Introduction to Chatbots
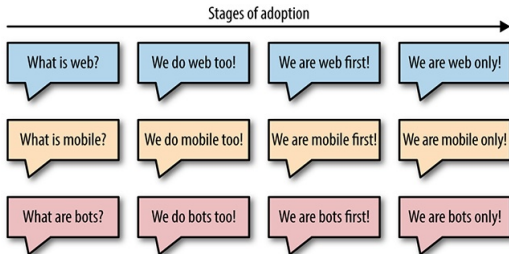## State of the art

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August 6, 2018

State of the art

PART I
Basic Introduction

Motivation

- ▶ "Bots are the new apps." - Satya Nadella, Microsoft CEO.
- ▶ "Bots might become the third runtime, after the Web and native apps." - Benedict Evans, venture capitalist.

- ▶ Bots are going to disrupt the software industry in the same way the web and mobile revolutions did.
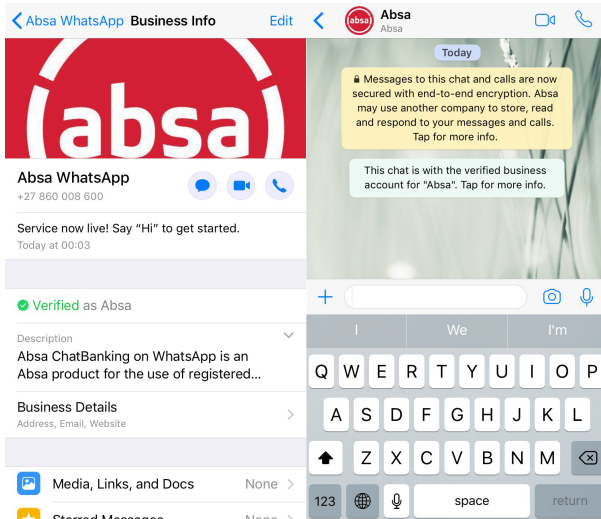
Motivation
Accelerators

- The mobile app economy is stagnating.
- Consumers like conversational interfaces.
- Bots are the ultimate source of cheap labor.
- Make workers more productive by taking care of time-consuming repetitive tasks.
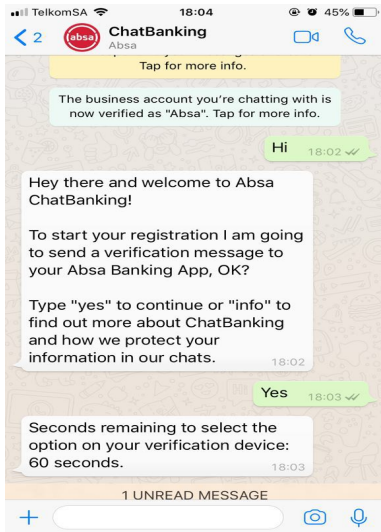- AI has advanced remarkably in the last few years.
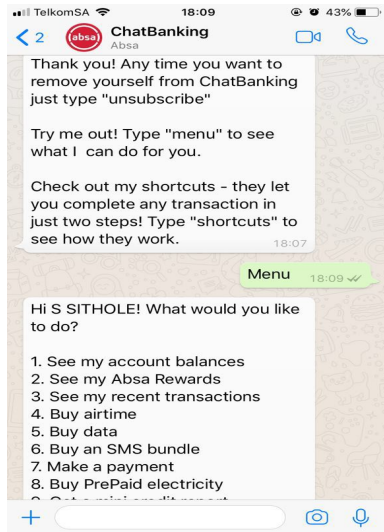
Motivation

Competition

Motivation

Competition

(a) Start

(b) Continue

Motivation
Competition

- WhatsApp Pay services:
  - Absa is the first to fully launch WhatsApp Pay services anywhere in the world.
  - A number of banking institutions in India have trialled using the platform for banking services.
- Absa ChatBanking:
  - Facebook Messenger, Twitter, WhatsApp.
  - Check bank balance, buy electricity, purchase airtime and data, pay beneficiaries.

Definition
What exactly is a bot?

- ▶ Bots are AI-driven pieces of software that converse in human terms.
- ▶ NLP is the discipline concerned with making computers communicate in human terms.
- ▶ AI makes it possible for bots to parse human language, understand intent, and compose replies.
- ▶ Bots communicate in human language through a variety of interfaces.

Definition

How are bots different from humans?

- ▶ Bots have no online status and no last seen timestamps.
- ▶ Bots have limited cloud storage.
- ▶ Bots can't initiate conversations with users.
- ▶ Bot usernames always end in 'bot'.
- ▶ When added to a group, bots do not receive all messages by default.

Types

- Personal vs. team bots
- Super bots vs. domain-specific bots
- Business bots vs. consumer bots
- Voice vs. text bots
- Net new bots vs. integrations exposing legacy systems

Applications

- Conversational Commerce
- Bots for Business
- Productivity and Coaching
- Alert and Notification Bots
- Bots as Routers between Humans
- Customer Service and FAQ Bots
- Third Party Integration Bots
- Games and Entertainment Bots
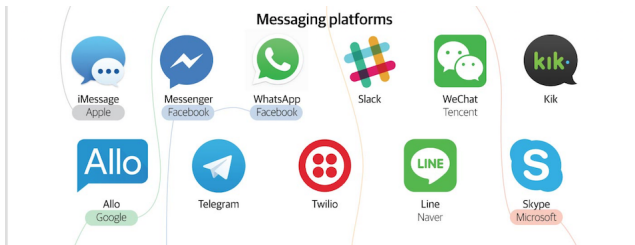- Brand Bots

PART II
Technology Providers

Overview of Bots Landscape

General AI Agents with Platforms

General AI agents with platforms
Developer access available now or announced

Siri	Now	Alexa/Echo	Cortana	Viv
Apple	Google	Amazon	Microsoft	Viv Labs

Messaging Platforms

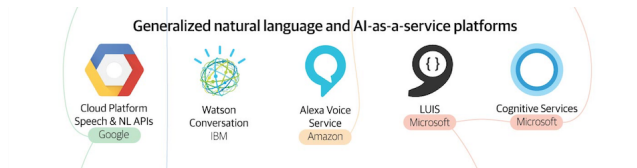Messaging platforms

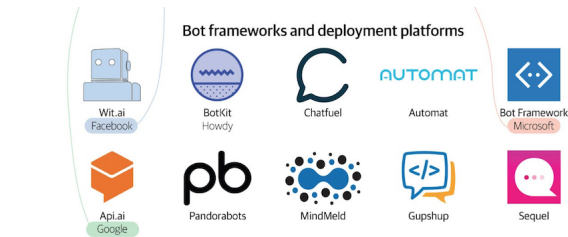Where bots live.

Generalized NL and AI-as-a-Service Platforms

Generalized natural language and AI-as-a-service platforms

The sophistication of a bot is directly linked to the sophistication of its AI model. AI as a service makes it easy to implement very basic AI.

Bot Frameworks and Deployment Platforms

Tools, platforms, and resources that make it easy to deploy chatbots.

References

1. What are Conversational Bots? An Introduction to and Overview of AI-Driven Chatbots by Jon Bruner and Mike Barlow (2016)
2. Designing Bots by Amir Shevat (2017)