Digital Experts Programme
Nottingham Speech Recognition Project case study

The issue and context
In common with most councils, Nottingham City Council (NCC) is under an ever-increasing pressure to reduce its costs. One approach it has adopted to address this issue, is by moving customer services to cheaper channels where appropriate. However, NCC has made a commitment, within its Customer Charter to maintain a high-quality service by offering customers a variety of ways to access council services.

One option that NCC has successfully used internally is the use of Speech Recognition Automated Agents (SRAA). This system automatically answers a phone call and uses speech recognition software to interpret and respond to a caller’s request. NCC has successfully implemented 4 ‘Operator’ SRAAs, using Netcall’s ContactPortal technology, to automatically route internal staff calls away from the council’s main switchboard. These automated agents answered 311,527 calls in 2014 which would have otherwise needed to be answered by a live agent. This allowed savings equivalent to 4 full-time employees.

Following the success with staff calls, this project was designed to test the use of this technology to deal with customer contacts. Consequently, NCC submitted a bid, for £10,000, to the LGA Digital Expert funded programme to purchase an additional module from Netcall that is designed to allow customers to report events such as missed bins.

NCC’s neighbourhood services contact centre handles a wide range of enquiries from 308,000 residents/133,000 households. The contact centre answered 140,000 calls in 2014. Missed bin collections account for over 25 per cent of calls logged by the contact centre.

Although the authority promotes its internet-based self-service options for reporting missed bin collections, in 2013 a survey of 1,047 households indicated that 61 per cent of households have never read or used the Nottingham City Council website and that 57 per cent of households would prefer to contact the council by telephone to report a problem.

The project expanded the existing Contact Portal platform with the addition of a ‘reporting’ SRAA to handle telephone missed bin collection reports, allowing citizens to ‘self-serve’ using their preferred channel – the telephone.
The project objectives and targets

The primary aim of the project was to increase the levels of self-service, by those citizens who prefer to use a telephone, rather than an online, channel. This will improve the efficiency and effectiveness of the service and hence produce a better customer experience for those that previously had to wait for a phone call to be answered by a person.

The automated agent operates 24 hours a day, 365 days a year, unlike the contact centre that operates 8.30 am to 4.50 pm Monday to Friday. This allows citizens to self-serve at times that suit them - for instance when then get home from work to discover their bin has not been collected. In addition to allowing citizens to report issues at a time convenient to them, this will also significantly reduce traffic at peak times, such as first thing in the morning, and especially Monday mornings.

As well as savings due to reduced demand on staff time, the improved efficiency will allow staff to focus on more complex enquiries and offer a better level of service to those citizens who are unable to self-serve either via existing internet-based channels or the proposed new automated telephone-based service.
The approach and progress to date
The Digital Experts funding enabled NCC to purchase an additional module for their existing Netcall system. This ‘reporting’ module uses a configurable set of questions to conversationally capture specific and relevant information from the caller while integrating with back office systems to validate information from the caller and process their transaction.

A sample transaction flow is illustrated below.
Nottingham City Council’s solution routes missed bin collection requests away from the contact centre. The automated agent asks for the citizen’s post code and first line of their address and then matches this information to the local property gazetteer.

Upon confirmation of the property address, integration with back office systems/CRM allows confirmation of the citizen’s collection day/bin cycle/number of previous missed bin requests to check whether it is appropriate to arrange a missed bin collection.

There are a number of valid situations where bins were rejected or not collected and should not be accepted for a missed bin collection. These include:

- The bin was not presented at the correct time
- The bin was not presented on the correct day
- The bin was rejected because of contamination.
A typical interaction to report a missed bin to an automated agent would be:

<table>
<thead>
<tr>
<th>Caller</th>
<th>Dials number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agent</td>
<td>‘Welcome to the Nottingham City Council missed bin reporting service’</td>
</tr>
<tr>
<td></td>
<td>‘Firstly, we need to know what type of bin we have missed’</td>
</tr>
<tr>
<td></td>
<td>‘You can say ‘green bin’ or ‘grey lidded bin’</td>
</tr>
<tr>
<td>Caller</td>
<td>‘Green bin’</td>
</tr>
<tr>
<td>Agent</td>
<td>‘Thankyou. You have selected the green bin for domestic waste. Is that correct?’</td>
</tr>
<tr>
<td>Caller</td>
<td>‘Yes’</td>
</tr>
<tr>
<td>Agent</td>
<td>‘We now need to capture your full address. Please state your post code’</td>
</tr>
<tr>
<td>Caller</td>
<td>‘NGx xxx’</td>
</tr>
<tr>
<td>Agent</td>
<td>‘and now state the first line of your address’</td>
</tr>
<tr>
<td>Caller</td>
<td>‘39 Pxxxxxx Avenue’</td>
</tr>
<tr>
<td>Agent</td>
<td>‘So your address is: 39 Pxxxxxx Avenue, Nottingham, NGx xxx: is that correct?’</td>
</tr>
<tr>
<td>Caller</td>
<td>‘Yes’</td>
</tr>
<tr>
<td>Agent</td>
<td>‘Thankyou. Your details have been logged. We will be collecting the bin in the next 3 working days. Please ensure that your bin is left at the kerbside where it will be visible to our waste operatives. Your reference number for this request is xxxxxxxx.</td>
</tr>
</tbody>
</table>

If the information meets the criteria then the system automatically sends the request to the waste collection teams with no need for manual processing.

Before the system was launched it was fully tested utilising the council’s customer panel. More complex enquiries can automatically be routed back to a call handler in the contact centre. For example, if, from the integration with back office systems, the caller is flagged as having made numerous previous collection requests, the call could be routed to an experienced agent to investigate the root cause of the missed collections.

The automated agent service has been extended to cover requests for garden waste collection and this operates in the same way.
The outcome – successes and challenges

Financial benefits
A comparison of traffic across the various channels for a 6-month period after the launch of the reporting module with the same 6-month period from the previous year shows a movement of calls towards the automated channel and a reduction in calls handled by operators. Using the SOCITM figures this channel shift represents a saving of almost £18,000. Because of seasonal fluctuations it is not possible to simply double this number to deliver an estimated annual saving but it would not be unrealistic to expect a saving in excess of £30,000 across a full year.

In practice over 66 per cent of the missed bin calls are currently being handled by the automated agent. The success rate of 60 per cent for these calls is growing over time (up from 40 per cent at launch) and the system currently handles in excess of 1000 successful calls per month.

This success has contributed to a situation whereby the contact centre is currently operating with two vacancies against an establishment of ten FTEs as well as handling growth in other service areas (e.g. NCC are currently promoting their bulky waste service).

Non-financial benefits
The process of adding services to the SRAA channel has necessitated the review of the steps involved in each activity. This has resulted in simpler, more efficient processes allowing staff the time to undertake other activities, such as assisting callers who have more complex or difficult queries.

‘The perception that automation limits customer service is incorrect. By being specific and efficient a more effective service is delivered and both customers and staff are happier.’

Lucy Lee, Head of Customer Services

No formal customer survey has been conducted as yet but the officers responsible for customer services are positive about the impact:

‘This service enhances the customer service because it avoids delays in waiting for a person to answer a call and gives the customer confidence that they are being dealt with.’

Neil Lindsey-Taylor, Customer Services and Business Support Manager
Key learning points
A number of key learning points relating to the use of automated agents arose from this project.

About the system:
Initially it was feared that the use of automated agents would be seen by customers as a negative step but because the system is quick, easy and efficient it has proven to be a positive addition to the range of service delivery options utilised by the council. Customer service staff have recently expressed the view that this should have been done earlier.

When introducing a system of this type, it is vital that the steps needed to complete the transaction and the information required from the customer during the process are kept to an absolute minimum so that the process can be completed quickly and easily. This may require considerable discipline when the process is being defined and depends on a drive to design the system from the customer’s viewpoint.

At the end of the process it is advisable to directly inform the customer that the process has been successful by summarising the action that will be taken.

About the project:
It was easy enough to purchase the additional system module. The supplier was helpful and responded quickly and the product is very stable.

However, a key element of the project was the need to provide middleware to integrate the module into existing systems such as the CRM and back-office systems. To do this it was necessary to include the project on the work plan of the internal IT service and to get the relevant resources committed to the project. Naturally, the internal IT service was subject to many competing demands and this did result in some delays. Hence it is advisable to involve the relevant IT staff members in the project at the earliest possible moment.
Next steps

This Digital Experts project contributes to a much wider plan to rationalise, standardise and streamline customer services across the council. This will be based upon the principle of customer involvement and aim to meet the commitments laid out in the customer charter, including a ‘variety of ways to access our services’.

Although there is a desire to move services towards online channels where appropriate, this commitment, to offer services across a range of channels, will mean that, over time, additional services will be included via the automated agent channel. After missed bins and garden waste, bulky waste calls have recently been included and plans are underway to consider the inclusion of school placements.
Contacts for further information

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