connect
MANAGED SERVICES

Everything You Need to Know About Contact Centre Technology

Contents

Introduction: What is the role of Contact Centre Technology?

The role of the Contact Centre is evolving at a rapid rate.

In the age of Machine Learning (ML), big data and Artificial Intelligence (AI), businesses are finding increasingly innovative ways to utilise the vast amounts of data produced in their Contact Centre environments.

Expanding communication channels, automating systems and enhancing customer contact opportunities can offer cost-effective and compliant ways to retain current customers, increase market share and convert calls to sales (and revenue). A complete understanding of all the options along with the current structure of your Contact Centre is the first step towards creating this communications hub of the future.

Contact Centre changes are being driven by three broad elements:

1. Customer Experience Revolution
2. Digital Transformation
3. Customer Journey Personalisation

Historically, the main goal for call centres was achieving the lowest cost of delivery, which caused businesses to relocate their call centres to evermore inexpensive countries. Call centre agents were not valued, which led to high agent churn – paradoxically a significant cost to any business.

Key Performance Indicators (KPIs) were focussed on metrics related to cost, with mixed results. While businesses chased the shortest possible Average Handling Time (AHT), customers were not treated as individuals but subjected to generic 'scripts', and kept on hold for long periods of time. Agents' focus was on minimising handling time rather than actually fixing the issue, meaning that issues were often not resolved. Repeat calls became very common, increasing the cost to serve and impacting the customer experience.

Ultimately, dissatisfied customers look for competitors who provide better service, and replacing these lost customers is far more expensive than retaining the existing ones.

Today, this has changed. Now the focus is on providing a strong and engaging customer experience, delighting the customer, retaining their business and turning them into an advocate for your business. First Contact Resolution (FCR) and Net Promoter Scores (NPS) are the crucial KPIs.

This is what we refer to as the 'Customer Experience Revolution'.

This is not the only driver in the Contact Centre market. Now customers are less inclined to want to solve their day-to-day issues over the phone. This means a call centre needs to increase the number of channels available for communication. Rather than a single voice channel, the next generation Contact Centre will need to support multiple digital channels, such as email, web chat and social media.

This is what we refer to as 'Digital Transformation'.

When customers are interacting with your business across multiple platforms, devices and channels at different times, it is possible to be aware of these previous interactions by processing big data. Knowing a customer's history makes it possible to anticipate the context of the next contact. Recognising that context allows you to predict what the customer wants and, instead of a linear script, their journey can be suitably personalised.

This is what we refer to as 'Customer Journey Personalisation'.

Customer Experience, Digital Transformation and Customer Journey Personalisation are driving an increased complexity in Contact Centre technology (now often referred to as the 'customer experience' or 'CX' technology market), which is useful to understand when navigating your investment cycle.

1. Contact Centre Channels

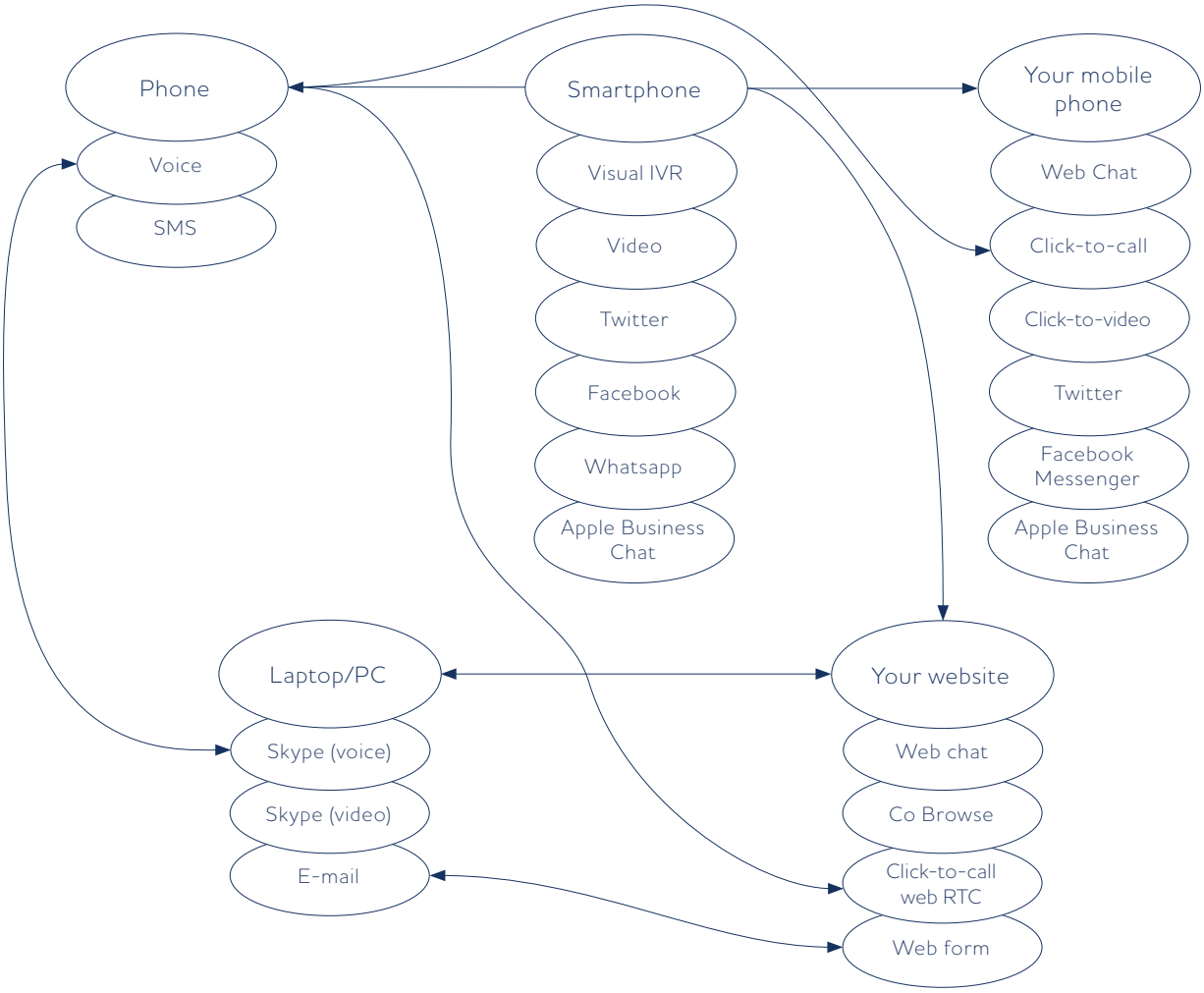
Customers can make contact via various devices. Most typically these are:

- **Traditional phone**
- **Computer (laptop, desktop) or**
- **Smart phone**

Each of these devices can be used to communicate with a company's Contact Centre through different communication methods or channels.

The diagram below provides examples of various channels available from these devices.

OMNICHANNELS



The Voice (Phone) Channel

The voice channel is the most established and probably the most complex communication channel in a Contact Centre.

Typically, there are two modes of operation for voice elements in a call centre:

1. **Inbound,** where customers call into the call centre. This is typical for customer service and sales interactions.
2. **Outbound,** where the agents call out to customers, for example for the debt collections function. Outbound calls can also be initiated in other circumstances, such as pre-agreed callbacks and for agent-assisted engagements. This is where customers have engaged through another channel and then request help to complete a transaction, e.g. click-to-call on a web-form, where an outbound voice call is combined with cobrowsing.

Inbound Voice Channel

As inbound calls come in, it is common for the system to look at:

- The dialled number using DNIS (Dialled Number Identification Service). Companies may publish different numbers for different services, e.g. insurance, gold card, etc. to allow calls to be routed to different groups within the Contact Centre.
- The caller's number using ANI (Automatic Number Identification) - the call centre equivalent of Caller Line Identification (CLI).

It's common for callers to initially reach an IVR (Integrated Voice Response) self-service system as the first step in their journey rather than routing directly to an agent.

By looking up the DNIS (in an external database) the system can offer the appropriate options to the customer, e.g. route to the gold card team.

By looking up the ANI (e.g. in the Customer Relationship Management (CRM) system), it is possible to identify the caller's account and provide different options dependent upon its status. For example, directing the call to payments if the account is in arrears.

Once identified, the user can be verified by entering passwords or by using external services like voice biometrics before allowing them to perform any sensitive transactions.

Companies will initially want to encourage self-service and avoid going to agents for simple transactions as agents are an expensive resource.

Voice self-service can be performed by interacting using:

1. Touch-Tone Keypad (known as Dual Tone Multi-Frequency (DTMF)): 'Press 1 for balance...'
2. Speech Recognition: 'Please say "balance" for...'
3. Natural Language Understanding (NLU): say anything!

For self-service to be practical, many integration points are necessary into the company's back-end systems, such as:

- CRM for Identification & Verification (ID&V)
- Billing system for account balances
- Payment system for payments
- Order system for order tracking

For receiving payments, there is an added requirement for PCI-DSS (Payment Card Industry Data Security Standard) compliance (see later).

Where self-service is not successful or applicable, a call can then be routed to an agent. The system will automatically balance the demand across the available agents using a system known as ACD (Automatic Call Distribution) and can route more intelligently by matching the caller's requirement (harvested from the IVR, CRM, etc.) with an appropriately skilled agent (supervisors will maintain a database of agents' skills).

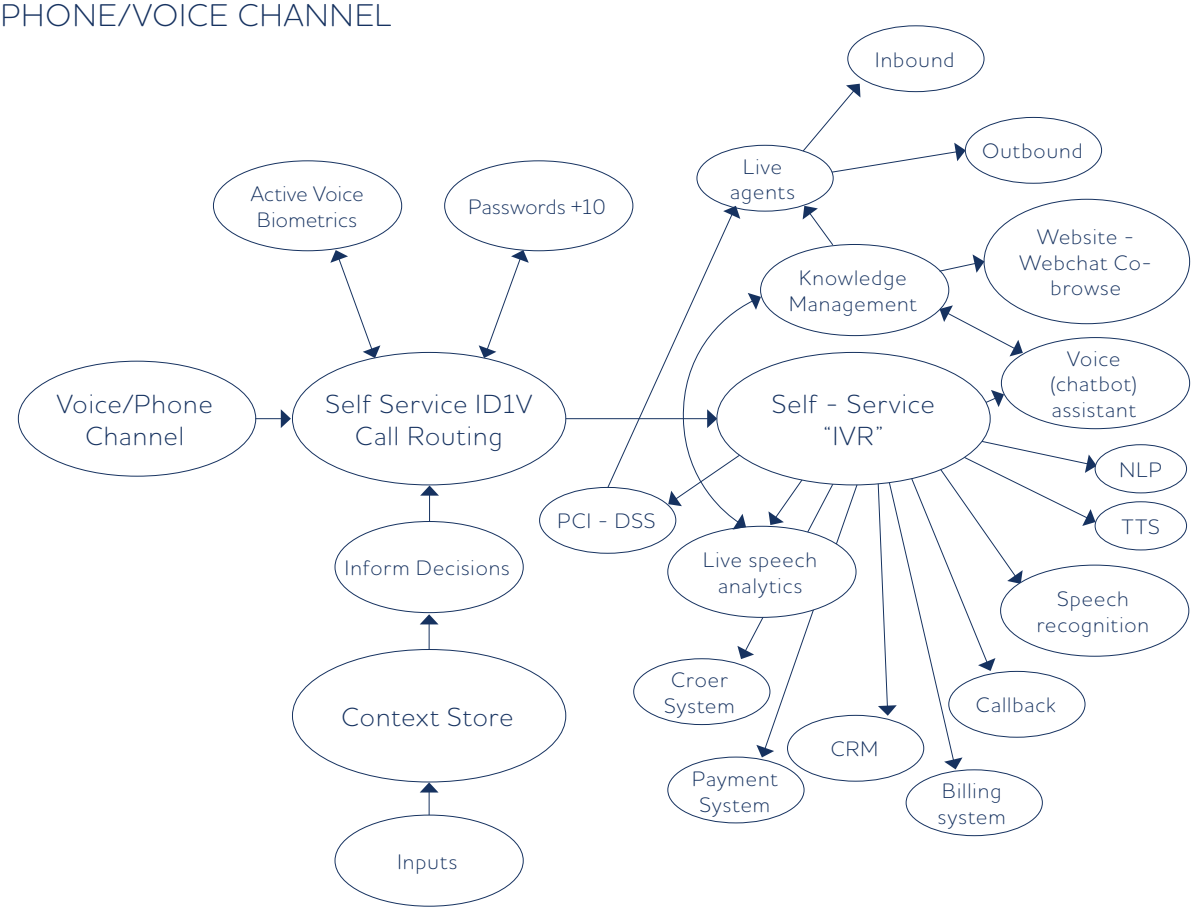
If the wait for an agent is particularly long, the system can offer a 'Call Back' option, which is often an additional application (popularised by Queue Buster). A caller can leave their number and, after the caller hangs up, the system will either keep their place in the queue and call them back when they reach the front or, alternatively call them back at a pre-agreed time.

When the call arrives to the agent, the system will also have looked up the client's records (in CRM, billing, payment system, etc.) and 'pop' that record up on the agent's screen so they can properly greet the caller and quickly access account details. This is a form of CTI (Computer Telephony Integration) and requires specialist integration work.

Voice bots (or virtual agents) can be added and will use a combination of Natural Language Processing (NLP), Text to Speech (TTS), Machine Learning (ML) and Artificial Intelligence (AI - in reality AI is little more than ML + big data) along with data from various back-end systems to perform services similar to a live agent.

Whether serviced by a live or virtual agent, a knowledge base is used to find the answer to a caller's questions. This knowledge base can be accessed manually by the agent typing in the caller's request, or can be automated using an additional technology: real-time speech analytics. In this instance, the system listens in to the call, transcribes what the caller is asking for into text and looks up the answer in the knowledge base before presenting possible answers or recommendations of 'next best action' to the agent.

PHONE/VOICE CHANNEL



There are many vendors providing inbound voice solutions.

Market analysts such as Gartner tend to group these vendors into two areas: **Contact Centre Infrastructure** (CCI) and **Contact Centre as a Service** (CCaaS).

Among the many options in both areas, prominent CCI vendors include Avaya, Cisco and Genesys (PureEngage) and CCaaS providers include Amazon, Genesys (PureCloud) and NICE (InContact).

Integrated Voice Response systems are quite often discrete platforms from the Automatic Call Distribution and almost every ACD provider will also provide IVR solutions. There are also cloud / network-based IVR systems, which can be overlaid on an existing call centre technology stack. This provides additional capacity to queue callers in the network and prerouting to various Contact Centre locations or, for example, to isolate payments from your Contact Centre technology and agents (and therefore descope PCI-DSS, see later). West Inc and [24]7 are specialist IVR technology providers.

Knowledge Management solutions are often provided by third-party specialist vendors such as eGain and Synthetix.

Outbound Voice Channel

For outbound call centres, an additional system known as an 'Outbound Dialler' is often used.

A key component of a dialler is its 'Campaign Manager', which is used to determine the outbound dialling campaign. This must be capable of delivering Ofcom compliance in the UK (or equivalent in each country).

Diallers, sometimes known as 'Power Diallers' typically refers to three modes of operation:

- A **Preview Dialler** presents information about the person to be called to the next available agent prior to dialling the number. The agent has time to prepare for the call. Sometimes an agent may be able to reject / accept the call. In other setups the call is automatically dialled after a set time.
- A **Progressive Dialler** presents the information regarding the call to the next available agent and dials the number immediately.
- A **Predictive Dialler** dials the number first (when potentially all of the agents are busy on other calls), knowing how long a call typically takes to be answered and how long agents typically take to become available. It thereby predicts that by the time the call is answered, an agent will become available and then connects the two together.

The Preview and Progressive Diallers 'know' an agent is ready before making a call. The Predictive Dialler does not but expects an agent should become available in time.

A Predictive Dialler will deliver the most efficient use of agents' time and therefore lowest cost for the company, but it runs the risk that in some instances an agent does not become available, resulting in the called party receiving a silent call.

Ofcom has rules around silent calls and the use of Predictive Diallers if dialling into / within the UK, which must be adhered to. Ofcom also has requirements for AMD (Answer Machine Detection), CLI presentation and frequency of calling repeatedly.

A number of call centre systems have built-in dialler capability (with the purchase of the right licences). Often these are only capable of delivering Preview or Progressive mode. For bigger, more sophisticated outbound requirements (and Predictive Dialling), separate diallers are used and integrated into the call centre.

Once an agent is on a call with a customer, many of the same technologies present for inbound call centres are used (knowledge base, agent desktop, PCI-DSS compliance, etc).

As with inbound voice, there are a number of vendors providing outbound voice (dialler) solutions. Similarly, some will be architected as private Contact Centre Infrastructure and others as shared Contact Centre as a Service.

Almost all of the inbound voice technology providers will provide optional (additionally licensed) outbound solutions, though some of these solutions support only preview / progressive models and cannot support Predictive Dialling.

Larger vendors who provide specialised dialler capability include Aspect, Avaya and Genesys. Specialist dialler providers include Sytel, Noetica, Rostrvm and Daviker.

Some providers will offer additional overlay functionality, such as a Campaign Manager, to another vendors' diallers. For example, Acqueon provides overlay functionality to Cisco and Amazon technology.

The Demise of the Voice Channel - Over-Exaggerated?

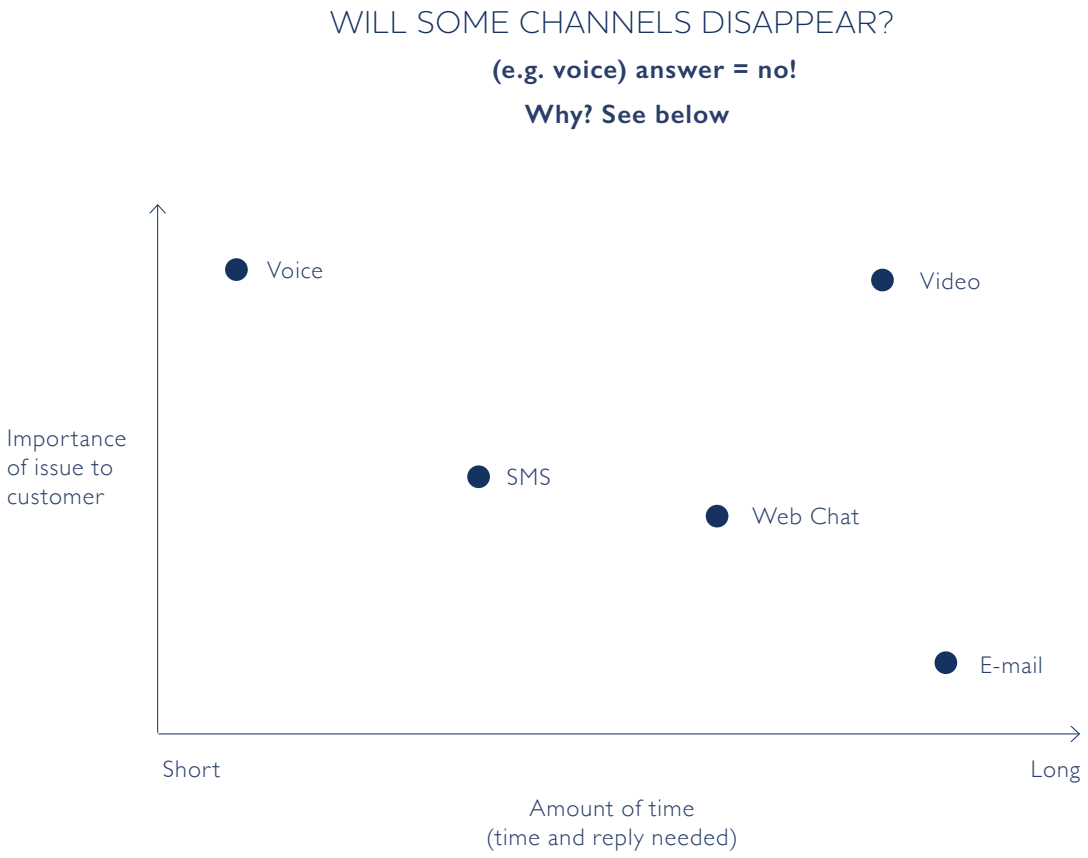
Many predict that the advent of digital channels will result in the demise of the voice channel. This is most likely over-exaggerated. Each communication channel has its place and customers instinctively select different channels in different circumstances.

This is, in part, based on the device they are on and which channels it supports, but more often it is down to the importance of the interaction to the customer and how quickly they need a response.

Urgent issues of high importance will often result in a phone call, much like needing to contact the emergency services and calling 999 or 911.

An issue may be important but not immediately urgent (for example agreeing a mortgage) making a scheduled video a fitting choice of channel.

Less important matters where a simple quick response is needed will be well served by an SMS, and less important issues with no urgency suit email.



For each business a company could draw a graph something like this. The exact positions will vary from company to company but clearly will always be a place for voice.

Also companies will want to move from self-service to agent assisted when self-service fails and customer looks to abondon.

SMS (Text) Channel

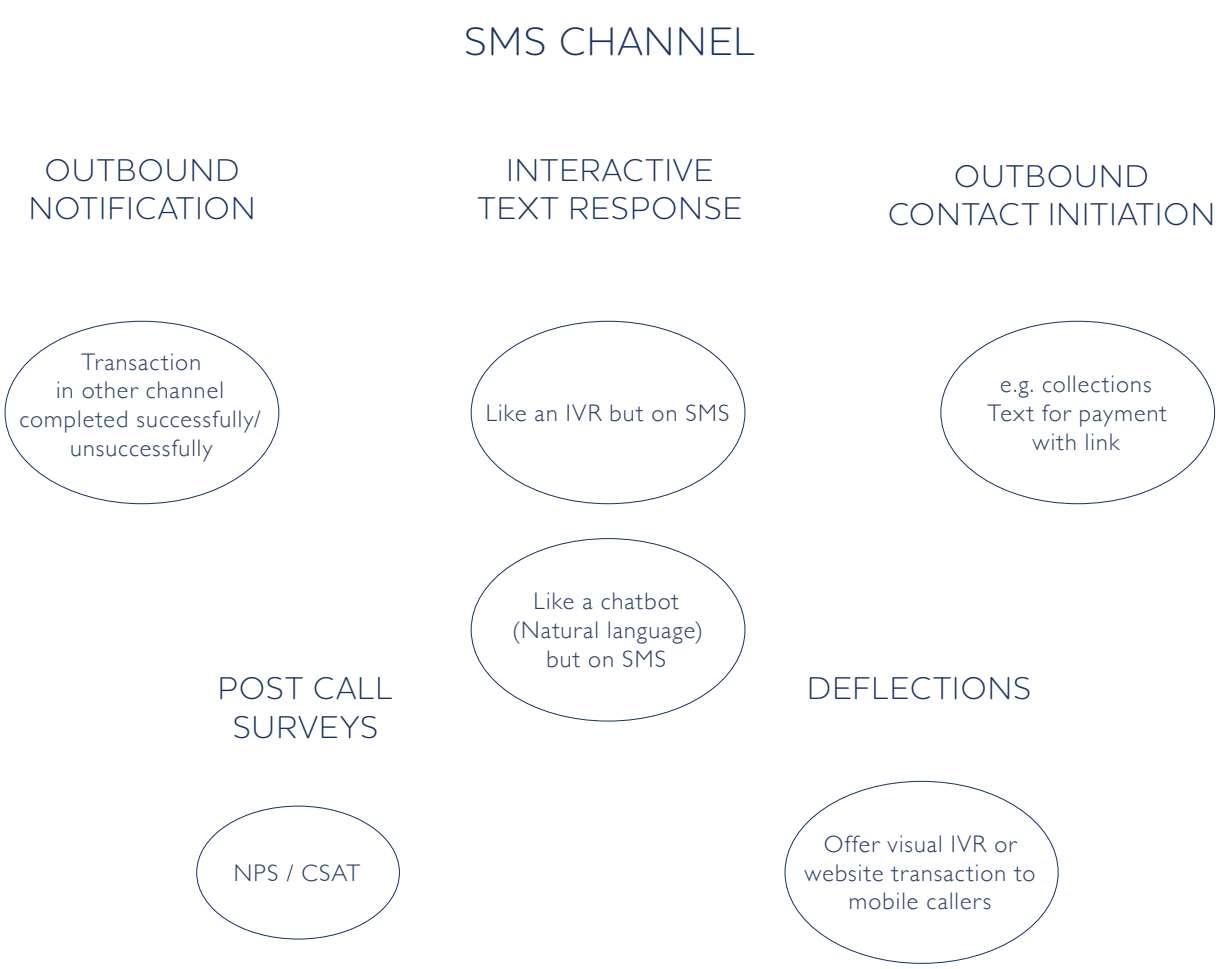
The SMS channel is often overlooked, but can be powerful due to its wide availability, speed and ease of use. It can also function very similarly to digital channels such as web chat.

SMS can most simply be used as a one-way notification as an add-on to enhance other channels. In this mode, outbound SMS messages are sent by the Contact Centre to confirm requests have been performed and to provide updates as an activity progresses through the company's internal processes. These proactive updates can avoid unnecessary incoming calls requiring progress confirmation.

SMS can also be used to perform call deflection. As a call comes into the Contact Centre, the system can identify the ANI / CLI as a mobile number and proactively send an SMS text, which includes a link to a website / visual IVR in order to satisfy their request via self-service and avoid using an expensive agent for the transaction.

SMS can become more sophisticated when used two-way, allowing customers to interact with the call centre via SMS. This could be to interact with live agents through SMS but also via chatbots.

SMS can also be used as a friendlier form of outbound contact when compared to a dialler. Research shows that people are more likely to respond to an SMS for payment collections rather than answer a call.



Digital & Social Channels

Email, web chat and Twitter are common digital channels, but more digital channels are added all the time such as Facebook Messenger, WhatsApp and Apple Business Chat.

These are typically inbound channels and similar to the inbound voice channel. The systems will distribute incoming contacts efficiently across the available agents, and may route these contacts based on finding an agent with the right skills for any given query.

Just like voice, a knowledge base is used to find the answer to a customer's questions. This knowledge base can be accessed automatically where the system looks up what the customer is asking for and presents possible answers, which can be selected and automatically pasted into the chat, or can recommend the next best actions to the agent.

With the advent of big data, Machine Learning and detailed knowledge bases, it is now possible to provide self-service for these digital channels. This self-service is delivered in the form of chatbots, which may require significant analysis, knowledge base development and Machine Learning to be effective.

Almost all vendors of inbound voice (ACD) technology will also provide support for core digital channels (email, webchat and Twitter) as part of their omnichannel / multichannel solution. As such Avaya, Cisco, Genesys, NICE (InContact) and NewVoiceMedia all provide support for digital channels.

Such is the demand for digital channels, even vendors who do not provide voice ACDs will provide support for digital channels. An obvious example being CRM providers such as Salesforce. Other specialist vendors may provide best of breed solutions for individual channels, such as Live Person for web chat, designed to sit alongside solutions from other vendors for other channels.

Omnichannel and the Need for a Context Store

In the first call centres, the only communication channel was voice. Next there was the multichannel Contact Centre. This came about as a result of digital transformation taking place in the personal communications / social media market, which impacted the business world at the Contact Centre.

This meant the call centre had to support interactions from channels beyond simple voice. This was typically digital channels such as email and web chat and social digital channels such as Twitter.

Now we have omnichannel, which refers to something beyond simply a lot of channels. It's how those channels work together, how customers can hop between channels and have a common experience, how historic interactions in one channel can be taken into consideration in another, and understanding a customer's journey across all of your channels.

Of course, when thinking of omnichannel in this way, there are other interactions customers have with your business / brand that you may want to track and understand. For example, before they reach your Contact Centre, what have they been doing on your website or mobile app? Which branches / stores have they visited? Have they recently received a marketing promotion or a bill?

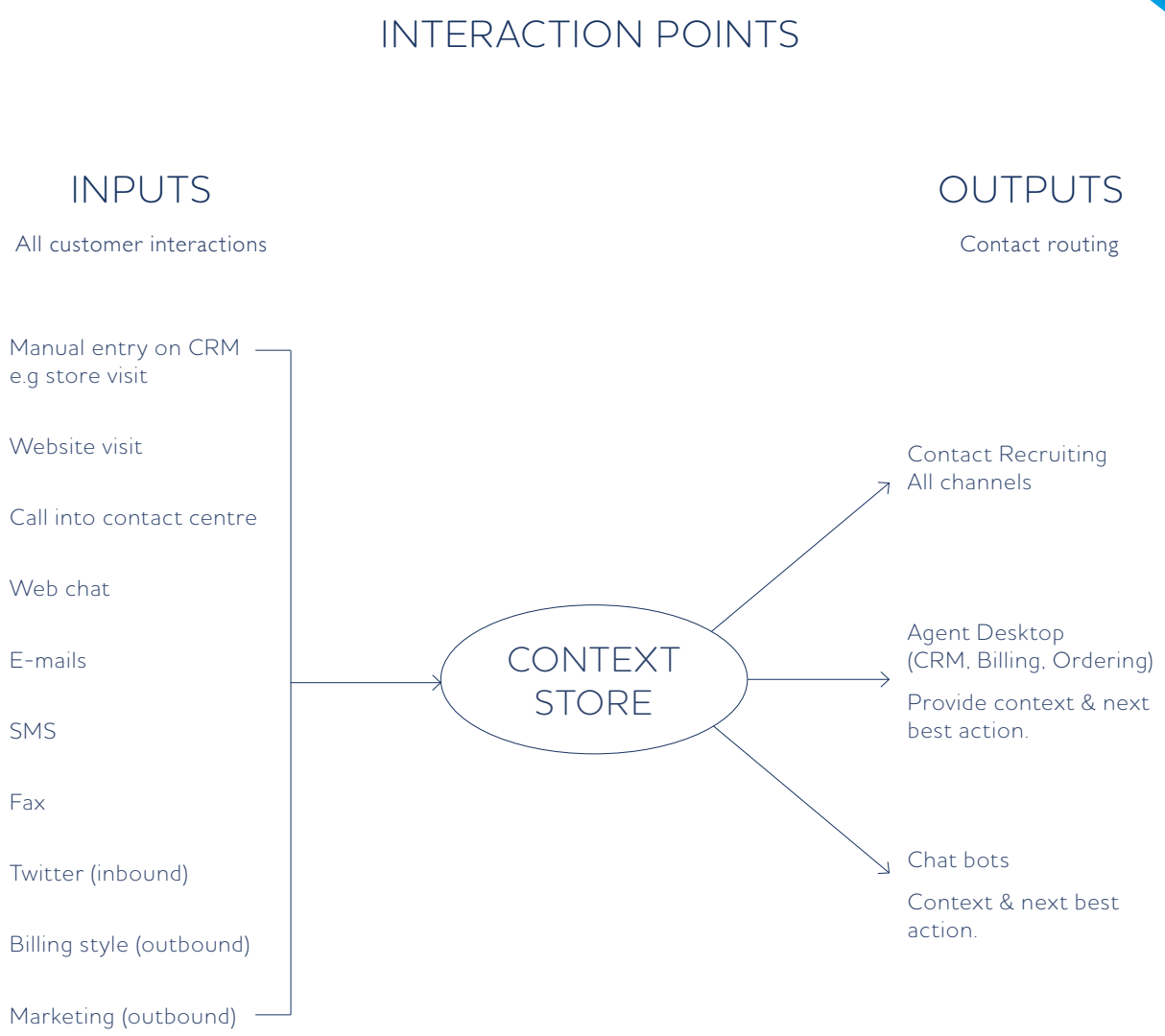
For an omnichannel solution to work, therefore, a key to success will be a single Context Store / interaction store.

A Context Store allows:

1. Self-service engine (chat bots, IVR) to access that interaction history to anticipate, personalise and automate the self-service journey.
2. Contact routing based on previous interactions across all channels. (Each channel could have its own routing engine, so long as they all have access to the other channels' interaction histories through the Context Store).
3. Reporting / Management Information / Customer Journey Analytics across all channels. Despite having different technologies for each channel, the transaction histories are all stored in one place and so reporting data can easily be taken from there across all channels.
4. Present history / customer journey to agent (screen-pop, agent desktop) as customer comes through to an agent.

If each of the vendors in your omnichannel, multi-vendor solution provides its own discrete interaction history / Context Store, whereby other channels cannot access its history and it cannot access theirs, then most of the automation, customisation and personalisation opportunity of an omnichannel solution is lost.

Hence having a single repository for all interaction histories is key. This Context Store may have multiple integration points.



Customer Experience (Management) Platform

An omnichannel environment offers the opportunity to craft a series of (self-service) interactions, using multiple channels to support a more personalised customer experience across a customer journey for a particular business process.

The journey can be mapped across various channels, with different inbound and outbound channels supporting different stages of the journey.

This demand is met by a Customer Experience Management (CXM) platform / Customer Experience Platform (CXP). CXM/CXP vendors include Nuamedia (CamlinConnect), Jacada, Aspect (CXP) and Genesys (Intelligent Automation).

Chatbots & Virtual Agents

With improvements in technology, particularly Natural Language Understanding (NLU), itself underpinned by Machine Learning and big data, certain Contact Centre interactions can now be dealt with 'robotically', with a positive customer experience and, of course, without the wait often associated with speaking to a live agent.

We tend to refer to these robots as chatbots or virtual agents, the latter being the preferred term implying a quality of experience that a chatbot may not be thought to deliver.

Virtual agents benefit both the customer and the Contact Centre provider. They improve customer experience by being able to solve customer requirements without the need to wait for an agent to be available. Virtual agents also benefit the Contact Centre by allowing simpler transactions to be handled without the need for a live agent. The number of expensive live agents needed can therefore be reduced, or they can be refocussed on tasks which are revenue generating or more complex in nature.

Before virtual agents, simple chatbots and speech-based IVRs (which use Automatic Speech Recognition (ASR) to recognise individual words spoken) either used directed interactions or keyword recognition.

Directed interactions may involve saying or typing 'balance' for an account balance, while keyword recognition would identify the word 'balance' and provide an account balance irrespective of other words - not useful if the sentence is, "My account balance is incorrect."

The keywords approach has evolved into the use of 'grammars'. Grammars are collections of keywords that prescribe which action the system responds with. Grammars are defined by a team of specialists, who manually and continually define and redefine those grammars. If your request does not correspond to the words in the grammar, the system cannot understand your request.

Virtual agents on the other hand use Natural Language Processing to understand the intent of the whole question, rather than looking at it as a collection of individual words. This allows customers to interact more naturally with the virtual agent as they would with a live agent. It also allows the virtual agent to address more types of queries than previous self-service technologies and is more likely to be used by the customers.

Often, we separate virtual agents into two types, those that are text-based (and sit in digital channels) and those that are speech-based (and sit in the voice channel, often replacing traditional IVRs). However, speech-based virtual agents will usually mean a two-stage process where first the speech is transcribed to text using Automatic Speech Recognition, which the Natural Language Processing system understands. The system then decides the best answer (from its knowledge base or other look-up) and the response is provided by another two-stage process i.e. delivered as text, which is then converted back to speech using a Text to Speech engine.

Since, fundamentally, all virtual agents, deployed across whichever channel (voice, web chat, Facebook Messenger, SMS, WhatsApp etc.) Are effectively text-based, it is possible to deploy one virtual agent engine to support all of your communication channels. This is faster, more consistent and more cost effective than specific virtual agents for each and every channel.

It is worth noting that the quality of the Text to Speech engine can have a marked effect on customer experience. No matter how clever the rest of the technology is, if the system sounds too robotic or provides an American accent when you expect British, the customer experience can be damaged.

No virtual agent can be effective without a Knowledge Base to work from. A virtual agent essentially needs the same 'training' or resources that a live agent needs. Often the same Knowledge Base used by your live agents and/or your website Frequently Asked Questions (FAQs) can be used by chatbots. A Knowledge Base can also be developed using AI techniques, i.e. Machine Learning and big data. By taking recordings of agents' calls or transcripts of digital interactions, the virtual agent AI can build, maintain and improve its own Knowledge Base by learning how the best live agents successfully answered given queries.

Chatbots can be used not only to support customers directly, but by also assisting agents to find answers within the Knowledge Base or recommend next best action.

Customers are becoming ever more comfortable interacting with virtual agents because of their experience with virtual assistants such as Amazon Alexa on Echo devices, Apple's Siri, Google Assistant and Microsoft Cortana. In fact, the engine behind Amazon's virtual assistant (Alexa) and their virtual agent is the same engine: Lex. Hence it would be possible to have a common experience across Amazon Echo devices, virtual agents in the Contact Centre and web chat with Amazon Lex.

Virtual agents may struggle with the specific vocabulary used in a particular market sector or business, such as product names. Speech IVRs (using ASR and grammars) are better at coping with these specifics but are limited in the types of queries that they can address, and can provide less pleasant customer experience compared to virtual agents.

The challenge, then is how to exploit the better customer experience and increased flexibility of the virtual agent with the accuracy of a speech IVR. Correctly designing the speech application is as important as the technology behind it. It is therefore important to find a partner to develop these applications who possesses both the virtual agent experience and the (IVR) speech application experience.

When looking at virtual agents, language support may be an important factor when considering which technology to use. While English is prevalent, you may need to seek smaller niche players to get the languages, dialects or even accents you require.

Many of the biggest, most well-known technology companies provide virtual agent solutions such as Amazon and Microsoft. Of course, providers of broad Contact Centre technology such as Genesys and Avaya provide virtual agents and there are niche players who focus solely on best-of-breed virtual agents, for example Creative Virtual and Omilia.

Demise of the Live Agent – Another Over -Exaggeration?

Many predict that there is migration from live agents to self-service and bots. This offers the possibility of faster response times (good for customers) and lower cost of delivery (good for the Contact Centre provider). This requires investment in technology (good for technology providers!) and no more agents (bad for agents!).

However, this isn't the whole story.

While virtual agents have the potential to significantly reduce the volume of calls / contacts to live agents (often by 40%) by handling the simpler, repetitive, transactional queries, the remaining calls are more likely complex, one-off issues specific to that customer, which a live agent is much better at resolving, and now has the time to address correctly and solve first time.

Therefore, the result is that the agents will receive fewer calls / contacts, but those calls are often longer and more valuable in nature. The calls they do take can now be given the time they deserve to ensure First Contact Resolution and a superior customer experience.

It may be worth noting the likely increase in Average Handling Time and that this increase is not a negative, but instead is inherent in delivering improved Net Promoter Scores and First Contact Resolution KPIs.

With the newly created capacity and because live agents are more effective where self-service fails, increasingly companies are looking to inject live agents into a self-service engagement at the right point to make sure the self-service transaction completes successfully. This is sometimes referred to as 'agent-assisted self-service'.

For example, complex web-forms, like mortgage applications, can have very high dropout rates. One bank has experienced an 80% drop-out rate of online applications being abandoned.

There are similar challenges in other sectors, where self-service web forms for high-value products or services such as holidays have high dropout rates, and any improvement in completion rates will have a significant financial benefit to the business.

Companies are looking to invest in integrating outbound Contact Centre channels into their web forms with the capability to trigger these contacts when customers begin to hesitate while filling out forms. This offers the customer the ability to communicate with a live agent through web chat, voice or video allowing the agent to assist the client using cobrowse technology.

In this example, live agents might be repurposed from receiving mundane calls on simple transactional requests to supporting outbound sales engagements to complete high-value applications.

Any, even small, increase in the number of completed applications with a high-ticket value as a result of agent-assisted self-service, is more than worth the investment in agents' time. The beauty of such an approach is that the use of the live agents is very focused on a key 'moment of truth' in the customer journey / sales cycle, where the customer has confirmed their interest in buying.

The diagram shows the two sides of this coin, with self-service and deflection being a migration from live agents to automation for non-revenue generating, customer service engagements and, on the other side, new live agents being introduced into revenue generating engagements in order to maximise sales conversion rates.

SELF-SERVICE & DEFLECTION

Voice - IVR

Voice - Visual IVR (deflection)

Voice - Voice Assistant (lex)

Voice - SMS (deflection)

Web Chat - Chatbot

E-mail - Chatbot

Avoid line agent

↑

Channel Hopping

↓

To line agent

ESCALATION/ AGENT ASSIST

trigger point

Web form - Co-browse
- Voice
- Webchat
- Video

Voice assistant - Live agent call

Chatbot - Live agent webchat

Smart app phone - Agent - Voice
- Video
- Webchat

check for help

At Connect, we can work with you to introduce bespoke Contact Centre technology solutions that will transform your business. **Get in touch** to discover what is possible.

2. Reporting, Compliance & Feedback

Agent Desktop

A key part of any Contact Centre solution is the 'Agent Desktop', which is the PC application in which the agents do their work.

Because companies have numerous systems (CRM, billing, payment, ordering, etc.) which may need to be accessed to serve a customer, the agent desktop provides a means to work seamlessly out of them all, simultaneously reducing the need to switch or cut and paste between applications.

This means the agent desktop needs back-end integration into these various systems.

The agent desktop will also provide agent voice controls (hold, transfer) and features such as ready/not ready and reason codes to enhance Contact Centre management and reporting.

The agent desktop will also often provide Contact Centre information (number of callers in queue, wait times, etc).

Importantly, this desktop provides the toolset for improving the agent's ability to help the customer. It uses various technologies like CTI to integrate with the Contact Centre environment and present the agent with relevant information about the customer they are helping.

As a call comes in, CTI takes the caller's phone number, looks up that number (in CRM, billing, payment system, etc.) and 'pops' that customer's record up on the agent's screen. Similarly, when using digital channels, if the customer can be identified from their email address, their records can be screen-popped. Once that customer is identified, it can be extremely useful for the recent contact history to also be presented to the agent (e.g. what they did in the IVR, chat bot or interaction in any other channels before reaching the agent).

Unsurprisingly, providers of ACDs and multichannel Contact Centre technology platforms provide agent desktops optimised for their specific technology. Avaya, Genesys, Amazon and Cisco all provide agent desktop solutions. Some third parties like Upstream Works provide enhancements to those vendor desktops, in Upstream's case, Cisco Finesse. Similarly, here at Connect Managed Services, we have developed an enhanced agent desktop for Amazon Connect for some customers.

However, in multi-vendor, best-of breed environments, it can make sense to select an independent agent desktop such as those provided by Eckoh (Coral), CallScripter (Synergy) and Jacada.

Supervisor Functionality

Supervisors often require additional voice features to help them manage and coach their agents, such as the ability to select an agent in order to listen in to their call and 'whisper', i.e. coach the agent by talking to them without the caller hearing.

The supervisor may also be able to see the agent's screen and assist them with their agent desktop.

The agents themselves may also be provided with the facility to request supervisor support, allowing managers to see the agent's screen, hear the caller and whisper instructions to the agent. Third-party products have been developed solely for this purpose, e.g. 'Supervisor Assist' by CaféX, which can be useful when an agent receives a problem call, for example if the agent suspects they have a fraudulent call attempting to access an account, they could call in the fraud department to help identify and contain the fraudster.

Another common toolset in this area are Wallboards, which as the name suggests pushes relevant information for supervisors, agents and managers onto a screen on the wall. However, it is also becoming ever more common to include such displays on supervisors and managers desktops computer screens. RMG, Inova & Spectrum specialise in wallboard solutions.

A key ingredient for supervisor solutions is the collection and reporting of Contact Centre data.

MI, Reporting & BI

Management Information and Reporting are integral to the performance of a Contact Centre.

Management Information Systems (MIS) are key to any call centre, which requires a toolset that gives you the key KPI metrics your call centre supervisors use to manage their team. This is often combined with Workforce Management (WFM) through which the call centre workforce is managed (establishing optimum number of agents covering a skillset mix, etc.).

Reporting requires input from across multiple systems which are then correlated to provide real-time reporting (often delivered to wallboards and supervisor screens), historical reporting, as well as contact analytics / customer journey analytics.

Clearly the wider Contact Centre technology vendors like Avaya, Cisco, Genesys, Amazon will include reporting tools.

However, with the advent of big data and the prevalence of Business Intelligence (BI) toolsets, the wider enterprise has caught up with the Contact Centre in terms of data analysis and reporting. In this case, rather than having separate reporting and analysis across the wider business and the Contact Centre, it is becoming increasingly common for companies to look to export / integrate raw Contact Centre data into their preferred BI toolset.

MI/BI Reporting

With access to customer journey data, it is also possible to use that data on an individual's recent interactions to inform subsequent contact routing decisions. In fact, not only is this possible, it is highly desirable, especially in an omnichannel environment.

Voice of the Customer & Post-Call Surveys

Voice of the Customer (VoC) is defined as a term used in business and Information Technology to describe the in-depth process of capturing customer's expectations, preferences and aversions. However, in the Contact Centre context this is often simplified to methods for collecting customer feedback.

Focussing on customer experience is only useful if you can measure it, which is why Contact Centres deploy Voice of the Customer technology. There are numerous measures of Customer Experience, such as Customer Satisfaction (CSAT), Net Promoter Score and Customer Effort Score (CES). These are measured by surveying your customers.

In the Contact Centre, these surveys are often requested after an interaction (call, web chat, etc.). The challenge is how best to request the surveys in order to maximise response rates. Most customers don't elect to take these surveys and those that do may not be a representative sample, as complaints are more readily reported than praise.

Surveys can be useful from both a Voice of the Customer perspective and in order to measure the quality of service provided by agents, virtual agents or self-service toolsets. In this scenario, the post-contact survey technology is only really valuable if it is integrated into the wider call centre technology. The specific engagement can then be correlated with the agent in question (virtual or live), the recording and the survey results for subsequent analysis and potentially identifying training / improvement opportunities. This is also a useful measure to validate internal scoring and coaching.

Surveys can be in the same channel, directly at the end of the interaction (a post-call voice form or a series of standardised questions at the end of a web chat), a different channel straight after the interaction (an immediate SMS) or could be through a different channel, some time after the interaction (an email the day after a voice call into the service centre). These different approaches all have different advantages and disadvantages, and more than one method can be selected, with different methods for different types of interaction.

Rather than simply using the tool for measurement capabilities, it may be valuable to also use it as a mechanism to recover poor customer experience, for example providing an immediate response to any survey where the customer has given a particularly low score.

Workforce Optimisation (WFO) & Workforce Management (WFM)

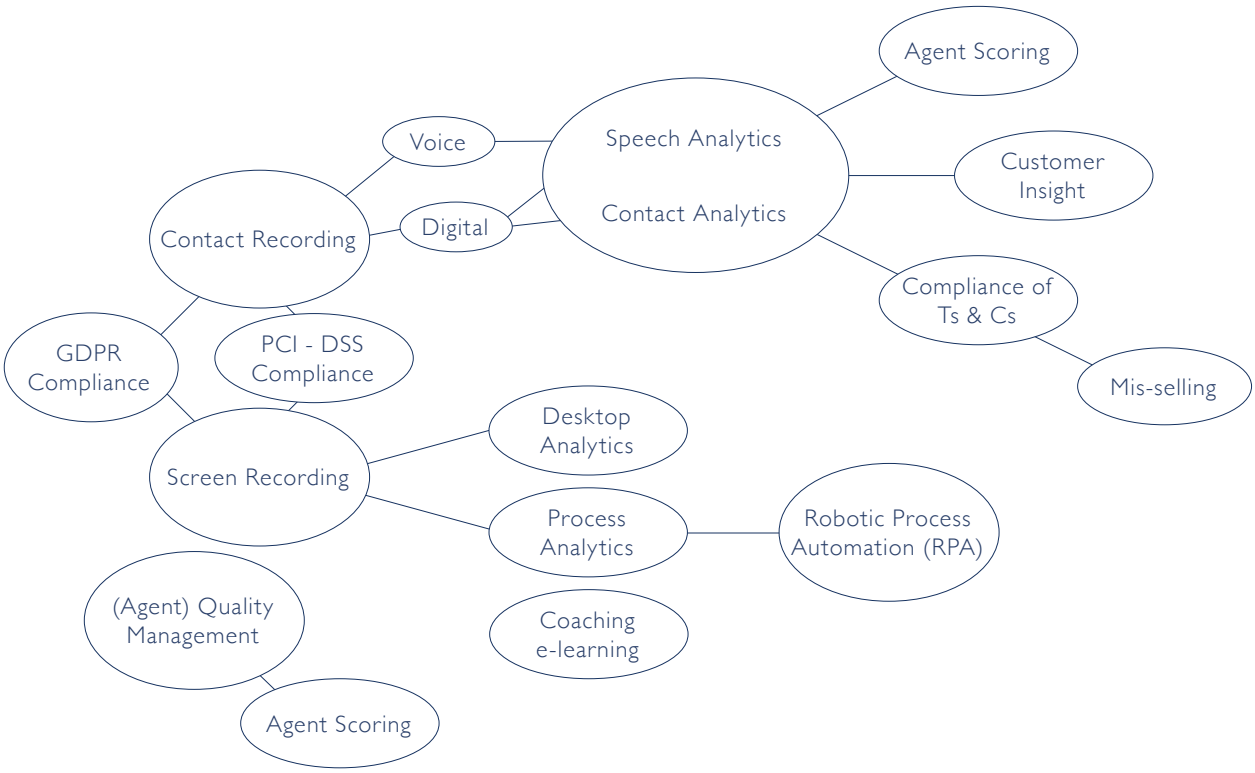
Workforce Optimisation is almost an industry all by itself with companies such as Verint, NICE and Calabrio specialising in this area of the Contact Centre.

Much of the functionality stems from the recording function. WFO suites provide the ability to record voice calls and other digital contacts as well recording what the agent does on the desktop (how they interact with business applications, etc).

Once recorded, various insights can be gained.

Supervisors can select and review recorded calls to judge the quality of their agents (Quality Management) and can then apply scores to calls (score cards). With machine learning, speech analytics and so on, this score carding can be done automatically. Speech analytics can check calls to ensure that the agents are saying set phrases such as the various Ts & Cs fully and correctly.

WORKFORCE OPTIMISATION (WFO)



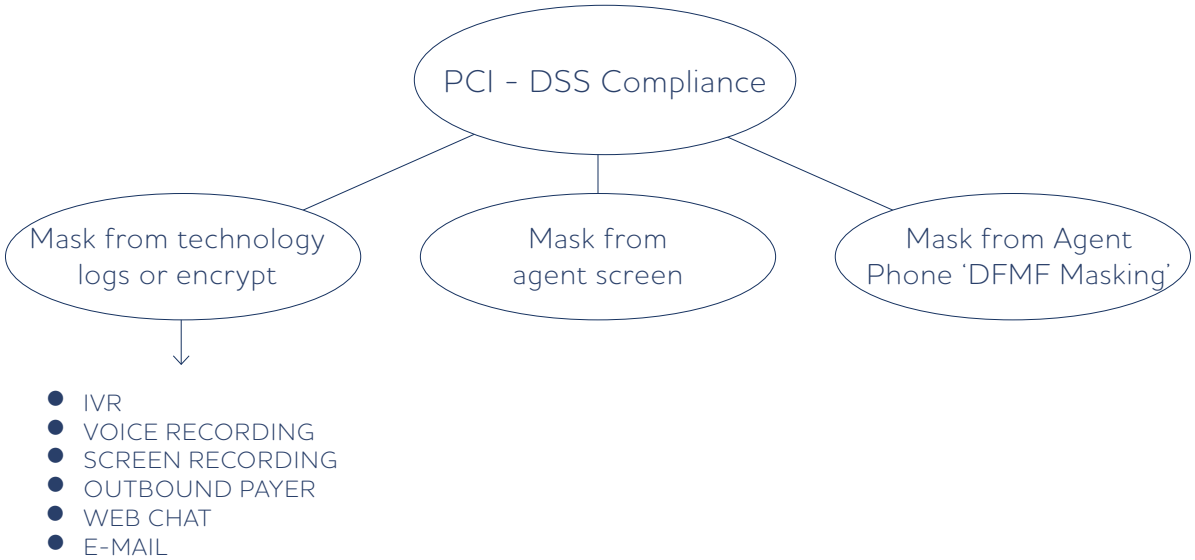
Workforce Management is the toolset through which the call centre manager plans future shifts relative to predicted workloads (optimum number of agents covering correct skillset mix, etc).

WORKFORCE MANAGEMENT (WFM)

- Shift planning
- Demand planning
- Holiday planning
- Training planning
- Shift swaps
- Forecasting
- Scheduling
- Intraday
- Real-time adherences
- Self-scheduling

PCI-DSS Compliance

Any business taking payments in a Contact Centre will need to overlay technology to meet Payment Card Industry Data Security Standards compliance, to ensure that systems do not retain Cardholder Data (CHD) and that agents cannot hear or see such details.



Specialist technology vendors have emerged to address the requirement to mask Cardholder Data from the agents while taking payments. When taking a card payment by phone, a separate IVR system is inserted into the call with the agent, allowing the customer to provide credit card details using DTMF tones, which are automatically masked by the system, so the agent is unaware of the digits entered. Companies such as Semafone, Syntec, PCI-Pal and Aeriandi provide such technologies.

Similarly, if these details are automatically entered onto the agent's desktop applications, each digit is masked with an asterisk.

AI in the Contact Centre

Artificial Intelligence or AI is the new buzz word, not only in the Contact Centre industry. If you believe the hype, it is a magical panacea, which, of course, it is not.

AI can be most easily thought of as a combination of Machine Learning and big data. Contact Centres are full of historical data - both structured and unstructured - and so can be thought of as one of the original big data environments. AI is now available to the masses through what is in effect 'Machine Learning as a Service' (MLaaS) from the likes of Amazon, Google and Microsoft. So, the combination of that Contact Centre data with the easy access to Machine Learning makes the Contact Centre an ideal place to exploit AI.

Data historically used for one purpose (for example voice recordings which are used for quality management) can now be used for another (in the case of voice recordings, through transcription, sentiment analysis and Natural Language Understanding to provide customer journey analytics) and combined with other data sources (e.g. CRM, website etc) then analysed by AI to find correlations / patterns (for successful sales, for example). Similarly, those insights can be used to better inform contact routing strategies or to offer more personalised self-service options.

AI and Machine Learning can be applied to all sorts of areas and there are many vendors in this space. Amazon, Google and Microsoft are obvious examples. There are also specialists who are tightly focused on the Contact Centre with specific, niche offerings. Genesys recently acquired Contact Centre AI pioneer, Altocloud, which looks at real-time Contact Centre data to identify Next Best Action for the agents. Afiniti and Mattersight (now part of NICE) apply AI to better match customers and agents to deliver positive experiences for the customer and more successful transactions for your business.

However, some of the most successful implementations of AI have come from companies looking at their own challenges and applying AI / ML to resolve those issues.

Ocado, the innovative online retailer, provide a wonderfully simple case study, which really shows the power of applying AI to solve tricky Contact Centre challenges.

The specific challenge for Ocado was around meeting their desired service level for the email channel. What may be fairly unique to Ocado is that they receive a lot of emails praising their service. Ocado felt they were not responding fast enough to complaint emails as they were often busy processing positive emails. Ocado wanted to be able to prioritise complaint emails in order to deliver a tighter service level on responding to complaints. This was a problem that traditional approaches had failed to address, but one which AI potentially promised to resolve.

Applying Machine Learning, neural network and sentiment analysis to historical email interactions with customers, the AI was able to learn, to a high degree of accuracy, which emails were complaints and which were praise. Using this new capability, the AI could then identify complaints from new incoming emails and prioritise those emails to provide a better service level for complaints, meeting the desired business outcome.

Interestingly, the only issue they still faced was British sarcasm, which evaded the AI's sentiment analysis capabilities!

Their solution actually led to Ocado winning a Silver award for 'Best Innovation in Technology' at the European Contact Centre and Customer Service Awards in November 2017.

You can find out more about the Ocado story here.

Read on to discover how to select the right vendor, partner and approach for your Contact Centre transformation.

3: Selecting Vendors, Partners & Approach

Uptime & Reliability

No matter how clever the technology, if it's not running or not working properly, it's useless. If the elements stop talking to each other, they can't provide what you need them to deliver.

That's why you need to ensure you have a highly reliable system, with maximum uptime. That uptime needs to be across the whole system that supports a business process and not just the constituent parts. It's no use each individual component being 'up' if the links between the components do not work.

Uptime is typically determined by two factors: how well the solution is architected to ensure that a single failure does not allow an outage, and how quickly issues can be resolved once they occur.

One key design principle that we prize is to design for supportability. Many vendors will design their solutions to showcase the latest, flashiest technology but the resulting solution is all too often unreliable. All designs should be created with availability and supportability in mind.

In terms of supporting such environments, gone are the days of deploying engineers on site. This model is simply not costly effective, nor does it provide the best possible service assurance.

The technology needs to be managed and monitored proactively. Many of the traditional monitoring toolsets are optimised for computer or networking infrastructure and not particularly useful when managing a set real-time Contact Centre application. Contact Centre management tools are often very vendor-specific, perhaps only monitoring a single vendor's portfolio, which is likely to leave you with blind spots in your technology environment. Whichever of these toolsets you use, you will need to employ Contact Centre engineers to be able to filter through the sea of events generated by these systems, determine which of these are important and then start the diagnosis and recovery process.

In reality, unless you are a technology business this investment is not likely to be cost-effective. Far more attractive will be to find a partner who has the experience, tools, processes and people focused on keeping this kind of technology working perfectly.

Technology Vendor Selection

Contact Centre technology vendors are grouped into two areas: Contact Centre Infrastructure and Contact Centre as a Service.

Contact Centre as a Service solutions are designed to be delivered solely as a multi-tenanted, shared platform delivered from the cloud typically using a consumption-based commercial model.

While historically Contact Centre Infrastructure platforms were designed to be deployed on premise using a perpetual (CapEx) licensing model, now the majority, if not all, of the CCI solutions have the flexibility to also be delivered in your centralised data centres as a private cloud or even as a private instance in a public cloud with either a CapEx (perpetual) or OpEx (subscription) licensing model.

Hence it is possible to deliver CCI in a very 'cloudy' way. An obvious example is Cisco's UCCE Platform which has been adopted by many telco's (BT, Verizon, Vodafone, Orange, AT&T) to provide CCaaS services to their clients.

As with all technology decisions, no single technology is the right answer for every business. We need to understand the particular benefits of CCaaS and CCI to select the most suitable solution for a business.

Benefits of a CCaaS approach include:

1. Economies of scale by sharing platform with other companies
2. Flexibility to scale up and down
3. Consumption-based cost model
4. Speed to deploy
5. Less reliance on internal IT to make changes

Generally, businesses with smaller Contact Centres will be attracted to CCaaS because of cost savings. Being part of a shared environment allows them to benefit from the economies of scale that they cannot achieve on their own.

Larger Contact Centre businesses already have this economy of scale, so there is less benefit, despite the limitations associated with sharing a platform with other businesses.

When selecting a single CCaaS provider, compromise is almost always part of the outcome. No single CCaaS provider can honestly boast that every element of their offering (call routing, outbound, IVR, Speech Recognition, Text to Speech, Natural Language Understanding, AI, WFM, speech analytics, web chat, email routing, video agent, cobrowse, MI, etc.) is the best in the market or best suited to your particular business model or customer profile.

CCaaS solutions are often designed to be more self-contained and less dependent on the company's internal systems. This often means less, more generic integration into your corporate IT systems. This light-touch integration can mean manual activities persist, driving additional costs, which at a larger scale can become prohibitive.

Larger Contact Centres may find consumption-based cost models as attractive as smaller Contact Centres do, eliminating expensive one-off license fees or periodic surprises like unforeseen upgrade costs.

Some of the commercial advantages of CCaaS cost models to smaller call centres may in fact be disadvantages for larger call centres. For example, a per minute, per call cost model can become prohibitively expensive for call centres with high call volumes.

A traditional approach to Contact Centre Infrastructure enables you to select individual technologies, which perfectly suit your business and integrate these together to provide a best of breed.

Benefits of a CCI approach include:

1. Ability to build a best-of-breed solution that is customised to your business
2. Cost model becomes more efficient than usage models at scale
3. Ability to tightly integrate into internal systems to drive better personalisation / customisation and lower operational costs moving forward

The cost model for CCI is traditionally based upon initial CapEx consisting of one-off licence fees and professional services, then OpEx associated with ongoing support services which are periodically interrupted with spikes of CapEx associated with upgrade costs.

These upfront CapEx models can be prohibitive for smaller Contact Centres and the periodic upgrade budgets difficult to find, which is why CCaaS is popular at this end of the market. However, these periodic CapEx investments can easily be converted to an OpEx model by a competent partner allowing you to get the best of both worlds.

Contact Centre technology environments are multi-faceted and, with the onset of multichannel and omnichannel environments, are becoming evermore so.

If differentiating your brand through customer experience is your aim, this may be harder to achieve with a standardised, mass market (CCaaS) approach but more achievable with a best of breed model.

A CCI approach allows you to select individual technologies, which perfectly suit your needs, for each area of the Contact Centre (call routing, outbound, IVR, Speech Recognition, Text to Speech, Natural Language Understanding, AI, WFM, speech analytics, web chat, email routing, video agent, co-browse, etc.). These technologies may be cloud delivered or on-premise delivered or a mixture of both. If you desire a cloud solution, many platforms, if not natively cloud, can be hosted in cloud infrastructure, like AWS, and procured on a subscription basis and hence feel very 'cloudy' indeed.

The Journey

Many consultants, analysts, system integrators and technology vendors can tell you what the ideal destination looks like. The trouble is that very few of them can help you get there successfully (quickly, completely and cost-effectively).

The journey from where you are today to a digitally transformed, personalised, customer experience focussed Contact Centre is the real challenge.

The Big Bang Approach

All too often, the proposed journey is the 'Big Bang' approach. Replace your existing environment and build a completely new one. That involves rebuilding everything you already have, retraining all your staff, redesigning processes and providing new capabilities.

This approach is usually predicated upon an RFP process. In such a process no bidder is able to truly understand your existing environment, your real challenges and what would perfectly suit your business and your customers.

The model is also flawed as it is unlikely that you can realise any benefits until the whole new platform is built. Designing, building, testing and commissioning new environments takes time. Hence the time to value is long - sometimes terribly long.

Because the supplier doesn't really know your current environment very well, more often than not whatever is built to replace it doesn't deliver all the capabilities you enjoy today. While you may benefit from new capabilities, your existing capabilities may have regressed, making some business units hesitant to move their service delivery from the old Contact Centre platform to the new one.

An Alternative Approach

In our experience, we have found that an 'evolutionary' approach to Contact Centre transformation not only provides better value but also delivers that value more quickly, more completely and will often cost less than a 'Big Bang' approach.

Taking your existing Contact Centre infrastructure 'to the Cloud' and blending in next generation (omnichannel, automated, personalised) services can provide the flexibility, commercial benefits, integration capability and personalisation to meet the demands of the new digital economy.

If your transformation partner were to first support the existing technology environment, it would allow that partner to truly understand how your current Contact Centre works. That partner can also put out any fires in the existing Contact Centre technology to remove any encumbrances stopping your teams from focusing on the transformation ahead.

Similarly, there are always pressing needs or valuable quick wins, which, if implemented now, would deliver significant value to your business. So why not overlay these new capabilities onto your existing estate and generate value immediately? These technologies can then continue to deliver value and become part of the transformed environment.

Coincidentally, we find that the evolutionary approach is also much easier for your people, namely agents, supervisors and Contact Centre managers, to cope with.

An evolutionary journey may be seen as three simple steps:

1. Stabilise your existing environment
2. Enhance your existing environment
3. Transform to a digitally savvy, customer experience focussed, personalised Contact Centre

Before starting any journey, you want to resolve any outstanding problems in your technology, hence where 'stabilise' comes in.

Now that you have a stable and reliable platform you can 'enhance' that environment.

One such enhancement may be to simply take your existing on-premise Contact Centre infrastructure 'to the Cloud' to improve flexibility and commercial predictability. This can be provided as an upgrade rather than a replacement, which of course is less costly than buying new, with reduced disruption, reduced training and reduced re-integration. As part of this process, move the applications from your data centres to a cloud infrastructure, i.e. AWS and, assuming the application vendor supports it, convert from perpetual to subscription licensing.

Other enhancements are likely to be specific to your own business imperatives. However, a common enhancement is to overlay a speech-based virtual agent technology, such as Amazon Lex, upon your existing Contact Centre to automate a significant proportion of incoming calls.

With a stable, enhanced, more 'cloudy' platform, which is already delivering early value, you can now continue that journey to complete transformation, one technology at a time in an order based on whatever delivers value the quickest.

To discover how we can help you to transform your customer service capabilities using Contact Centre technology, **get in touch** today.