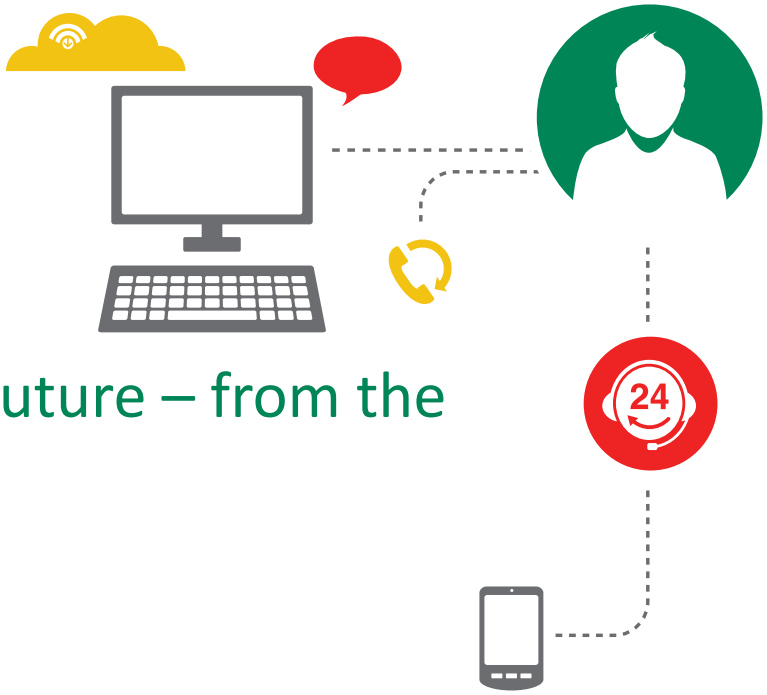


Visual IVR

Tales of the past and future – from the Voder to Visual-IVR

Customer Service. Simplified.

Visual IVR

Tales of the past and future – from the Voder to Visual-IVR

Interactive Voice Response (IVR) systems are one of today's most significant innovations that have largely contributed to technology advancements since the early days of computers. With roots deep-seated in voice recognition and computerized speech technology history, IVR's story is as fascinating as is its future.
This complimentary white paper honors the history of IVR by reviewing some of its founding stories and by surveying its pro's and con's. It also provides a glimpse into the future...

The Original, 1939, Voder Machine

The "Voder" and how IVR came to be

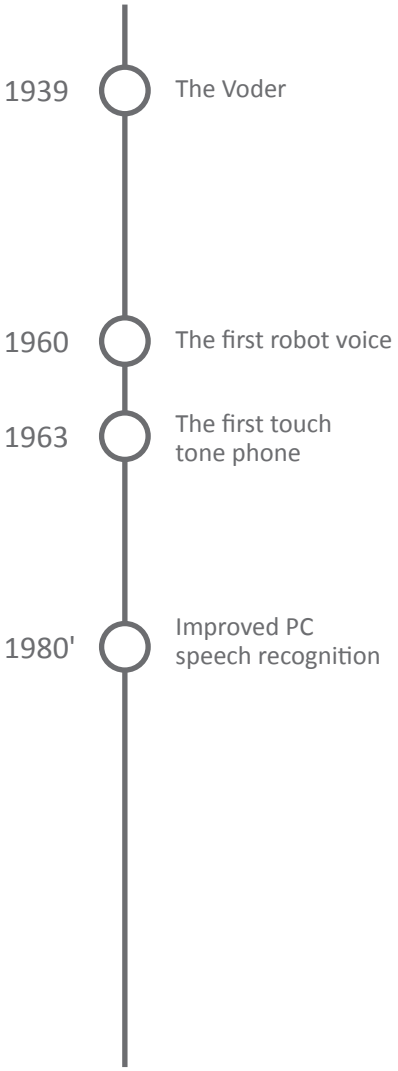
On April 30th, 1939, on a very hot Sunday, The New York's World Fair (NYWF) opened. 206,000 people were in attendance. President Franklin D. Roosevelt gave the opening day address and, as a reflection of the wide range of technological innovations featured on the parade that day, his speech was not only broadcasted over the various radio networks, it was also televised.
The fair also featured the world's most famous robot; It was called "Elektro" and was made by a company called Westinghouse. At the time, it was not called a robot; it was called a "Motoman". That same robot also had a machine that gave it a voice. This machine was the Bell Telephone Laboratory Voder.

The Voder was the first attempt to synthesize human speech by breaking it down into its component sounds and reproducing them electronically. It was a simple idea and thought to be easy to implement. The Voder produced only two basic sounds that were then mixed and amplified to create computer speech. However getting it to speak was not easy and took a very experienced operator to achieve. Still, the results were impressive enough to keep the Bell engineers working on the project until they came up with the first robot voice in the 1960's. Their work on computer "speech" also laid the ground to voice recognition since it was the first time scientists succeeded to decode digitized information into human "speech".
Voice recognition is essentially the opposite function of this, meaning, it encodes the human voice into digitized information. Voice encoding and recognition was a key stepping-stone that was needed before modern IVR systems could be imagined. But more basic technology was still needed, case in point – DTMF. When the first "touch tone" phones (Dual Tone Multi-Frequency signaling, a.k.a., DTMF) were introduced by AT&T in 1963, the gap was closed as dial tones could now be used to route customer choices, hence, IVR technology as we know it today could be implemented. This worked by combining speech encoding

and decoding with software switches assigned to dial tones. The system now had a way to drive relatively complex customer interactions using the telephone, without needing a human operator.

Serious commercialization began to take off in the late 1980's and 90's as companies like IBM and Dragon Systems Inc. provided improved PC speech recognition systems that were initially based on pre-set vocabularies (5000-8000 words approx.) and later evolved into continuous speech recognition systems for general usage.

Meanwhile, corporations began rolling out large scale interactive voice response (IVR) systems. The earlier ones -- indeed, most in use today -- are menu-driven: "For your fund balance, say or press 'one.'" A few advanced systems are more conversational: "What city are you departing from?" for example. Yet, despite the steady advancements to larger vocabularies, lower error rates and more natural interfaces, speech products have remained specialized as each is programmed to handle interactions for a specific company; out of context information is rarely able to be processed by the system.



IVR begins to impact businesses

IVR systems went on to profoundly impact the way companies do business. One early example was Verizon when it reported in a 2004 Computerworld article that its IVR system now handles 50,000 repair calls per day and has boosted the percentage of calls that are fully automated from 3% to 20%. Verizon's senior VP of IT at the time, Fari Ebrahimi, refused to say exactly how much the company was saving in labor costs but he did say its "millions and millions".[1] Companies also started to invest in IVR with Computer Telephony Integration (CTI) to collect customer data and enable intelligent routing decisions. Additionally, stand-alone IVR systems had to be increasingly integrated with backend enterprise systems. "If you create something that is just a veneer, people get it very quickly. But for customers to really get value, you need to do something with the back office (the IT systems in the back)" said Ebrahimi[1]. As a result, many of Verizon's back-office functions were redesigned as web services that could be accessed by customers through the IVR system by a spoken request or via a DTMF tone. For example, it could trigger a line test, update the customer's account, schedule repairs, and create trouble tickets.

IVR today

IVR has certainly come a long way since the early days and in-fact, today, it's hard to think of a customer-oriented business segment that hasn't made the switch from live operators to IVR for at least, its call routing services. When you call your credit card company, you can use the IVR to pay your balance or report a fraudulent charge. Airlines use IVRs extensively to book reservations and for real-time flight status checks. Pharmacies use IVRs for refilling prescriptions. And just about everybody uses IVRs to route calls to separate extensions or to access the company phone directory (who remembers the old switch board

these days?). Large and small businesses have adopted IVR technology because it saves money that would otherwise be spent on living, breathing (expensive) employees. An IVR system's effectiveness is rated by the percentage of callers who ask to speak to a live operator. The lower the percentage is, the more successful the system is rated. Of course there are some IVR systems that never give you the option of speaking to a live operator. That is, however, considered bad practice, even among IVR fans.

The biggest goal of IVR for small and large organizations is to save time and money. Answering phone calls takes a lot of time. IVR systems can take care of most of the frequently asked questions that an organization receives (office hours, directions, phone directory, common tech support questions etc.). If a large company is able to shave even a second off the average length of each phone call with a live operator, it can save hundreds of thousands of dollars every year, maybe more. IVR systems make customers feel they're being attended to, even if it's by a computer. If you have a simple question, it's better to get a quick answer from a computerized operator than it is to wait ten minutes on hold before talking to a human. Another advantage is that IVR systems don't sleep, take lunch breaks or go on vacations. An IVR system can be available 24 hours a day to answer questions and help customers with simple queries. An IVR system can also make small to medium businesses appear bigger than they are. By the mere fact of utilizing an IVR to answer phones and adding several menu options for different departments, a small company will appear larger.

In general, IVR is now an accessible technology for almost any type of business and offers them a big advantage that was once only available to enterprises with big computing budgets that could afford owning an IVR system.

IVR frustrations

That being said, the greatest disadvantage of IVR systems is that many people simply dislike talking to machines. Older generations may have a hard time following telephone menus and lengthy instructions. And younger callers get frustrated with the slowness of multiple phone menus. Unfortunately it’s hard, and often expensive, to design a good IVR system and easy to design a bad one.

Common user complaints regarding IVR systems are:

- Menus are too long. The common practice is not to exceed 4 choices which make it easy to remember the options and doesn't waste the caller's time listening to tons of choices.
- There's too much information. For example, info on how to use the phone menu system, hours of operation, extension numbers, etc. It’s better to wait for a caller to ask for help or request more information instead of offering it all up front. A good practice is to start with the minimum amount of information when setting up the IVR or scripting it.
- Limited choices and lack of control. When interacting with standard IVR systems customers only get one selection to make at a time and lack the control to get the choice they need when they want it. Backing up requires starting over and getting a human representative to pick up commonly requires consecutive selections and listening to many menus. Confusing menus can easily lead a customer down the wrong path and starting over becomes frustrating.
- Poor voice recognition. Users get frustrated quickly when the system fails to recognize their voice commands and choices. A bad line, unclear pronunciation, excessive background noise, handset volumes or other reasons can cause this. From the users’ perspective however, this never reflects positively on the service provider.

“Zeroing out” is a term used to describe what happens when IVR systems frustrate customers, confuses them, and doesn’t give them the option they are looking for or just annoys them because they “really want to talk to someone”. At this point they begin to relentlessly press “0” hoping to get to a live representative. The problem is that once a customer has lost patience and “zero’s out” of your IVR system, that itself has already had a negative contribution to your customer experience. Moreover, these customers will usually be put on hold and many might just hang up. In today’s social and highly competitive environment, a bad experience is many times a customer lost. IVR technology’s biggest challenge to date is therefore - assuring a great customer experience.

Touch screen UI and the IVR future

The 1967 first ever touch screen, Invented by E.A.Johnson of the Royal Radar Establishment in the UK.

It's hard to believe that just a few decades ago, touchscreen technology could only be found in science fiction books and film. These days, it's hard to imagine how we once got through our daily tasks without a smartphone or a tablet, and it doesn't stop there. Touchscreens are in cars, restaurants, stores and planes. They fill our lives in public and private places. It took generations and several major technological advancements for touchscreens to achieve this kind of presence. Touchscreens first appeared in the tech world around 1965, almost 30 years after the Voder, and while today its clear that these two technologies merge and complete each other, popular science fiction television didn’t even refer to touchscreen technology until 1987 when Star Trek: The Next Generation debuted, two decades later. But their inclusion in the series paralleled the advancements in the technology world, and by the late 1980s, touchscreens finally appeared to be realistic enough that consumers could actually employ the technology into their own homes and work places and so personal digital assistants (PDA’s) became popular.

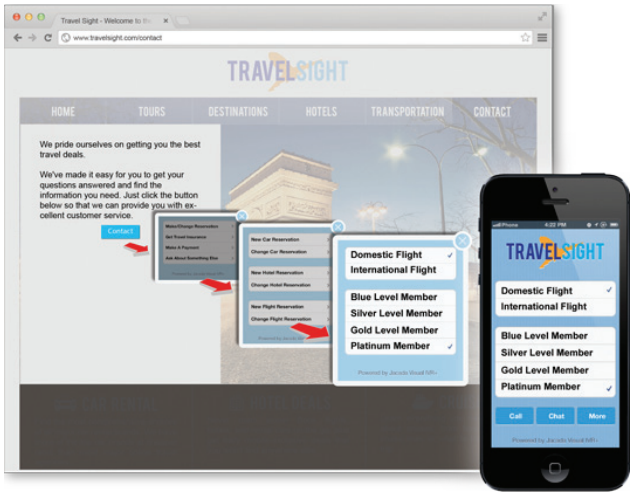
Over the last 10 years however, both web user interfaces and mobile have exploded with visual interaction technologies such as HTML 5 and multi-touch devices. **It was only a matter of time until the IVR had caught up!**

DTMF and voice recognition technologies still present many challenges to current IVR systems. Users are forced to to listen to all of the available choices before making a single selection and the back option is usually limited to starting over, if at all. IVR faces some serious challenges to meet customer experience expectations as today’s consumers, who are constantly on the go, expect fast and relevant answers, on demand. Still, the IVR’s basic qualities can’t be replaced. As noted before, people actually prefer getting many things done directly online or on their Smartphones without having to wait to talk to an actual person. As a matter of fact, Gartner predicts that by 2020, the customer will manage 85% of its relations with an enterprise without interacting with a human.[2]

Introducing Visual-IVR

As IVR systems need to keep up with technology developments such as touch screens and visual interactions that directly affect customers' expectations and experience, Visual-IVR, a recent technology development, is the key to attaining this balance.

Visual IVR offers a way to automatically give your IVR a web and mobile user interface, without any need for custom coding. While retiring the IVR investment isn't desirable nor economically practical, evolving its user interface is. By giving IVR's a visual interface, cutting edge enterprises are redefining IVR, improving its customer satisfaction contribution and using it in many ways that were not possible before. Visualizing an IVR is like creating a multi level menu on a website or a mobile application. It visualizes the IVR's path and enables users to make their selection a lot faster, visually. This completely changes the experience, first by allowing users to view the path and not having to listen to all options and second by allowing them to easily navigate back and forth to find the option they need. It is also significantly faster and cheaper than rebuilding all of the IVR investments over again in the web and mobile.



Imagine the 1-800 number on the webpage transforming into a "contact us" button. Once the customer clicks on this bottom he will get the IVR menu on his screen and from that point on he can navigate through the IVR menu on his own, and get any information he needs. Customers can touch their way from menu to solution in a matter of clicks – all from the comfort of their smartphone screen or webpage. They can even connect directly to a specific call center agent, request a chat, or even view holding time and choose a call back option. Visual IVR not only visualizes the customer service interaction but it also provides consistency and continuity so a customer can start the interaction on the web and finish it on the mobile or by speaking to agent without the need to repeat himself and with the same experience across all touch points.

Visual-IVR increases customer satisfaction and is a lot better suited for retaining and satisfying customers. Finally, it improves your call center service levels by allowing the routing of calls precisely where they need to go and reducing the need to forward and re-route incoming customer calls.

It is also an easy solution to deploy: companies simply plug it into their existing VXML IVR scripts and create the link on their web and mobile sites to dynamically create a visual menu. With minimal effort, not only have they allowed an additional consistent customer service channel, but have also doubled the return from their original IVR investment. Other cost savings are attained by increasing self-service performance, lowering incoming calls and reducing call times as the Visual IVR displays to the agent, the previous choices the customer made.

This visual evolution of IVR is the latest development in its history and opens up exciting new possibilities for the future. For more information: www.visual-ivr.com

Sources:
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2. http://mktimages.gartner.com/pv_obj_cache/pv_obj_id_92DB197B681D1A1003F701CB30B626FF3B111B00/filename/