The Disruptive Chat Bots
Sizing up real opportunities for business

How can I help?

Print 2 copies of the attached

No problem. Same spec as last time? Full colour on A4 paper?

Yes, that's it.

Perfect – coming out on Printer 2, 1st floor, 2nd in queue.
Chat bots are set to cause immediate disruption in customer support. The current use of helplines to resolve customer issues leaves a lot to be desired. A typical Interactive Voice Response customer support interaction has many, often frustrating, steps such as illustrated below.

Imagine customer support with Chat Bots...

Bank of Bot
CUSTOMER SUPPORT
I have been locked out of my online banking.

Me
Ok, I can help. I just need you to enter your normal user ID:

Bank of Bot
*
*
*
*
*
*
Me
Developing machines capable of exhibiting human-like intelligence has been the goal of artificial intelligence (AI) research since its inception in the mid-1950s. The Turing test, designed to examine a machine’s ability to exhibit intelligent behaviour indistinguishable from that of a human, popularised this research domain. 

Since then AI has had its up and downs, its periods of hypes and disappointments. In hindsight, unrealistically high expectations combined with underestimating the cost and complexity of building and maintaining large systems added to the booms and busts experienced by all involved.

Several factors have now converged to bring AI back to the forefront of research. More importantly, AI today promises to power solutions and services that can directly contribute to an organisation’s bottom line.

Leading the way in this new wave of AI-powered disruption is a particular type of autonomous agent – a Chat Bot.

**Meet Ms. Chat Bot**

A Chat Bot (“bot” being short for “robot”) is a program that mimics conversations with people using artificial intelligence techniques such as natural language processing (NLP), image and video processing, and audio analysis. Most importantly, these chat bots learn from their past interactions, improving their responses over time to more accurately accomplish their tasks.

It is this ability to converse in a natural manner while learning on-the-fly that is getting companies excited.

Moving on from rule and key-word search-based automated Q&A interactions with your customers to the promise of human-like interactivity without the associated costs and overheads sounds like real disruption at scale.

**Example scenario:** Chatting with your printer

**The Past**

Command line-based systems relied on specific commands to enable printing. Files names and locations, along with explicit syntax knowledge was required.

**The Present**

Graphical user Interfaces (GUIs) are currently the most common way of accessing a printer across a network.

**The Future**

A chat bot may provide a more flexible way to interact with your printer, especially when using a mobile device.
While chat bots hold a lot of promise, there is still some way to go before they can completely replace humans. Currently, they are more likely to support human interactions by making them more efficient.

- Language is an extremely complex instrument and chat bots are yet to master the subtle nuances that exist in various languages. Detecting sarcasm, double-entendres and colloquialism is still beyond the reach of most chat bots, although ongoing research holds promise.
- Chat bots need to not just understand meaning, they need to understand context and this involves a semantic analysis and understanding of internal process flows, customer journey maps and deep products/services information that are specific to the organisation they represent. Understanding and capturing such know-how is often challenging.
- Importantly, chat bots are not useful in all scenarios, as not all interactions lend themselves to a chat interface alone. As an example, navigating your way through a complex task should involve a combination of text, visual cues and menu options to increase efficiency and reduce the time required to get your message across and results back.

From research projects to cutting-edge business propositions, chat bots are bundling together a number of exciting innovations:

- The digitisation of data into big data is providing the raw information required to power these programs.
- Machine learning algorithms such as natural language processing (NLP) processing and deep neural networks have now matured enough to provide the tools and techniques to convert big data into actions.
- Open source communities are further accelerating the development of products & services through collaboration.
- Cloud computing and the availability of cheap hardware is providing access to the physical infrastructure required to run these information hungry programs.
- Finally, the mobile revolution is bringing all the above advances into the hands of everyone, everywhere.

Combine the above advances in technology with industry trends and chat bots are offering a unique proposition for organisations, especially when it comes to interacting with their customers.

Chat bots are promising organisations the ability to engage their customers in the right place, at the right time, with the right information in a cost-effective manner.

Chat bots clearly have some advantages over traditional apps:

- They are capable of engaging with the end user in a natural, friendly and easy-to-understand manner.
- Through open APIs or developer platforms, chat bots can interact with customers through apps that the customers are familiar with, such as Facebook chat, thereby enhancing customer experience.
- They are more appealing to the next generation of users.

In some scenarios, they can even out-perform humans:

- Chat bots are likely to provide more comprehensive, up-to-date information as they have the capability to filter through a large search space at speed.
- Chat bots have the potential to provide a 24-7 service, and a downtime that is mostly scheduled.
- Finally, chat bots don’t suffer from human traits such as mood swings, tiredness, etc.

We think that you should just be able to message a business in the same way you message a friend. You should get a quick response. And it shouldn’t take your full attention like a phone call would. And you shouldn’t have to install a new app.

Mark Zuckerberg, onstage during Facebook’s developer conference 2016.

Chat bots are slowly taking over the world. Not quite, but there are beginning to automate tasks that are often repetitive and time consuming freeing up resources for more productive efforts.

Also, a small ecosystem of start-ups and established vendors are offering chat bot APIs and platforms to support custom apps.
Chat bots in business

- CNN, the Wall Street Journal, and Quartz are all using chat bots to deliver news to customers interactively, serving the headlines and allowing customers to ask for more depth.
- Bank of America is currently working with Facebook engineers to create a comprehensive AI for customer enquiries.
- TD Bank Group in Canada is engaging with customers through Facebook, though all enquiries go to human operators for the moment.
- Genesys, a customer service company, will use IBM’s Watson system to better handle its clients’ customers’ needs.
- With a focus on improving internal processes, bots such as Attentive (http://attentive.us) integrate with existing CRM tools to monitor news feeds. As an example, if a potential client gets positive coverage in the news, Attentive nudge the right team by sending them a message (such as the Sales Team) to let them know that it might be a good time to get in front of the customer again.

Chat bot Startups:

- MagicX.co – a chat enabled AI platform which strives to personally assist you with your daily tasks.
- x.ai – a personal assistant who schedules meetings for you.
- GoButler – a 24/7 on-demand flight assistant (pivot from an everything assistant).

Chat bot APIs / Platforms:

- Kik – a messaging app that boasts over 300 million registered users now has a bot developer platform.
- Telegram – a bot-enabled popular cloud-based mobile and desktop messaging app with a focus on security and speed.
- Facebook – now has a chat bots API for Messenger (currently augments its own bots with human support).
- IBM Watson – offers the ability to build bots that are powered by its extensive AI capabilities.
- Wit.ai – Natural Language for developers (Build bots easily).
- api.ai – conversational UX platform for mobile apps, wearables, robots, automotive, smart home and smart TV channels.

Realising business values

It’s time to start thinking about chat bots as disruptors. With chat bots adding greater functionality to already popular messaging apps, there is a possibility to lose direct contact with your customers.

One way to continue to engage them in the right place, at the right time, with the right information in a cost effective manner is through the proactive incorporation of chat bots into the heart of your products and services.

Here are some tips that may be helpful when considering chat bots as potential agents of change within your organisation. Start with a Proof of Concept that has the following 4 properties.

1. Clearly articulated value proposition
   Chat bots can be deployed to provide basic customer support by themselves, support human interactions with detailed facts, highlight and drive sales opportunities or streamline internal processes. Be sure to understand and articulate what your chat bots are for early on.

2. Focus on specific products/services
   Aim to limit the scope of what your chat bots can do by focussing on a product/service to start with. Only engage the chat bot when the conversation turns to the chat bots speciality, while augmenting this conversation with a person. Slowly, expand the chat bots knowledge base by feeding it more relevant information over time.

3. Ensure all relevant data is available
   A chat bot needs to have all the relevant information about the products/services it is supporting. Ensure that your chat bot has been exposed to the relevant internal process flows, specific customer journey maps and deep products/services knowledge that is required for it to answer queries and automate responses.

4. Learn & Adapt
   Use the data obtained from these chat bot-centric interactions to further refine the chat bots themselves. Have processes in place to harness these learnings to improve the very products and services that chat bots support.
Let’s chat!

Chat bots are poised to disrupt the way we interact within our organisations and with our customers. Now is the time to start to harness this technology — so let’s chat!

Prag Sharma  
Senior Manager  
Deloitte Analytics Ireland  
psharma2@deloitte.ie

Richard Southern  
Director  
Deloitte Analytics Ireland  
southern@deloitte.ie

David Dalton  
Partner  
Strategy & Operations  
Consulting, Ireland  
ddalton@deloitte.ie

Dublin  
Deloitte  
Deloitte & Touche House  
Earlsfort Terrace  
Dublin 2  
T: +353 1 417 2200  
F: +353 1 417 2300

Cork  
Deloitte  
No.6 Lapp’s Quay  
Cork  
T: +353 21 490 7000  
F: +353 21 490 7001

Limerick  
Deloitte  
Deloitte & Touche House  
Charlotte Quay  
Limerick  
T: +353 61 435500  
F: +353 61 418310  
www.deloitte.com/ie

Deloitte refers to one or more of Deloitte Touche Tohmatsu Limited, a UK private company limited by guarantee ("DTTL"), its network of member firms, and their related entities. DTTL and each of its member firms are legally separate and independent entities. DTTL (also referred to as "Deloitte Global") does not provide services to clients. Please see www.deloitte.com/about for a more detailed description of DTTL and its member firms.

At Deloitte, we make an impact that matters for our clients, our people, our profession, and in the wider society by delivering the solutions and insights they need to address their most complex business challenges. As one of the largest global professional services and consulting networks, with over 220,000 professionals in more than 150 countries, we bring world-class capabilities and high-quality services to our clients. In Ireland, Deloitte has over 2,000 people providing audit, tax, consulting, and corporate finance services to public and private clients spanning multiple industries. Our people have the leadership capabilities, experience, and insight to collaborate with clients so they can move forward with confidence.

This communication contains general information only, and none of Deloitte Touche Tohmatsu Limited, its member firms, or their related entities (collectively, the "Deloitte Network") is, by means of this communication, rendering professional advice or services. Before making any decision or taking any action that may affect your finances or your business, you should consult a qualified professional adviser. No entity in the Deloitte Network shall be responsible for any loss whatsoever sustained by any person who relies on this communication.

© 2016 Deloitte. All rights reserved