

# Build next gen conversational apps with Bot Framework





# HELLO!

**I am Arafat Tehsin**

Microsoft MVP (AI)

Technical Consultant, Velrada

 @arafattehsin  [github.com/arafattehsin](https://github.com/arafattehsin)

# AGENDA

- Introduction to Bots
  - Why Bots and Why Now?
  - Digital Transformation
- Design Principles and Guidelines
  - Success Factor for your next bot
- Microsoft Conversational AI spectrum
  - Huge set of tools for your businesses
- Microsoft Bot Framework Composer
  - Language Understanding
  - Language Generation
  - Adaptive Expressions and many more..



**Bots are the new apps –**  
Satya Nadella

# WHAT ARE BOTS?

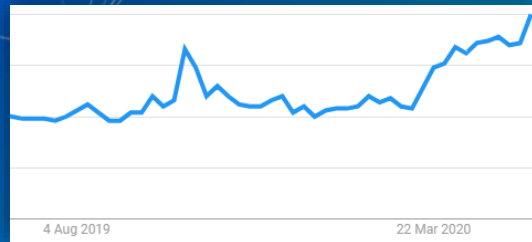
- Bots are services (powered by rules) that people interact with through conversation and messaging apps
- New user interface paradigm



# WHY BOTS AND WHY NOW?



"Bots / Agent Interfaces are the top 3<sup>rd</sup> trend for Digital Technology in 2020<sup>[1]</sup>" – Gartner



Google Trends

[1] - <https://www.gartner.com/smarterwithgartner/5-digital-technology-trends-for-2020/>



# DIGITAL TRANSFORMATION

## Customer Services

FAQs

Appointment Booking

Troubleshooting

Customer

Onboarding / KYC

## Retail / Shopping

Recommend  
Products

Tickets Booking

Shopping

## In-House Support

Meeting Room

Find the right domain  
expert

HR – Booking leaves,  
fault reporting

Business Leaders say chatbots have increased  
their sales by 67% - Inside Intercom



# Design Guidelines

Success Factors for your next Bots





# SUCCESS FACTORS

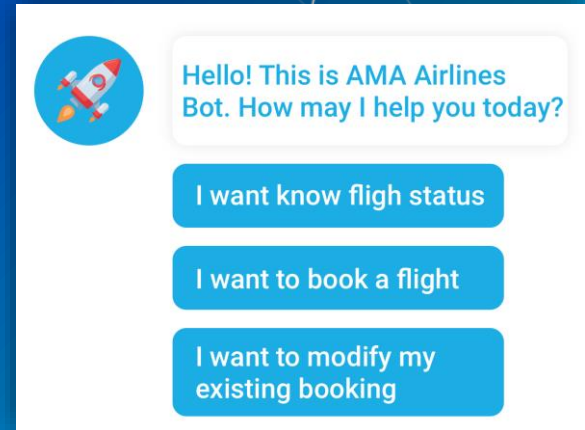
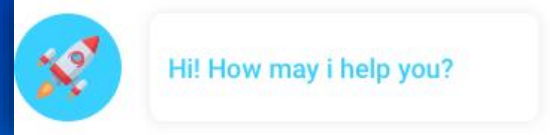
- Must be used by people
- Ability to choose over existing experiences (mobile / web)
- Prioritize the right factors

Influencing Factors	Not Influencing Factors
Does your bot solve the user's problem in an efficient (read: faster) way?	How AI driven your bot is.
Does it run on multiple platforms and devices?	Does it support Natural Language Processing?
Is it discoverable enough?	Does it support voice or answers queries on your behalf?

# WELCOME MESSAGE

- First Message is the key for retaining customers
- Be descriptive and use menus

***Whether you're designing an app, website or a bot; UX should be your top most priority!***

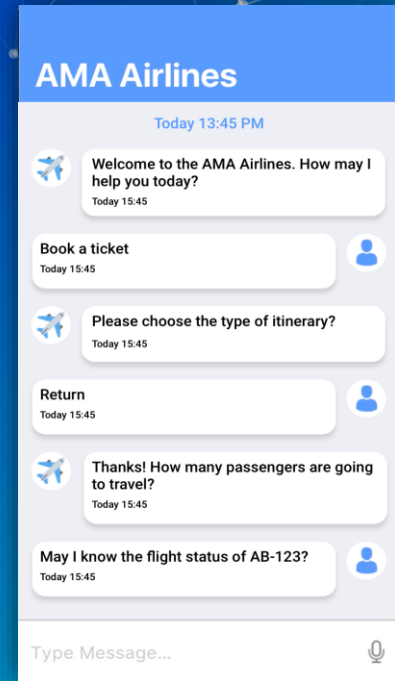


# NAVIGATION PATTERNS

- Free form / non-linear
- Sequential / Guided

## Handle Interruptions

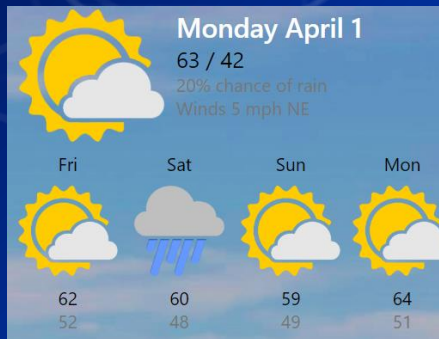
- Do you want to answer the user first?
- Discard your previous conversation and start from the new one?
- Resume from the previous discussion after answering this?



# DESIGN ELEMENTS

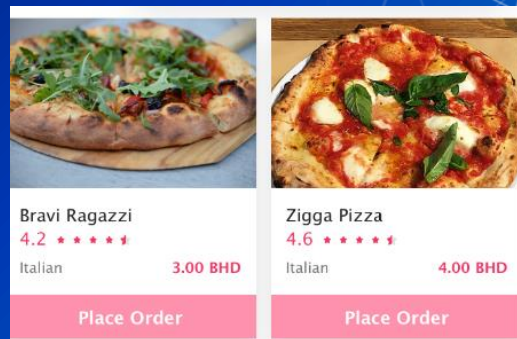
## Rich Controls

- Buttons, Images, Carousels
- Cards (Adaptive, Audio, Video, Sign-In, Hero and Thumbnail)

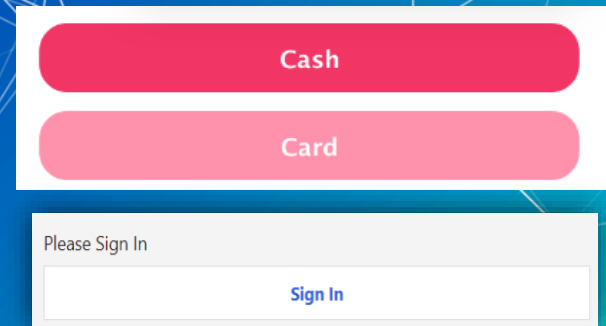


Monday April 1  
63 / 42  
20% chance of rain  
Winds 5 mph NE

Fri	Sat	Sun	Mon
62 52	60 48	59 49	64 51



Bravi Ragazzi 4.2 ★★★★★ Italian 3.00 BHD	Zigga Pizza 4.6 ★★★★★ Italian 4.00 BHD
Place Order	Place Order



Cash

Card

Please Sign In

Sign In

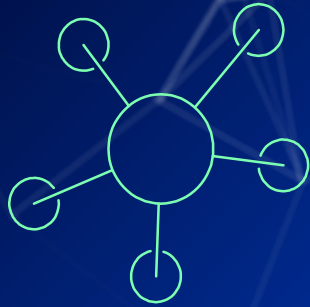
# DESIGN ELEMENTS

## ■ Text & NLU (Natural Language Understanding)

- Microsoft LUIS
- IBM Watson API
- Amazon Alexa
- Google DialogFlow

## ■ Speech

- Cognitive Services



# Microsoft Conversational AI

Tons of tools with hundreds of features



## Software as a service, SaaS solutions

To enable out-of-the-box Conversational AI services for key solutions



Enterprise Assistant  
Cortana



Power Virtual Agents

## Solution accelerators and templates, PaaS

To extend and enable key Conversational AI solutions



Virtual Assistant  
Solution Accelerator

## Pre-trained AI, Cognitive Services

To add and customize language, speech, knowledge & vision



Vision



Speech



Language



Decision



Web Search

## Managed Bot Service, Azure Bot Service

To accelerate building, management and deployment of conversational AI



Azure Bot Service



## Popular open source frameworks, Bot SDK on GitHub

To fully integrate and customize your solution, with any AI technology



Bot Framework



# LANGUAGE UNDERSTANDING (LU)

- Core component of Bot Framework Composer
- Adds natural language capabilities to your bot through LUIS / Recognizers
- Supports LG format
- Auto-train the language model from within Bot Framework Composer

Expected responses (intent: TrackFlight)

- i want to know the status of flight from {Source=Manchester} to {Destination=Birmingham}
- let's track the flight to {Destination=Brisbane}
- what's the update flight {FlightNumber=AT 437}
- can you please update me about the status of {FlightNumber=AT 123}
- flight {FlightNumber=911}
- flight to {Destination=bahrain} {FlightNumber=AT-123}
- {FlightNumber=AT 219}
- has the flight {FlightNumber=AT 372} {FlightNumber=AT 123}
- i want to track ek {FlightNumber=234}
- i want to track flight {FlightNumber=AT573}
- is flight from {Source=london} to {FlightNumber=bahrain}
- please book a flight from {Source=london} to {Destination=Birmingham}
- tell me about {FlightNumber=AT 124} to {Destination=Birmingham}
- tell me about {FlightNumber=at 810}

# LANGUAGE GENERATION (LG)

- Multiple variations of a response without having to write any complex code
- Separate business logic from presentation
- Rich response such as Adaptive Cards support

Name	Responses
#WelcomeUser	<ul style="list-style-type: none"><li>- Welcome to AMA Airlines. I'm currently responsible for the general questions and answers and flight status. Please let me know how may I help you today?</li><li>- Hello! It looks like we're interacting for the first time. I'm AMA Airlines Bot. I am responsible for your general questions and flight statuses. How may I help you today?</li></ul>

Hello! It looks like we're interacting for the first time. I'm AMA Airlines Bot. I am responsible for your general questions and flight statuses. How may I help you today?



Type your message

# ADAPTIVE EXPRESSIONS

- Expressions to evaluate the user's input or bot's response
- Range of pre-built functions
- Available to be used within Language Generation templates

Property ?

conversation.FlightDetails.FlightNumber

Value ?

=toUpper(@FlightNumber)

## Branch: if/else

Branch: If/Else

Two-way branch the conversation flow based on a condition.

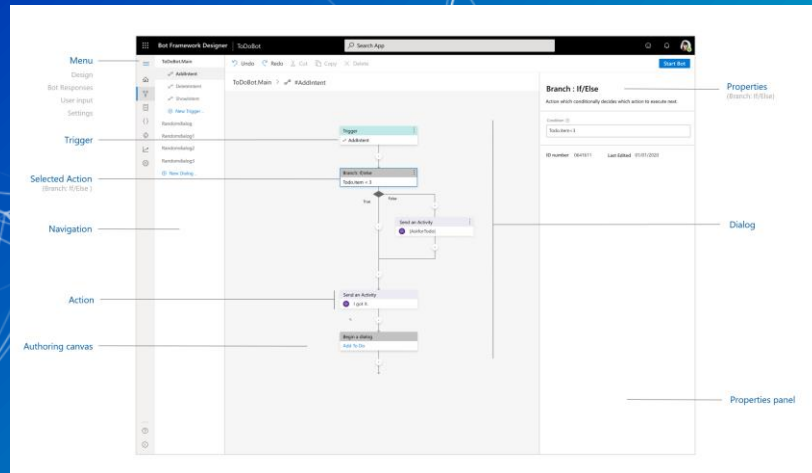
[Learn more](#)

Condition ?

=length(conversation.FlightDetails.FlightNumber) > 0

# BOT FRAMEWORK COMPOSER

- Opensource development tool
- Visual Authoring Canvas (Drag & Drop) and Visualizing the conversational flow
- Language understanding (NLU) in context of conversation authoring
- Tools to train and manage dialog components (including NLU and QnA)
- Author Bot responses (powered by Language generation and templating system)
- A ready-to-use bot runtime





# Bot Framework Composer

Drag and Drop – Low code





# PRE-REQUISITES

- Bot Framework Composer (<https://docs.microsoft.com/en-us/composer/setup-yarn>)
- Bot Framework Emulator (<https://github.com/Microsoft/BotFramework-Emulator/releases/tag/v4.8.1>)
- Azure Trial Subscription (<https://azure.microsoft.com/en-gb/offers/ms-azr-0044p/>)

## NEED HELP?

- Bot Framework Composer Docs (<https://docs.microsoft.com/en-us/composer/introduction>)
- Blog Post (<https://www.arafattehsin.com/build-a-flight-tracker-using-bot-framework-composer-part-1/>)



# DEMO

Bot Framework Composer

# Resources

- Learn Bot Framework (<https://docs.microsoft.com/en-us/learn/paths/create-bots-with-the-azure-bot-service/>)
- Bot Framework Composer (<https://docs.microsoft.com/en-us/composer/introduction>)
- Bot Framework Community (<https://github.com/botbuildercommunity>)
- My Blog (<https://www.arafattehsin.com/blog>)

# THANKS!

**Any questions?**

You can find me at

■ @arafattehsin

■ arafat@outlook.com