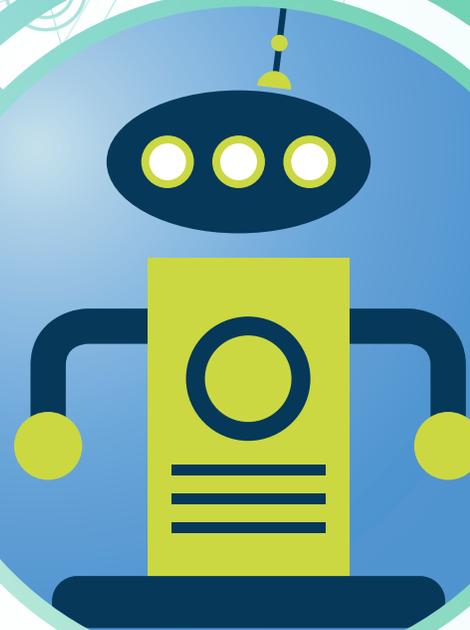


The Unissant logo is displayed in a dark blue, rounded rectangular box. The word "Unissant" is written in a bold, sans-serif font, with a small yellow dot above the 'i'.

Unissant White Paper Series



Digital Transformation Through Chatbots



Introduction

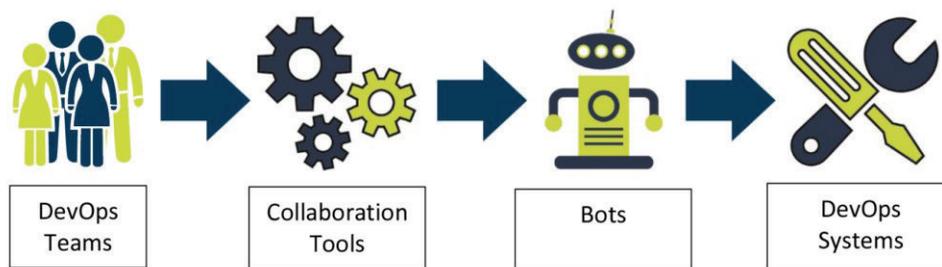
Chatbots are programs or services that use AI and machine algorithms to improve efficiency, accuracy and provide smoother user experience by providing a conversational interface to websites, mobile applications, messaging platforms and enterprise applications using text and voice. They are becoming increasingly popular as a means for users to interact with organizations by providing an interactive conversational style user interface. They can play a vital role not only in consumer marketing but in digital transformation strategy of enterprises. True customer facing digital transformation is where users could interact with the systems seamlessly, and Chatbots provide the required interface to make that a reality.

At Google I/O 2018, Google demonstrated Google Assistant making an actual phone call to a restaurant and conducting natural conversations to schedule an appointment. Google Assistant carried sophisticated conversations with human-like speech and successfully completed task autonomously. In Facebook Messenger alone, after its Messenger platform to chatbots was launched in April 2016, around 100,000 chatbots were created and over two billion messages were exchanged between businesses and customers within a year. As per Gartner's top strategic predictions for 2018 and beyond Bots would take over individual apps, and in "post-app era", chatbots will be the face of Artificial Intelligence. All these working demos, app statistics and projections demonstrate Chatbots have become integral part in the human-machine interaction. Bots have made great inroads into customer service arena. Some of the companies that have benefited include Starbucks, Lyft, Nordstrom, Sephora. One of the biggest users of this technology has been the tourism and hospitality industry. They have become great tools for personalizing customer experience. The usage is going to only grow in the next few years. It is expected that the Global Chatbot Market will exceed more than US\$ 994 million by 2024 and will grow at a CAGR of more than 27% during that period.

Applications of Chatbots in Enterprises

There are a wide range of applications for chatbots in enterprises including the most common – conversational interfaces.

- **Integrated Applications:** Chatbots integrated with enterprise systems such as ERP systems, CRM systems, Knowledge base systems improve enterprise productivity. Majority of enterprise system depends on static rules and structured data. However, AI-powered chatbots could be used to process unstructured data and ease the communication between systems and human.
- **Business Intelligence:** Chatbots integrated with Data visualization tools could be used for natural language generation. Interactions with chatbots could be used to generate required queries and from the obtained plots, natural language generation interface could be used to provide insights to the customer.
- **ChatOps:** ChatOps, a variation of Chatbot, is a collaboration model that connects DevOps teams, tools/platforms, process, and automation in a transparent flow. In ChatOps model, DevOps teams use conversational collaboration tools integrated with Bots. Bots interpret the conversations between various teams and trigger scripts on DevOps Systems to perform various activities at each phase of Development and Operation cycle.



- **Cognitive Search:** Navigating an enterprise in search of information has been very inefficient. Traditionally search has been dominated by just indexing for keyword search and semantic search. With improvements in Machine learning and NLP algorithms, contextual search and cognitive search are becoming the norm. Chatbots aid in cognitive search by providing the required NLP layer and for setting up the context.
- **Enterprise Communication:** Bots could be used for streamlining internal communications with several departments such as communication with HR about rules, IT Help Desk requests and tracking.
- **Voice of Customer:** Chatbots could be used to capture the complete intent of users, i.e., what is that a user is expecting to get done using a website, or service. It opens huge opportunities to improving the experience. In traditional approach, just content is put with no continuous feedback from customer on what is expected from the website or service. Using Chatbot, there is continuous opportunity to gather user requirements. Opportunity to transition to custom personality of the user, and more personalization of entire context as context is retained not for just one instance but carried over.

Chatbots can range from simple to more advanced depending on the algorithms and the domain knowledge that they are based on. They are more effective when constrained to closed domains e.g., IT Support Desk, Shopping, Insurance information, Billing Questions etc.

One of the biggest challenges and an expensive process in implementing a Chatbot is the training of bots. Chatbots could be used for smarter conversations in a desired vertical by training them using domain-specific data, pre-defined contexts and intents. Often, Initial training is done with existing text corpus, and after rolling out Bots, companies re-train to increase the accuracy. Larger the data set available for training the better the results of Natural Language Processing (NLP) and Natural Language Understanding (NLU) algorithms; however, data could be scarce in most scenarios. Often, bots have to be trained manually and would involve engaging users for making bots smarter which has its own challenges e.g., during the manual training process users tend to be frustrated with bot capabilities. However, with the availability of faster computation power and advancements in NLP and NLU algorithms, we can expect Bots to play a major role in an organization's digital transformation journey.

Why Unissant?

At Unissant's Innovation Center, we have experimented with various chatbot platforms, including cloud-based solutions. We have found that existing out of the box solutions and frameworks are generic and are not fit for most of the customers' requirements. Unissant's internal R&D capabilities, in addition to collaboration with companies who are leaders in natural language processing, understanding and generation position us well to support our customers in their dig-

ital transformation journey. We work with our customers to develop domain specific Chatbots using our own hybrid agile approach.

About Unissant

Unissant is an advanced data analytics and business transformation services provider with expertise in healthcare and health IT, finance, national security, and energy. The company delivers innovative solutions to assist government agencies and private sector businesses in tackling their biggest challenges. Founded in 2006, Unissant is a prime contractor on various government vehicles such as CIO-SP3, GSA PSS, GSA HealthIT SIN, and GSA 8(a) STARS II and is a CMMI Level 3, ISO 9001 & 27001 certified company headquartered in Herndon, Virginia with a satellite office in San Antonio, Texas. In March 2017, Unissant received the Government Project of the Year award by Small and Emerging Contractors Advisory Forum (SECAF). Unissant has experience with implementing machine learning solutions and full stack implementation on cloud. Unissant is a Select Consulting Partner Public Sector and is leveraging this relationship with AWS to strengthen our ability to support our customers in their Digital Transformation journey. We are already supporting several of our customers in the public sector with their Machine Learning implementations, cloud adoption strategy and implementation.

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