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Improving the service

How could Chatbot or AI solutions improve the Planning user experience and reduce the burden on call centres?
Let's use the current experience of: **'Users who are checking or challenging someone else's planning application'**

AWARENESS	INITIAL SEARCH	DETAILED RESEARCH	SUBMIT COMMENTS	ONGOING COMMUNICATION

Proactive notifications for registered users based on post code

Triaging first-line calls

Proactive notifications by SMS giving status updates

Conclusion

Whilst there are some examples of how Chatbot or AI solutions could improve the user experience and create some cost efficiencies, Planning is not an obvious candidate for a few reasons:

➤ The complex nature of this service would make it costly to both train and maintain a chatbot, and difficult to remove humans from subjective conversations.

➤ Having a paperless service is a pre-requisite for building a meaningful AI.

➤ Users need additional reassurance due to the high stakes at play – feeling heard requires a personal interaction.

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Waste and Recycling Case Study

Waste and Recycling customer enquiries can be easily resolved by both self service and quick interactions with the council. However, a poor service can have a significant impact on people's lives, increasing propensity for calls to the council.

User experience findings

- Most of the tasks were **simple information or service requests** - all users who called the Council said that the calls were dealt with quickly and easily.

- The **majority of users defaulted to using mobile** when searching for council Waste and Recycling information - reflecting the simplicity of the task at hand.

- **All users had difficult web experiences** on the Council website - due to poor mobile responsiveness and in-site search. This resulted in users going back to Google for better search functionality or calling the Council directly.

- **All users voiced a preference to self serve where possible** - if this is not possible, or if it is difficult, they would not hesitate to call.

- These are paying customers - but they can't switch if they have a bad or unsatisfactory service. **If issues are not resolved, users have to adopt inconvenient alternative solutions** (e.g. taking trash to work for disposal).

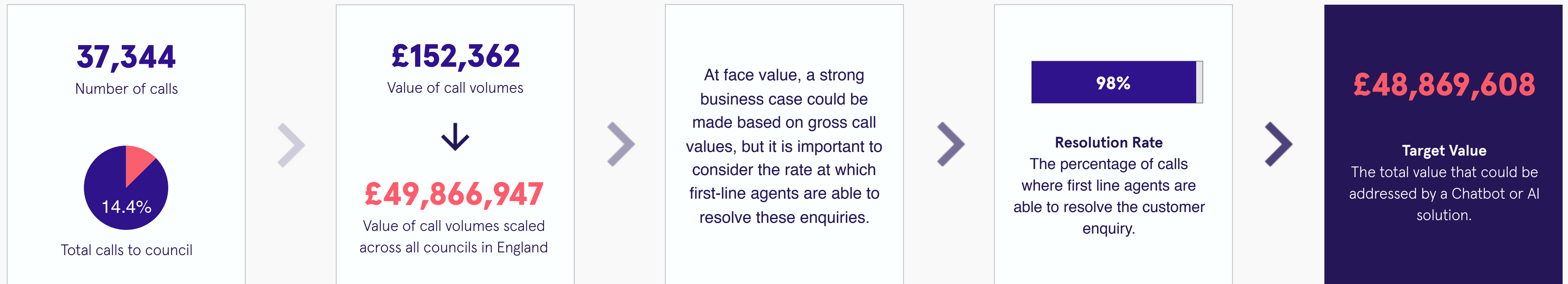* User insights are based on findings from NE Derbyshire District Council

Operational findings

- Waste and Recycling makes up a **significant proportion of total inbound calls** (14.5%) compared to Planning (4%) and the **vast majority (98%) of calls can be handled** by a first-line operative.

- Users would like to self-serve, but **not all councils** have a full range of Waste and Recycling tasks available through self-service (e.g. Missed Bins).

- **Some councils have real-time data** available from collection teams. Others are still developing this integration, which has real power for enhancing self-service.

- **Pre-empting customer needs** (e.g. proactively informing users if a bin goes in the back of a lorry) is a better way to reduce the need for users to make contact in the first place.

* Operational and commercial data has been collected from NE Derbyshire, Bolsover, Rotherham and Doncaster

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What do the numbers say?

A data survey was distributed to all participating councils - the data provided enabled us to take averages across the four services to model an Exemplar Council. The following data calculates the potential value that could be addressed by a Chatbot or AI solution for Waste and Recycling.

37,344
Number of calls

14.4%

Total calls to council

>

£152,362
Value of call volumes

↓

£49,866,947
Value of call volumes scaled across all councils in England

>

At face value, a strong business case could be made based on gross call values, but it is important to consider the rate at which first-line agents are able to resolve these enquiries.

>

98%

Resolution Rate
The percentage of calls where first line agents are able to resolve the customer enquiry.

>

£48,869,608

Target Value
The total value that could be addressed by a Chatbot or AI solution.

* Operational data has been collected from all 13 participating councils to calculate exemplar council. For more information on these calculations please refer to the ROI Analysis and Market Summary document.
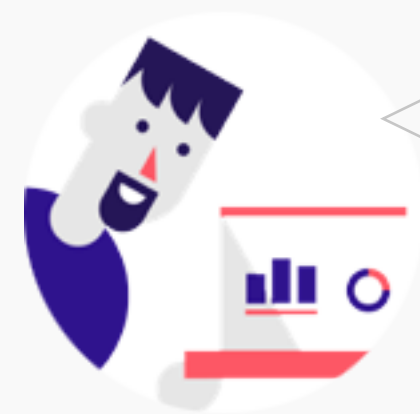
"It's not just about value - it's also about efficiency in these services while still striving for excellence. I think that's where digital comes in…"
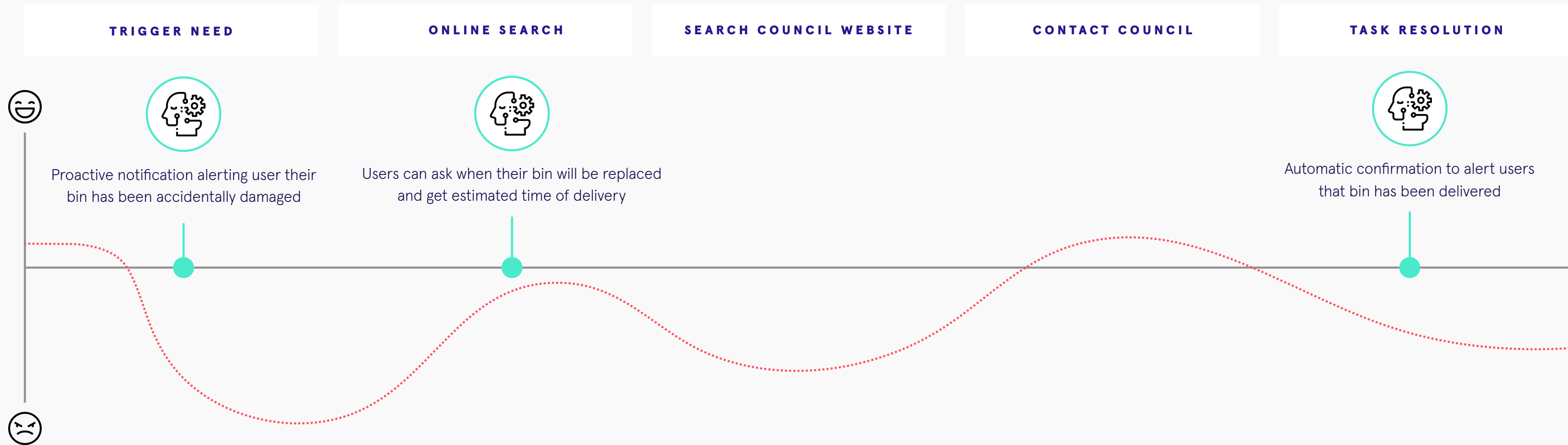
– Stakeholder
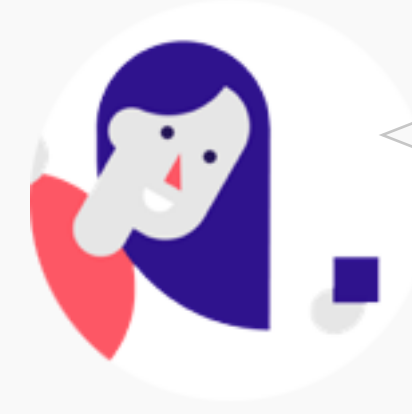
"I expected to be given some information by the council [about Waste and Recycling] when I moved in to my new house…"

– User

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Improving the service

How could Chatbot or AI solutions improve the Waste and Recycling user experience and reduce the burden on call centres? Let's use the Waste and Recycling experience, and apply the example: '**My bin has gone missing**'

TRIGGER NEED	ONLINE SEARCH	SEARCH COUNCIL WEBSITE	CONTACT COUNCIL	TASK RESOLUTION

Proactive notification alerting user their bin has been accidentally damaged

Users can ask when their bin will be replaced and get estimated time of delivery

Automatic confirmation to alert users that bin has been delivered

Conclusion

Waste and Recycling is a strong Alpha candidate for a few reasons:

❯ The lack of service complexity makes it the most appropriate service area to carry forward for considering chatbot implementation costs.

❯ Proactive notifications could relieve user anxieties, reduce inbound calls and provide a delightful user experience.

❯ The relative simplicity of this service means users are able to self serve and first line agents can resolve enquiries.

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Revenues and Benefits Case Study

This is an emotional and complex topic which requires certainty, guidance and reassurance as it is a service that can significantly affect people's lives and finances. Users will not hesitate to call for clarity and support.

User experience findings

- **Two key journeys were identified**: 1) Billing and enquiries, and 2) Applying or switching council housing. These were **both focussed on Benefits only** – no interviews based on Revenues.

- All users **started journeys at a point of anxiety** and disadvantage due to life circumstances or frustration due to errors made by the council.

- **Reassurance, trust and control** are a key need of users' overall experiences due to the high risk and potential negative impact on life if issues are not resolved. Users need to feel that each step of their journey is clear.

- Users are **more likely to call rather than self serve online**. For those who do try to self serve online, their experience is so bad that they resort to calling.

- These **experiences can be cyclical and long–lasting** as users need to periodically ask for support or give supporting evidence.

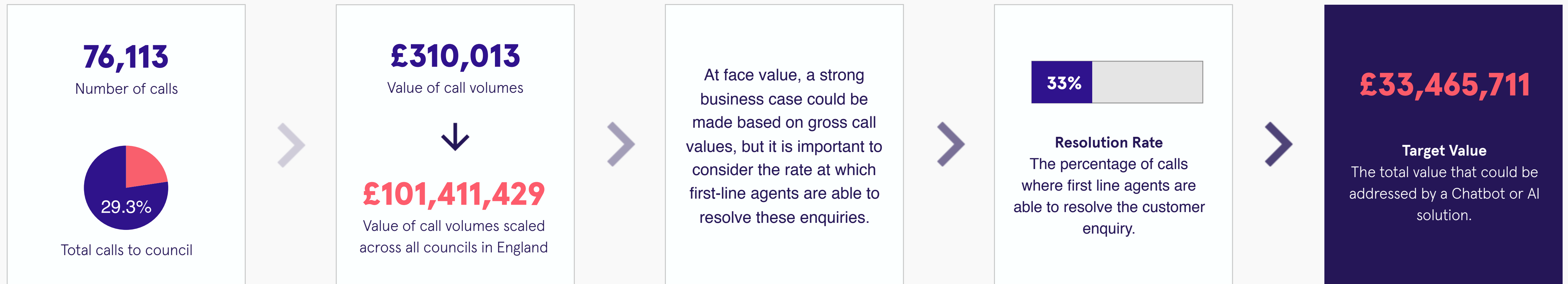** User insights are based on findings from Redditch Borough Council*

Operational findings

- Revenues and Benefits makes up a **large proportion of total inbound calls (29.3%)** but the **majority of these calls require follow-up** (via telephone, email or in person). Only a relatively small proportion (33%) can be resolved by the first-line agent.

- This is a **broad and complex service** where a lot of user journeys involve **referral to third-party services**, including Citizens Advice, Step Change, Healthy Minds, etc.

- The **ability for customers to self-serve is limited**, as not all councils have a full range of Revenues and Benefits tasks available to complete online (e.g. Change of Circumstances, View Council Tax Balance, etc.)

- 'Revenues and Benefits' covers a **vast range of council services** with customer data frequently handled via a different system or CRM depending on the particular service.

* Operational and commercial data has been collected from Redditch, Bromsgrove, Preston, Adur and Worthing

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What do the numbers say?

A data survey was distributed to all participating councils - the data provided enabled us to take averages across the four services to model an Exemplar Council. The following data calculates the potential value that could be addressed by a Chatbot or AI solution for Revenues and Benefits.

76,113
Number of calls

29.3%

Total calls to council

>

£310,013
Value of call volumes

↓

£101,411,429
Value of call volumes scaled across all councils in England

>

At face value, a strong business case could be made based on gross call values, but it is important to consider the rate at which first-line agents are able to resolve these enquiries.

>

33%

Resolution Rate
The percentage of calls where first line agents are able to resolve the customer enquiry.

>

£33,465,711

Target Value
The total value that could be addressed by a Chatbot or AI solution.

* Operational data has been collected from all 13 participating councils to calculate exemplar council. For more information on these calculations please refer to the ROI Analysis and Market Summary document.
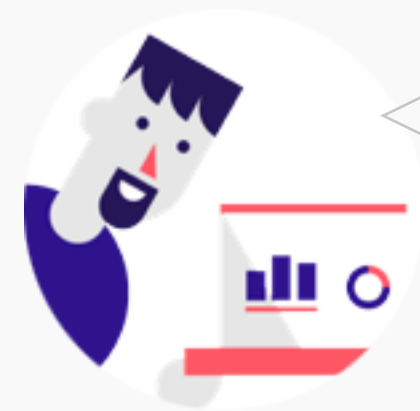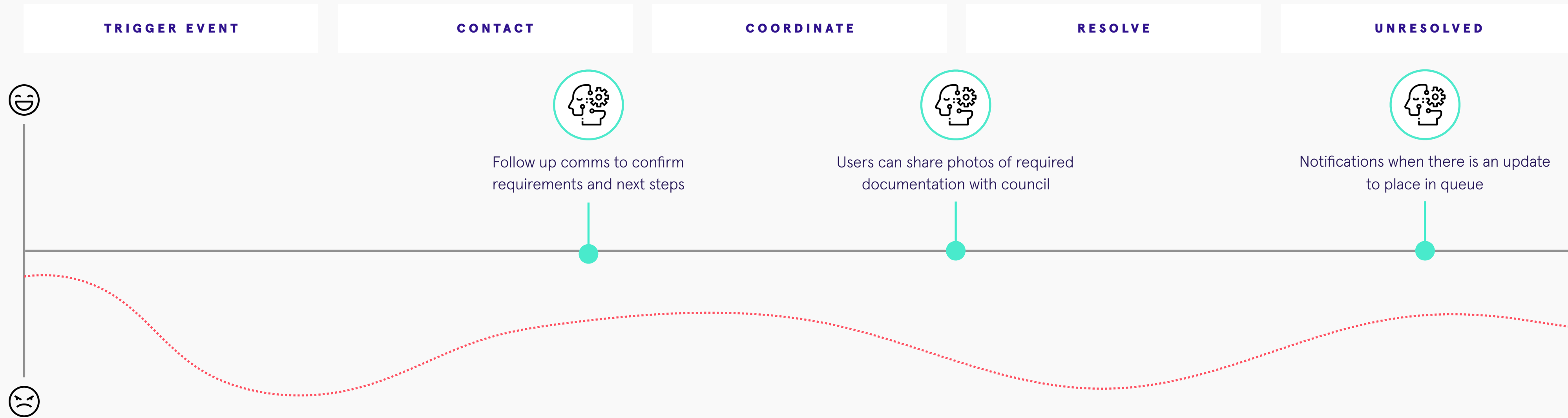
"… Every case is different. We have to make sure we give the correct advice, that they understand it, and that it's clear."
– Stakeholder
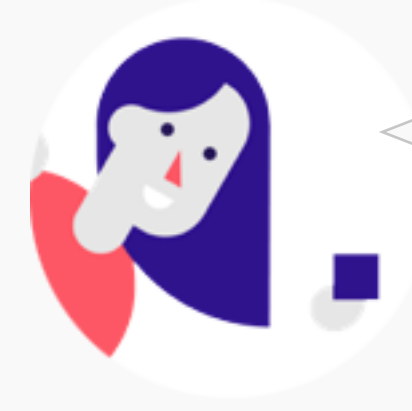
"I like doing things myself, but I needed help. I needed someone to explain things to me"
– User

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Improving the service

How could Chatbot or AI solutions improve the benefits user experience and reduce the burden on call centres?
Let's use the current experience of: '**Applying or switching council housing**'

TRIGGER EVENT	CONTACT	COORDINATE	RESOLVE	UNRESOLVED

Follow up comms to confirm requirements and next steps

Users can share photos of required documentation with council

Notifications when there is an update to place in queue

Conclusion

Chatbots or AI solutions could improve the user experience by providing useful reminders, helping to clarify process and provide links to guidance. However, the Revenues and Benefits service would be a tricky candidate for a few reasons:

❯ These are unique and emotional journeys with users exhibiting a preference for human conversation.

❯ Service complexity would increase reliance on a seamless digital integration with third party services.

❯ The risk of user frustration being exacerbated or confusion increasing is high.

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Highways Case Study

A varied topic with a wide range of tasks - with more emotional interactions than expected due to its health and safety nature. Users will call to discuss complex urban planning concerns or to check progression of a report, request or query.

User experience findings

- **Two key journeys were identified**: 1) Reporting an issue or requesting an improvement, and 2) Complex urban planning enquiries.

- The key motivation for engaging with the council was around **safety and reducing both existing and potential negative impacts** on daily life and the community (for example: traffic, road safety, parking).

- **This is a subjective issue** - how are Highways issues prioritised by the council? Do residents agree with this?

- Users were predominantly **frustrated about not feeling heard**. Not getting a timely or satisfactory response, not getting meaningful justifications, not getting reassurance that they are not asking for the unreasonable.

- Users expect organisations to **display joined up thinking** - particularly with complex urban planning enquiries.

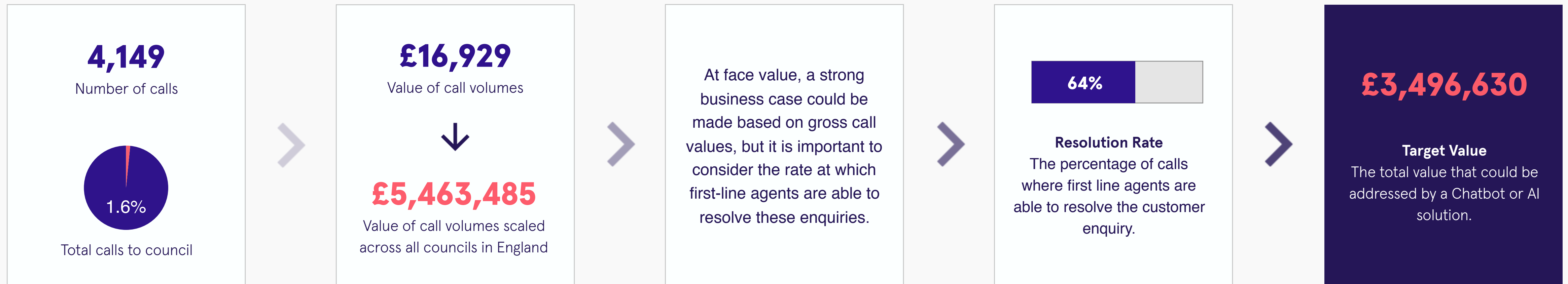** User insights are based on findings from Redditch Borough Council*

Operational findings

- Highways makes up a **very small proportion of total inbound calls** (1.6%) but a significant proportion (64%) can be resolved by the first-line agent.

- The **majority (73%) of Highways defects are reported online** via self-service. There is a 10% improvement year-on-year.

- There is a large number of contractors with unique systems which don't integrate into the council CRM. This also means that **councils can struggle to keep dynamic content up-to-date online**.

- These are **emotional and complex journeys** with users exhibiting a need to express frustration and requiring additional reassurances.

- There is a **very large number of different reasons for calling** the council about Highways compared to other council services.

* Operational and commercial data has been collected from Redditch, Bromsgrove, Preston, Adur and Worthing

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What do the numbers say?

A data survey was distributed to all participating councils - the data provided enabled us to take averages across the four services to model an Exemplar Council. The following data calculates the potential value that could be addressed by a Chatbot or AI solution for Highways.

4,149
Number of calls

1.6%

Total calls to council

£16,929
Value of call volumes

↓

£5,463,485
Value of call volumes scaled across all councils in England

At face value, a strong business case could be made based on gross call values, but it is important to consider the rate at which first-line agents are able to resolve these enquiries.

64%

Resolution Rate
The percentage of calls where first line agents are able to resolve the customer enquiry.

£3,496,630

Target Value
The total value that could be addressed by a Chatbot or AI solution.

* Operational data has been collected from all 13 participating councils to calculate exemplar council. For more information on these calculations please refer to the ROI Analysis and Market Summary document.
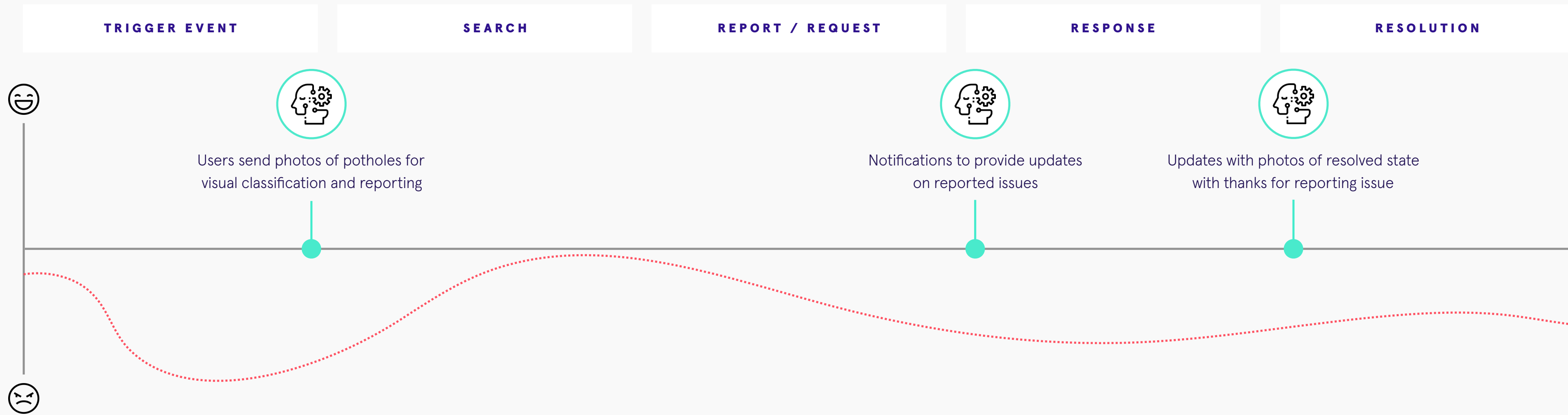
"There's a real opportunity to prevent people from reporting potholes by sharing news and updates with them."
– Stakeholder
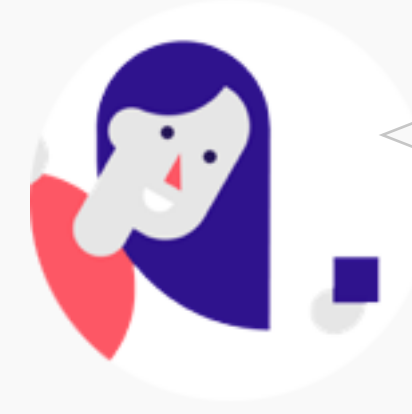
"I might not have agreed with it... but I expected some kind of response, some kind of answer or justification"
– User

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Improving the service

How could Chatbot or AI solutions improve the Highways user experience and reduce the burden on call centres?
Let's use the current experience of: '**Reporting an issue or requesting an improvement**'

TRIGGER EVENT	SEARCH	REPORT / REQUEST	RESPONSE	RESOLUTION

Users send photos of potholes for visual classification and reporting

Notifications to provide updates on reported issues

Updates with photos of resolved state with thanks for reporting issue

Conclusion

Whilst there are some examples of how Chatbot or AI solutions could improve the user experience and create some cost efficiencies, Highways is not a clear candidate for a few reasons:

Disparate tech systems not speaking to each other presents a challenge for a reliable AI solution.

Numerous reasons for contact makes it costly to train and maintain a chatbot and harder to show significant ROI.

If users want to feel heard, removing humans from service interactions would make the experience worse.

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