

Trilha — Inovação

Do Código à Voz

Como incorporar o Google Assistente ao seu produto

Quem somos?



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**RICK
INHO'S**
APP&SITE



O que vamos falar?

1. Contexto e Motivação
2. Mão na massa
3. Resultados
4. Desafios e aprendizados

Contexto e Motivação

Por que olhar para Assistentes Virtuais?



- Plataforma de investimentos online
- Fundada em 2011, atualmente parte do Grupo XP
- +800 mil clientes
- +R\$ 17 bilhões de Custódia

O que fazemos na Rico:

Facilitamos o acesso dos brasileiros ao mundo dos investimentos por meio de **conteúdos didáticos, produtos financeiros mais rentáveis do que os bancos e plataformas de fácil uso.**



Nosso desafio na Rico:

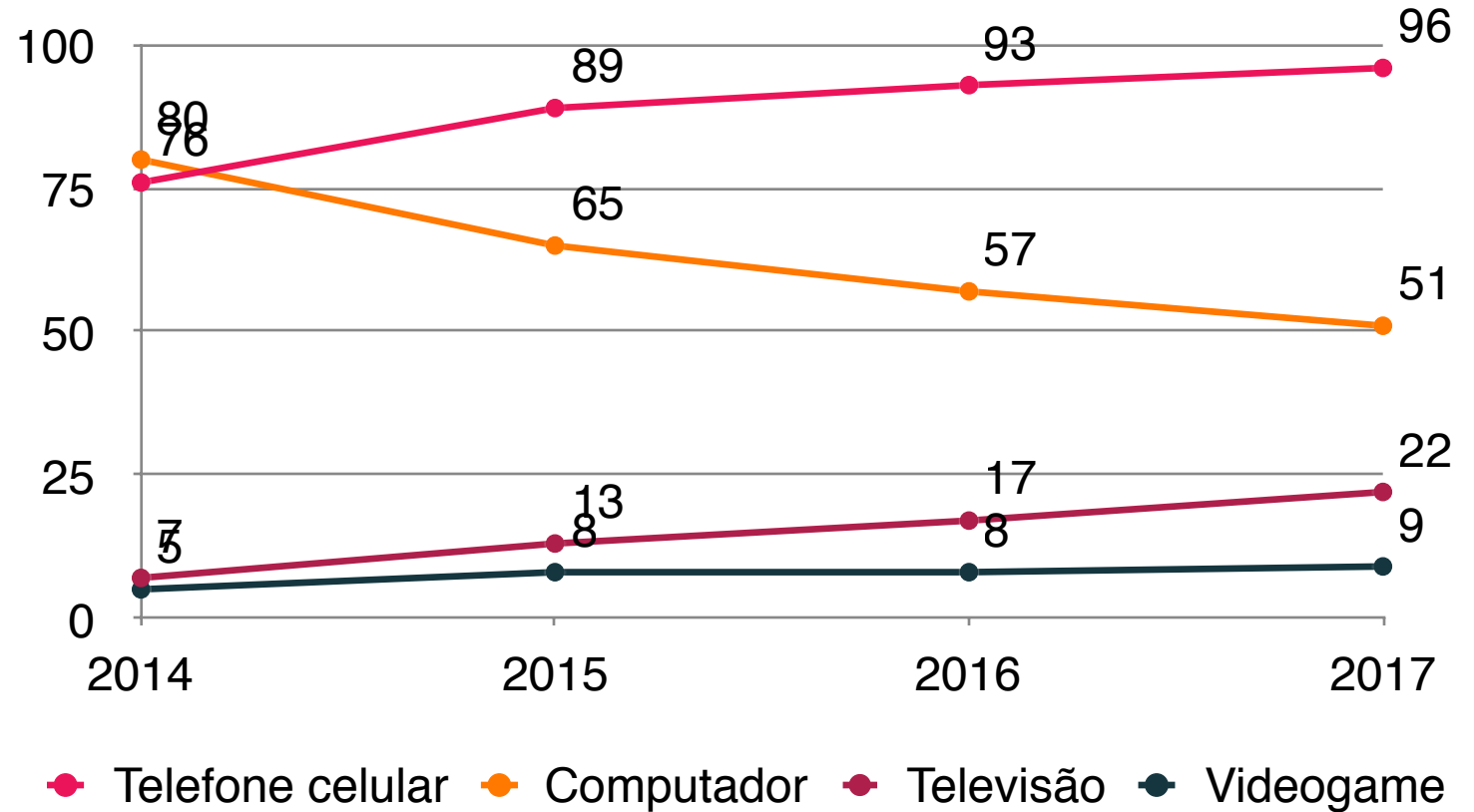
Oferecer **experiências digitais** que façam com que o ato de investir seja cada vez mais **online, simples e inteligente.**







Usuários de Internet no Brasil
120,7 milhões





Ou seja:

A experiência conectada já deixou de ser restrita a computadores: ela está se expandindo cada vez mais para outros dispositivos, gerando novos hábitos de interação.







“Evitar uma interface digital significa que você não precisa perder tempo aprendendo, solucionando problemas e usando uma tela que você não precisaria usar de qualquer forma. Isso é um bom design thinking”.

Golden Krishna, no livro “The Best Interface is No Interface” (2015)

Questionamentos:

- De que forma poderíamos adaptar e potencializar a experiência de acompanhamento de investimentos dos nossos usuários a partir de um assistente virtual?
- Quais seriam os desafios e requisitos para isso?

Mão na massa

Desenvolvendo do código à voz

Criação de um MVP para interação de clientes com a Rico a partir de um assistente virtual.

Escopo MVP: plataforma escolhida



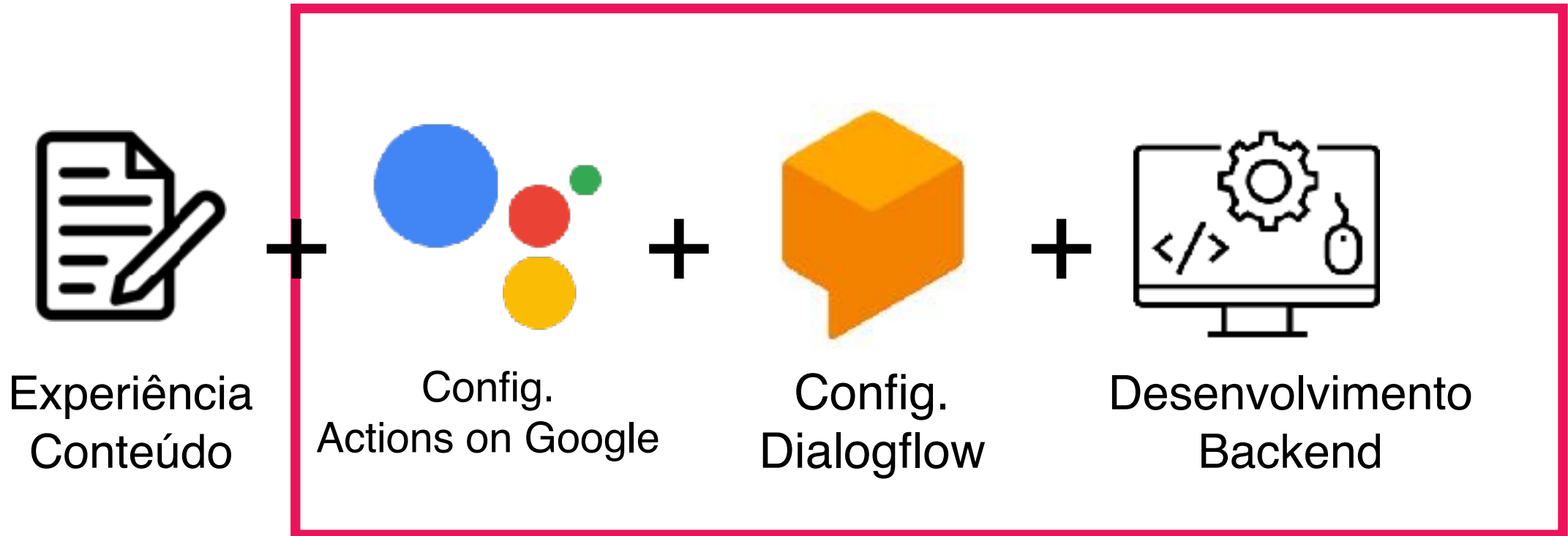
- Versatilidade de recursos
- Facilidade de desenvolvimento
- Disseminação no mercado

Google Assistant

Escopo MVP: interações selecionadas

1. Consulta de patrimônio na Rico;
2. Consulta da carteira de investimentos na Rico por categoria;
3. Consulta do nosso serviço de análise de carteira, em que observamos a distribuição dos investimentos por estratégia e informamos a recomendação dos nossos analistas.
4. Consulta do relatório Rico Matinal, publicado de segunda à sexta, com as principais informações que o usuário precisa saber para o seu dia;

Escopo MVP: expertises envolvidas



Mão na massa

Actions on Google

Actions on Google: Criando um projeto



Welcome to Actions on Google

Actions on Google is the platform for developers to extend the Google Assistant. Join this emerging ecosystem by developing actions to engage users on Google Home, Pixel, and many other surfaces where the Google Assistant will be available.

[Documentation](#) [Sample code](#) [API reference](#) [Support](#)

Your projects

Recent projects

	App-Rico-Prod	Last modified date
		Jul 12, 2019
Name		Last modified date
	App-Rico-Prod	Jul 12, 2019

New Project [X]

Project Name

TDC-Assistant

Choose a language for your Actions project (you can add more languages later) Portuguese (Brazil) ▼

Choose your country or region Brazil ▼

Cancel Create project

New project

Actions on Google: Selecionando de um tipo

The screenshot displays the Actions Console interface. At the top, there are navigation tabs: Overview, Develop, Test, Deploy, and Analytics. On the right, there is a 'TDC-Assistant' dropdown menu and a help icon. The main content area is a grid of action categories, each with an icon, a title, and a list of actions. The categories are:

- Games & fun**: Play trivia games, Tell jokes, Get my fortune.
- Home control**: Control lighting, Control appliances & televisions, Control home security.
- Kids & family**: Tell a story, Play trivia, Take a quiz.
- Food & drink**: Find food recipes, Order food, Get nutrition facts.
- Shopping**: Manage shopping lists, Shop groceries, Check prices.
- Business & finance**: Check financial markets, Get info about businesses, Check balances.
- Health & fitness**: Get info about health & medicine, Track exercise, Diagnose symptoms.
- Social & communication**: Make phone calls, Manage messages, Make video calls.

Below the grid, there is a 'More options' section with four additional categories:

- Templates**: Use Google Sheets to build Actions without any code.
- Actions SDK**: Use command-line interface tools to create your Actions.
- Device registration**: Enable Google Assistant for your hardware.
- Conversational**: Build a customized conversational experience. This category is highlighted with a red border.

Actions on Google: Passo a passo

1. Autenticação OAuth2
2. Frase de Invocação da Action
3. Configuração Dialogflow
4. Teste de Actions

Passo 1: Autenticação OAuth2



Passo 1: Autenticação OAuth2



Account creation



Linking type

OAuth, Grant type: Authorization code



Client information

Client ID: **[REDACTED]**, Authorization url: **[REDACTED]**



Configure your client (optional)

0 scopes set up



Testing instructions

Your Actions require account linking so you must provide a username and password for a test account. Please make sure that any provided accounts are not real user accounts. This information will only be used by the review team, and will not be visible to users.


```
username=UserTeste  
password>PasswordTeste
```


Passo 2: Frase de Invocação da Action

Portuguese (Brazil) Modify languages

Display name ^

Display name is publicly displayed in the [Actions directory](#). Users **say** or **type** the display name to begin interacting with your Actions. For example, if the display name is Dr. Music, users can say "Hey Google, Falar com o app Dr. Music", or type "Falar com o app Dr. Music" to invoke the Actions.

 Click to hear the pronunciation of your name TDC 2019

 Modify the pronunciation if it doesn't sound right

Google Assistant voice ^

Pick the type of voice you would like to use for your Action. This is the voice that users will hear when they interact with your Action from their phone, Google Home or other devices.

Match user's language setting ?

Passo 3: Configuração do Dialogflow



Passo 4: Teste de Actions

Change version

Device:

Language: Portuguese (Brazil)

Location: São Paulo - SP, 01010-010, Brazil

DISPLAY REQUEST RESPONSE AUDIO DEBUG ERRORS [View logs](#)

Visual will show up when you start to test

Suggested input

Falar com o app TDC 2019

Input

Falar com o app TDC 2019





GIVE ME

THE GOOD STUFF

makeameme.org

Mão na massa

Configuração de Dialogflow



Olá, Dialogflow! Prazer em conhecê-lo ;)



- Roda na Google Cloud, o que o torna altamente escalável;
- Considerado um dos melhores NPL (Natural Language Processing);
- Usa a ferramenta de Inteligência Artificial open source do Google, o Tensor Flow;
- Pode ser integrado com alguns dos mais utilizados assistentes virtuais.

Como o Dialogflow funciona?

1. Intent

1. Atualização diária

2. Entities

3. Fulfillment

Dialogflow: Intent >> Criação de projeto

Tip: If

the button below to

CREATE ACTION

Custom intent

Built-in intents ^

- Get fortune
- Get horoscope
- Get joke
- Get a quotation
- Get credit score
- Get cryptocurrency prices
- Play game
- Check water sports conditions
- Configure updates

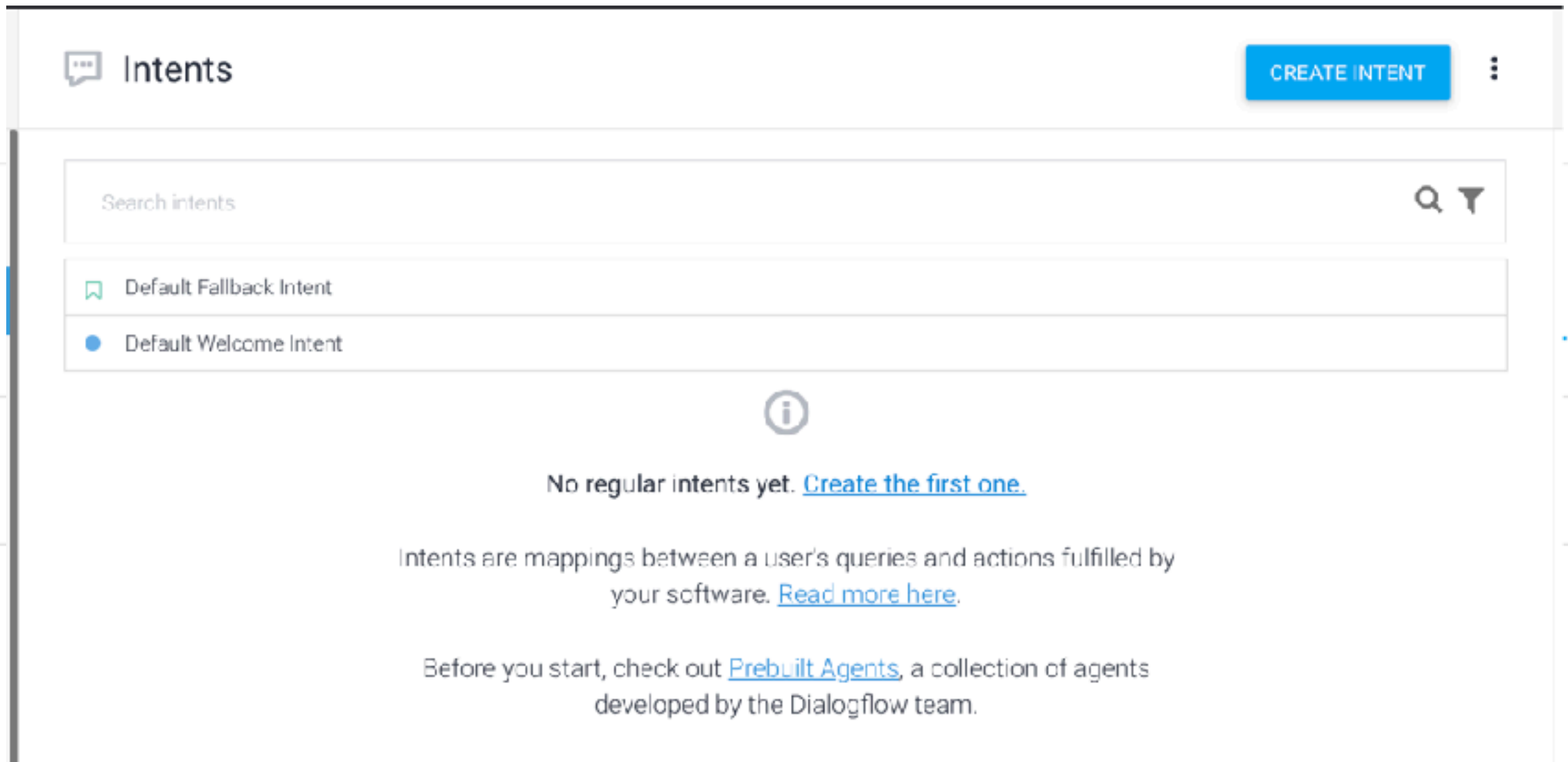
Custom intent

Don't see the intent you want in the built-in supported ones? Create your own!

[Learn more](#)

BUILD

Dialogflow: Intent >> Criação de Intent

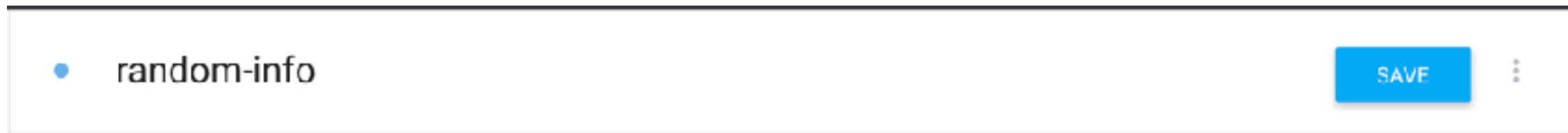


The screenshot shows the Dialogflow 'Intents' management page. At the top left, there is a 'Intents' header with a speech bubble icon. To the right of the header is a blue 'CREATE INTENT' button and a vertical ellipsis menu icon. Below the header is a search bar labeled 'Search intents' with a magnifying glass icon and a dropdown arrow icon. The main content area contains a list of intents: 'Default Fallback Intent' (marked with a bookmark icon) and 'Default Welcome Intent' (marked with a blue dot icon). Below the list is a large information icon (i in a circle) and a message: 'No regular intents yet. [Create the first one.](#)' Below this message is a paragraph: 'Intents are mappings between a user's queries and actions fulfilled by your software. [Read more here.](#)' At the bottom, another paragraph reads: 'Before you start, check out [Prebuilt Agents](#), a collection of agents developed by the Dialogflow team.'

Dialogflow: Intent >> Criação de Intent



Dialogflow: Intent >> Receber diariamente



Dialogflow: Intent >> Receber diariamente

Training phrases 

Search training phrases 



☞ Add user expression

☞ Me conte algo sobre o tdo

☞ Me fale alguma notícia sobre o TDC

☞ Me conte algo

☞ Me conte algo rancômico

☞ Me fale uma notícia

Dialogflow: Intent >> Habilitação de Fulfillment

Fulfillment



Enable webhook call for this intent

Enable webhook call for slot filling

Dialogflow: Intent >> Habilitação de Fulfillment

The screenshot displays the Dialogflow console interface. On the left, the 'Training phrases' section is highlighted with a green border. It contains a search bar and a list of phrases: 'Add user expression', 'Me conte algo sobre o tdc', 'Me fale alguma noticia sobre o TDC', 'Me conte algo', 'Me conte algo randômico', and 'Me fale uma noticia'. On the right, the 'Agent' configuration panel is shown. The 'USER SAWS' field is highlighted with a red border and contains the text 'alguma noticia'. Below it, the 'DEFAULT RESPONSE' is set to 'Not available'. The 'INTENT' field is highlighted with a blue border and contains the text 'random info'. At the bottom, there is a 'DIAGNOSTIC INFO' button.

Contexts ⓘ

Events ⓘ

Training phrases ⓘ Search training phrases 🔍

- 🗨 Add user expression
- 🗨 Me conte algo sobre o tdc
- 🗨 Me fale alguma noticia sobre o TDC
- 🗨 Me conte algo
- 🗨 Me conte algo randômico
- 🗨 Me fale uma noticia

See how it works in Google Assistant. 🌐

Agent

USER SAWS COPY URL

alguma noticia

🔴 DEFAULT RESPONSE

Not available

INTENT

random info

ACTION

Not available

DIAGNOSTIC INFO



Como o Dialogflow funciona?

~~1. Intent~~

- Atualização diária

2. Entities

3. Fulfillment

Dialogflow: Atualização diária

Atualizações enviadas em forma de notificação, que “triggera” uma Intent específica exibida diariamente.

Existe 2 maneiras de fazer este processo:

1. Automática

Todo o fluxo é tratado pelo Dialogflow

2. Avançada

Precisa implementar todo o fluxo de diálogo



Automatic discovery flow

The screenshot displays the 'Automatic discovery flow' configuration page in the Google Assistant Developer Console. The interface includes a top navigation bar with tabs for 'Overview', 'Develop', 'Test', 'Deploy', and 'Analytics'. The 'Develop' tab is currently selected. In the top right corner, there is a 'TDC-Assistant' dropdown menu and a help icon. The main content area is divided into several sections:

- Manage conversational fulfillment in Dialogflow:** A large grey box with a blue button labeled 'Edit in Dialogflow' and an external link icon.
- Links:** A section showing 'None' with a dropdown arrow.
- User engagement:** A section with a dropdown arrow and several toggle switches:
 - 'Allow Google Assistant to send daily updates or push notifications to users, on behalf of your Action.' with a 'Learn more' link.
 - 'Would you like to offer daily updates to users?' with a blue toggle switch turned on.
 - 'Would you like to let users add this Action to Google Assistant Routines?' with a grey toggle switch turned off.
 - 'Would you like to send push notifications? If yes, user permission will be needed.' with a grey toggle switch turned off.
- Content title (this will be shown to users):** A text input field containing the value 'noticia randômico'.

Como o Dialogflow funciona?

~~1. Intent~~

- ~~• Atualização diária~~

2. Entities

3. Fulfillment

Dialogflow: Entities >> Criação de Entities

Caso o negócio necessite criar novos tipos de dados, é possível definir entities customizadas

tdc_entity

SAVE



Define synonyms ⓘ



Allow automated expansion

tdc_1

TDC, TDC2019

tdc_2

The Developer Conference

[Click here to edit entry](#)

[+ Add a row](#)

Dialogflow: Intent >> Usando Entities

The screenshot shows the Dialogflow console interface. A search bar at the top left contains the text "Me conte algo sobre o tdc", with "tdc" highlighted in yellow. Below the search bar, a dropdown menu is open, displaying a list of entities. The first entity, "@tdc_entity:tdc_entity", is highlighted in blue. To the right of the dropdown, a table shows the resolved value for the selected entity. The table has two columns: "PARAMETER" and "RESOLVED VALUE". The row for "@tdc_entity:tdc_entity" shows the resolved value "tdc".

PARAMETER	RESOLVED VALUE
@tdc_entity:tdc_entity	tdc

Dialogflow: Intent >> Usando Entities

Me fale uma notícia

Prompts for "tdc_entity"

NAME	ENTITY	VALUE
tdc_entity	@tdc_entity	\$tdc_entity

PROMPTS

- 1 Qual evento?
- 2 Enter a prompt variant

CLOSE

+ New parameter

Como o Dialogflow funciona?

~~1. Intent~~

- ~~• Atualização diária~~

~~2. Entities~~

3. Fulfillment

Dialogflow: Fulfillment >> Criação de Fulfillment

index.js package.json



```
21   };
22
23   var randomNumber = random.int(0, 2);
24   var simpleResponse = new SimpleResponse({
25     speech: news[randomNumber],
26     text: news[randomNumber],
27   });
28
29   conv.ask(simpleResponse);
30 };
31
32 //Registrando a intent criada no nosso fulfillment
33 app.intent('random-info', randomNews);
34
35 exports.dialogflowFirebaseFulfillment = functions.https.onRequest(app);
```

Dialogflow: Fulfillment >> Testando

The image displays two side-by-side screenshots of the Dialogflow Fulfillment console, illustrating a test run. Both screenshots show the same user input: "Me conte algo sobre o tdc".

Left Screenshot (Default Response):

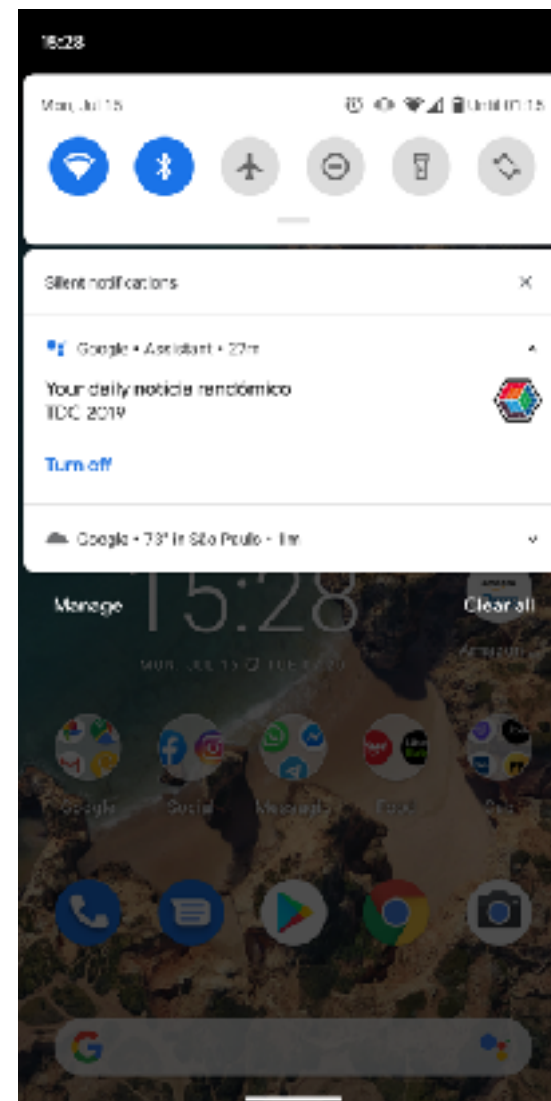
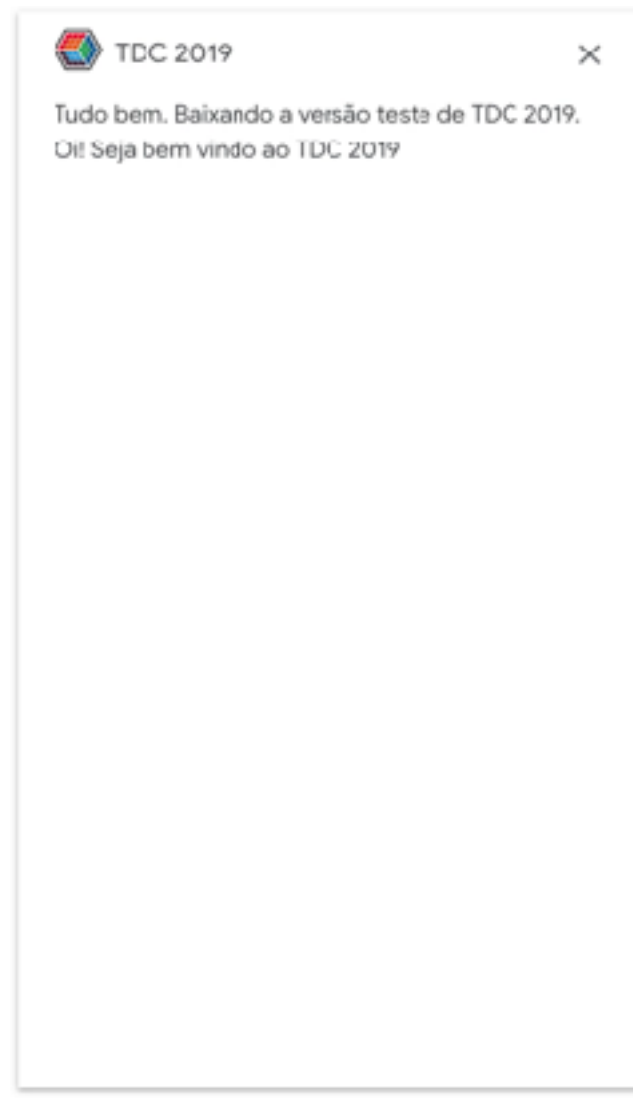
- USER SAYS:** Me conte algo sobre o tdc
- DEFAULT RESPONSE:** O Tdc 2019 acontece das 09:00 às 19:00
- INTENT:** random-info
- ACTION:** Not available

Right Screenshot (Custom Fulfillment):

- USER SAYS:** Me conte algo sobre o tdc
- DEFAULT RESPONSE:** O Tdc 2019 acontece na Universidade Anhembi Morumbi
- INTENT:** random-info
- ACTION:** Not available

Both screenshots include a "DIAGNOSTIC INFO" button at the bottom.

Resultado Final



Mão na massa

Desenvolvimento Backend

Webhook

1. Kotlin

2. Lib “actions-on-google” em Java/Kotlin

- Tratamento de Request e Response JSON

3. Amazon (EC2)

Resultados

Interagindo com a Rico pelo Google Assistente

Desafios e Aprendizados

O que percebemos na prática

Desafios e aprendizados

1. Use a documentação
2. Código é apenas parte da experiência
3. Teste, teste, teste...

Dúvidas?

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Referências

Actions - <https://bit.ly/2dHpMp1>

Dialogflow - <https://bit.ly/2GsWZX4>

Actions on Google Java - <https://bit.ly/30CTMKj>

Webhook boilerplate - <https://bit.ly/2Seia1K>

Actions responses - <https://bit.ly/2LpzPD4>

Actions design guideline - <https://bit.ly/2Sg9uuJ>

System entities - <https://bit.ly/2MmaAOe>