Digital Analytics from Google Analytics using R

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Prepared for MarTECH MEETUP, 5 June 2019

agenda

about me

intro on crunching digital data

R Studio & Google Analytic Reporting API

some examples

Ines Teaca

data scientist

technology enthusiast | fast learner | positive

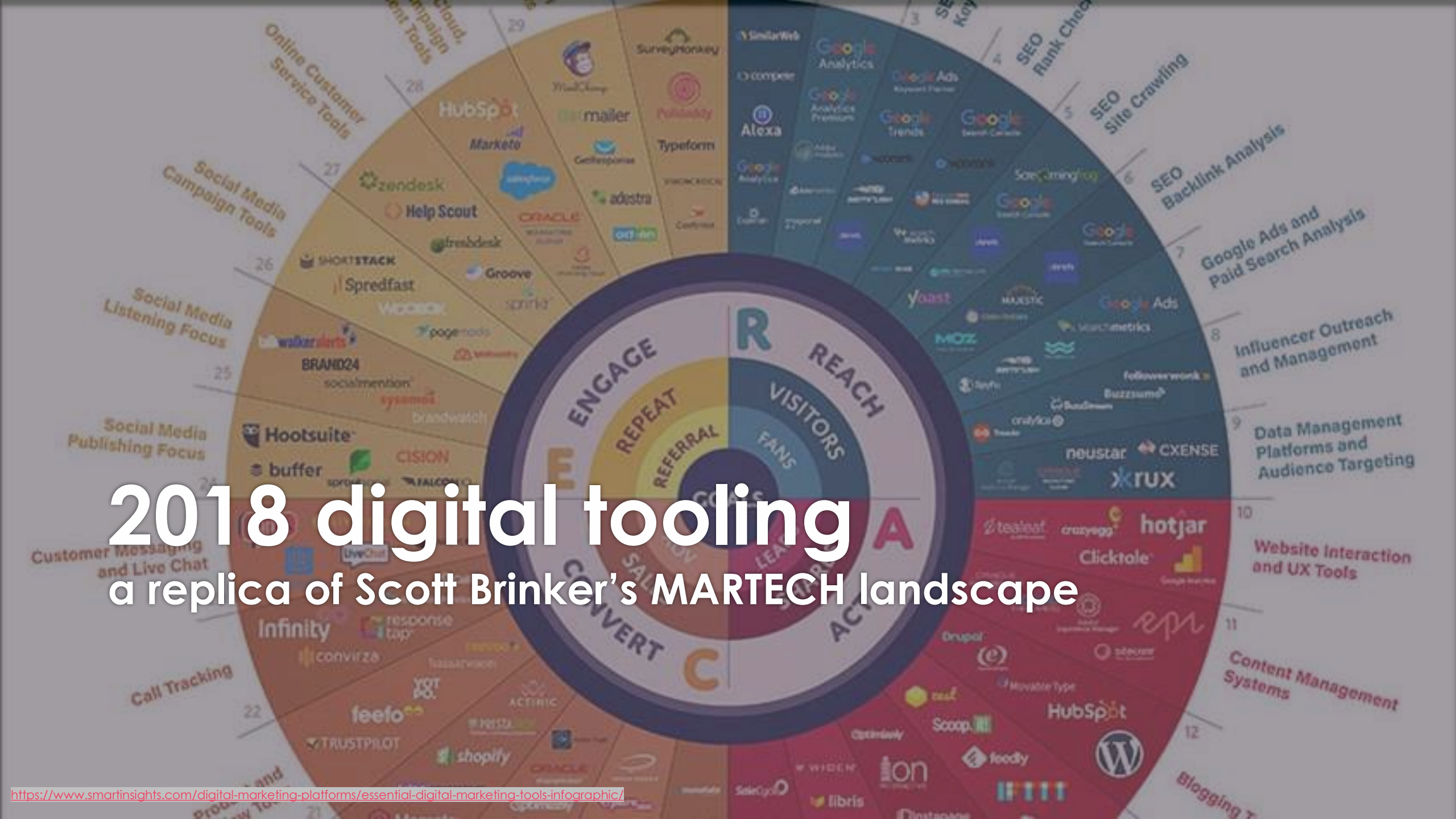
experience in telecom industry, direct marketing & ONGs

Setting Expectations

- This is a presentation meant to give you a flavor of R
- This is a presentation of options ☺

digital data

everywhere in any shape


2018 digital tooling
a replica of Scott Brinker's MARTECH landscape
https://www.smartinsights.com/digital-marketing-platforms/essential-digital-marketing-tools-infographic/

one tool or many? R ?

- a **programming language** and **free** software environment **for statistical computing and graphics** supported by the R Foundation for Statistical Computing (wikipedia)
- the most specialized integrated development environment (IDE) for R is **RStudio**

How companies are using R

- Ford uses R to improve the design of its vehicles.
- Basically, Twitter uses R to monitor user experience.
- The US National Weather Service uses R to predict severe flooding.
- The Human Rights Data Analysis Group uses R to quantify the impact of war.
- R is being used by The New York Times to create infographics.
- Google uses R to calculate the ROI of advertising campaigns.
- Facebook uses R to update Facebook status updates and its social network graph
- T-Mobile US uses R to monitor and respond to customer interactions

why R Studio and not Excel?

copes well with larger data than Excel =scalability

writing scripts =reproduction

multitude of libraries available=flexibility

graphical capabilities=outstanding

free software, free documentation=available online

- R Studio (with prior R installation)

- GoogleAnalyticsR library

for today use case

setting tracking tools availability

personal blog account tracked using google analytics for demo purpose

- Google Analytics Account : (personal demo site) https://ineszz.blogspot.com

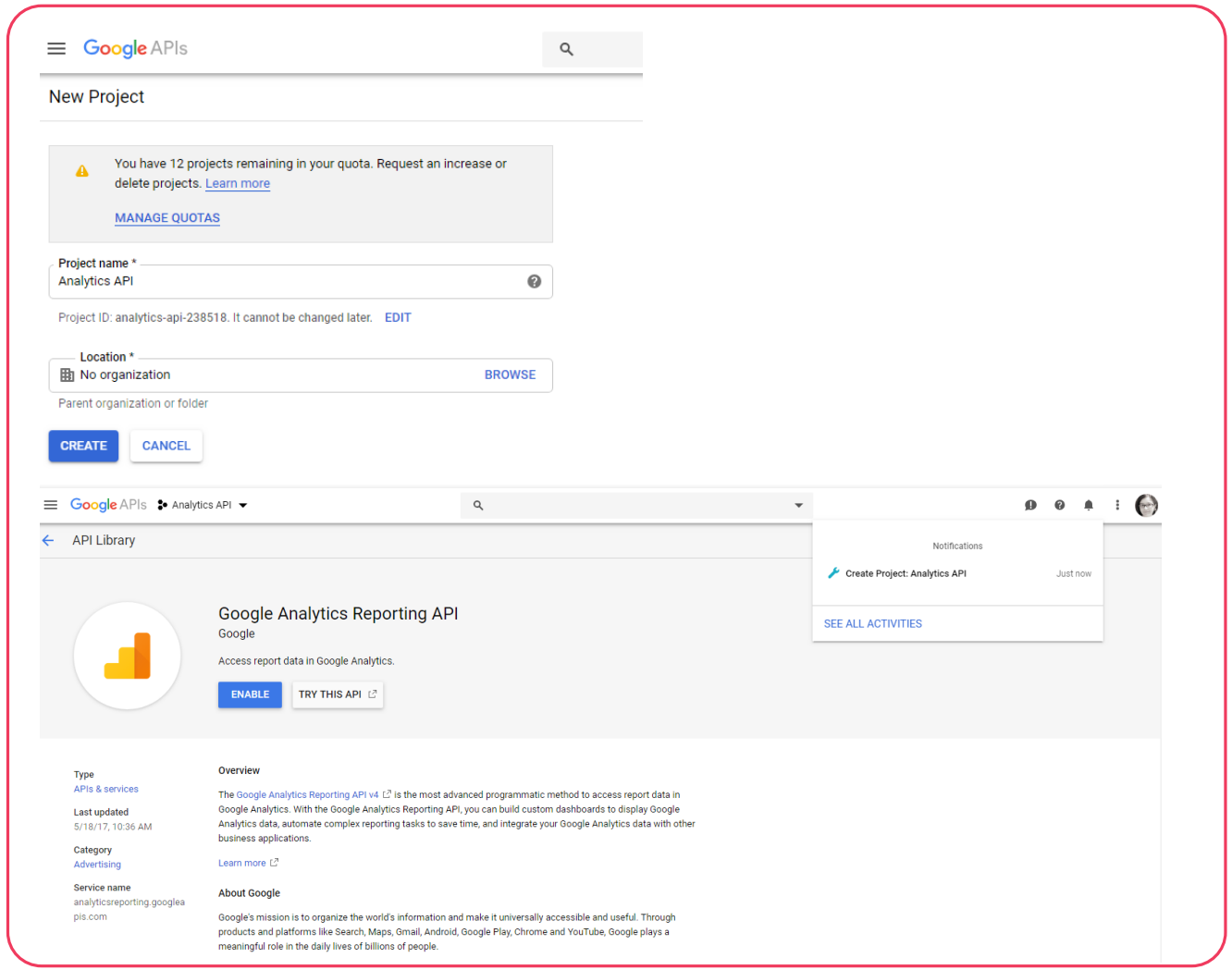
scoping

apply CRISP-DM method
or ask yourself:
1. what is the business use case
2. what data is available
3. do we have all we need (time, tools, data,budget)?

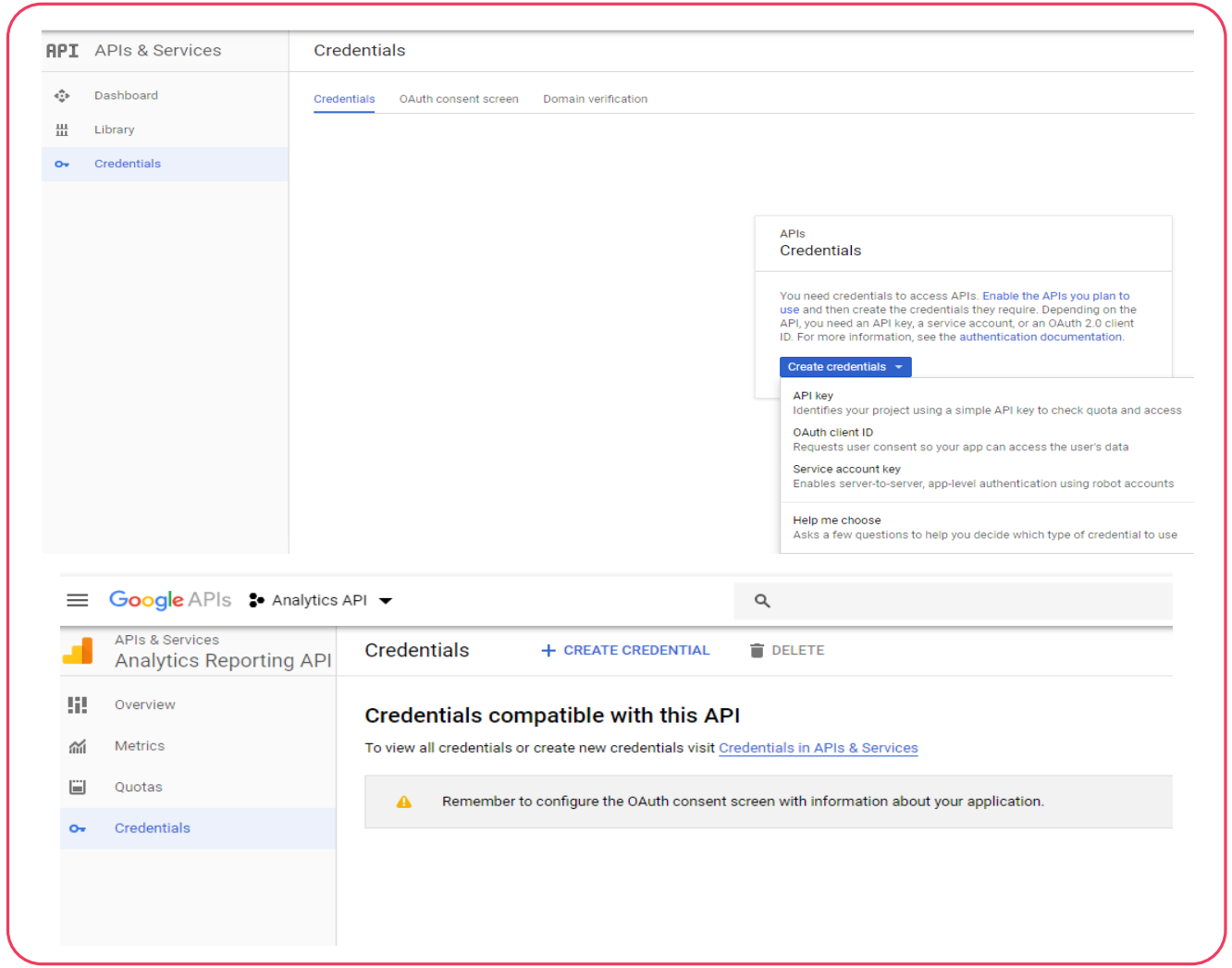
do we have the insights?

prepare Google analytics reporting API

First step

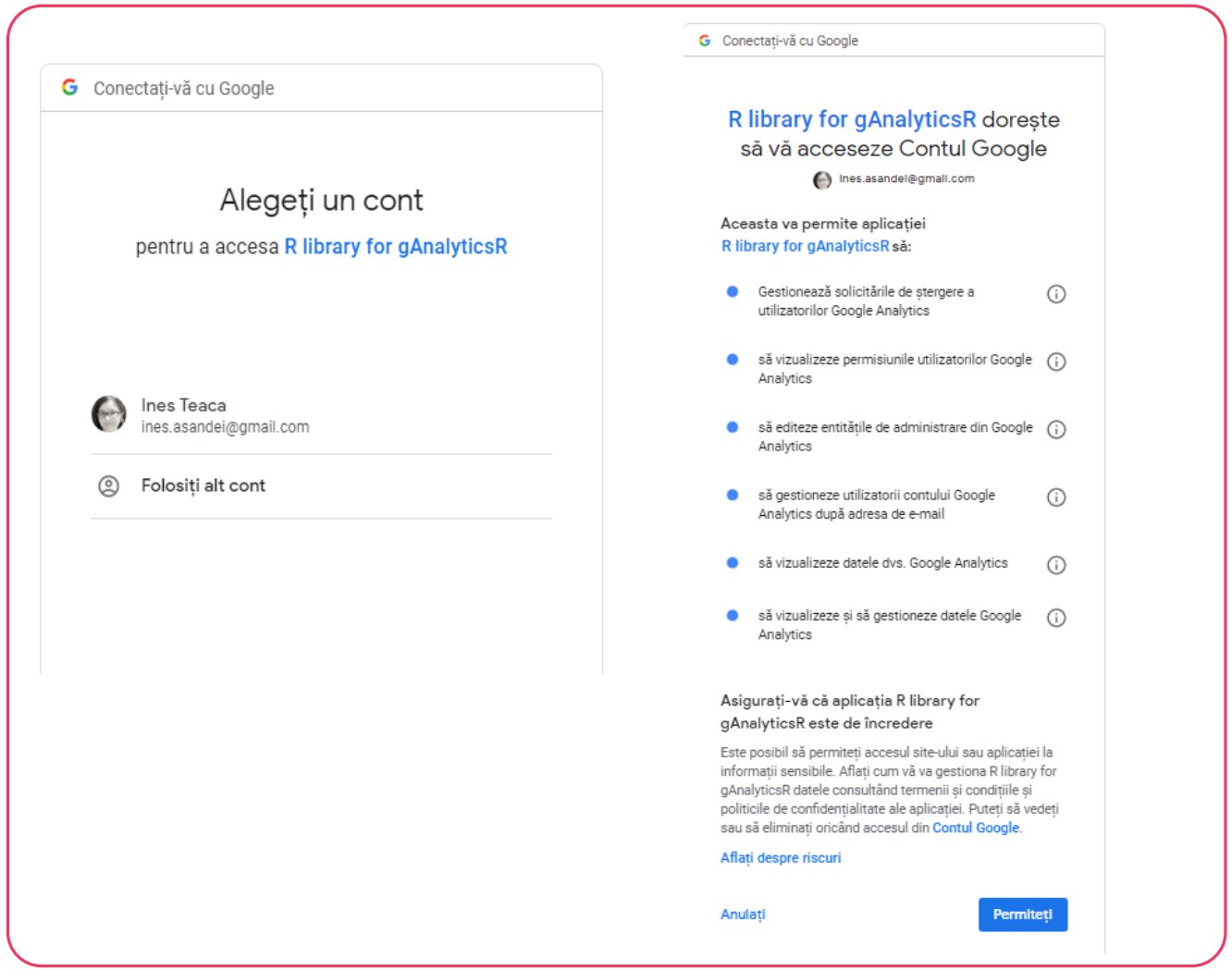


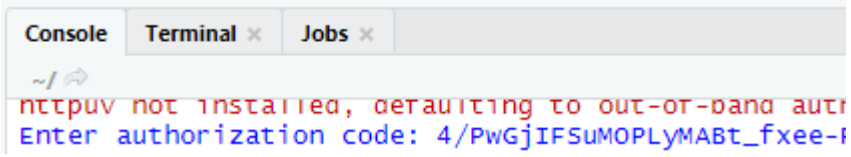
Second step


APIs & Services
Dashboard
Library
Credentials
Credentials
Credentials
OAuth consent screen
Domain verification
APIs
Credentials
You need credentials to access APIs. Enable the APIs you plan to use and then create the credentials they require. Depending on the API, you need an API key, a service account, or an OAuth 2.0 client ID. For more information, see the authentication documentation.
Create credentials
API key
Identifies your project using a simple API key to check quota and access
OAuth client ID
Requests user consent so your app can access the user's data
Service account key
Enables server-to-server, app-level authentication using robot accounts
Help me choose
Asks a few questions to help you decide which type of credential to use
Google APIs
Analytics API
APIs & Services
Analytics Reporting API
Overview
Metrics
Quotas
Credentials
Credentials
+ CREATE CREDENTIAL
DELETE
Credentials compatible with this API
To view all credentials or create new credentials visit Credentials in APIs & Services
Remember to configure the OAuth consent screen with information about your application.

if first time, authorization code needs to be run

Once





now get the data with 4 commands
connecting R Studio to GA/GA360

by Mark Edmondson

1. load libraries

```
library("googleAnalyticsR")
```

2. authorize connection with Google Analytics servers

```
ga_auth()
```

3. pick a profile with data to query

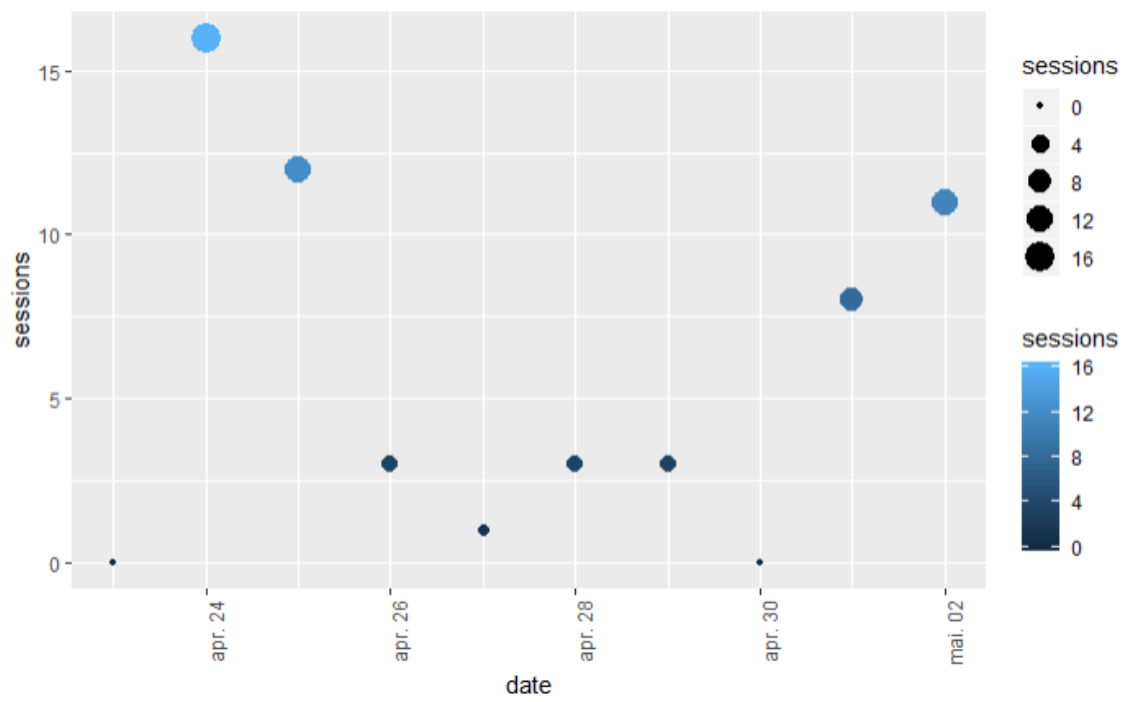
```
ga_id <- account_list[4,'viewId']
```

4. get data from Goolgle Analytics account

```
gadata <- google_analytics(ga_id,
                           date_range = c("2019-04-23", "2019-05-02"),
                           metrics = c("users","sessions"),
                           dimensions = "date",
                           max = 100)
```

...and ...first graph to explore daily data is done

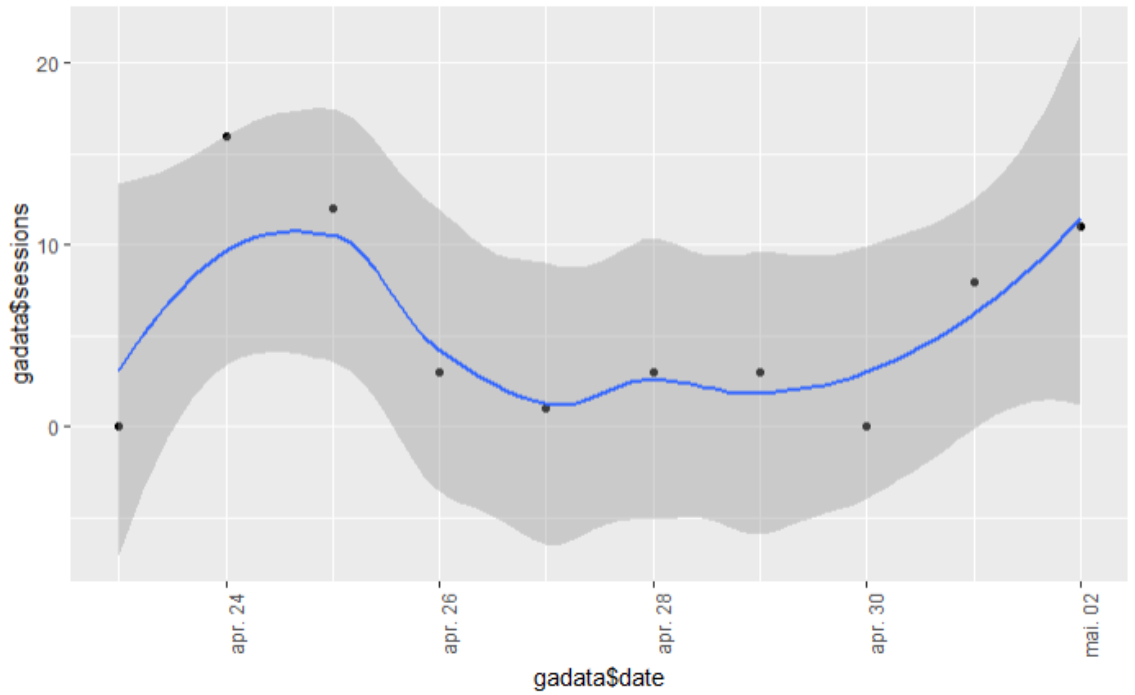
```r
# First Graph
gadata %>%
ggplot(aes(x=date, y=sessions,size = sessions, color =sessions)) +
  geom_point()+
  theme(axis.text.x = element_text(angle = 90, hjust = 1))
```



trend line

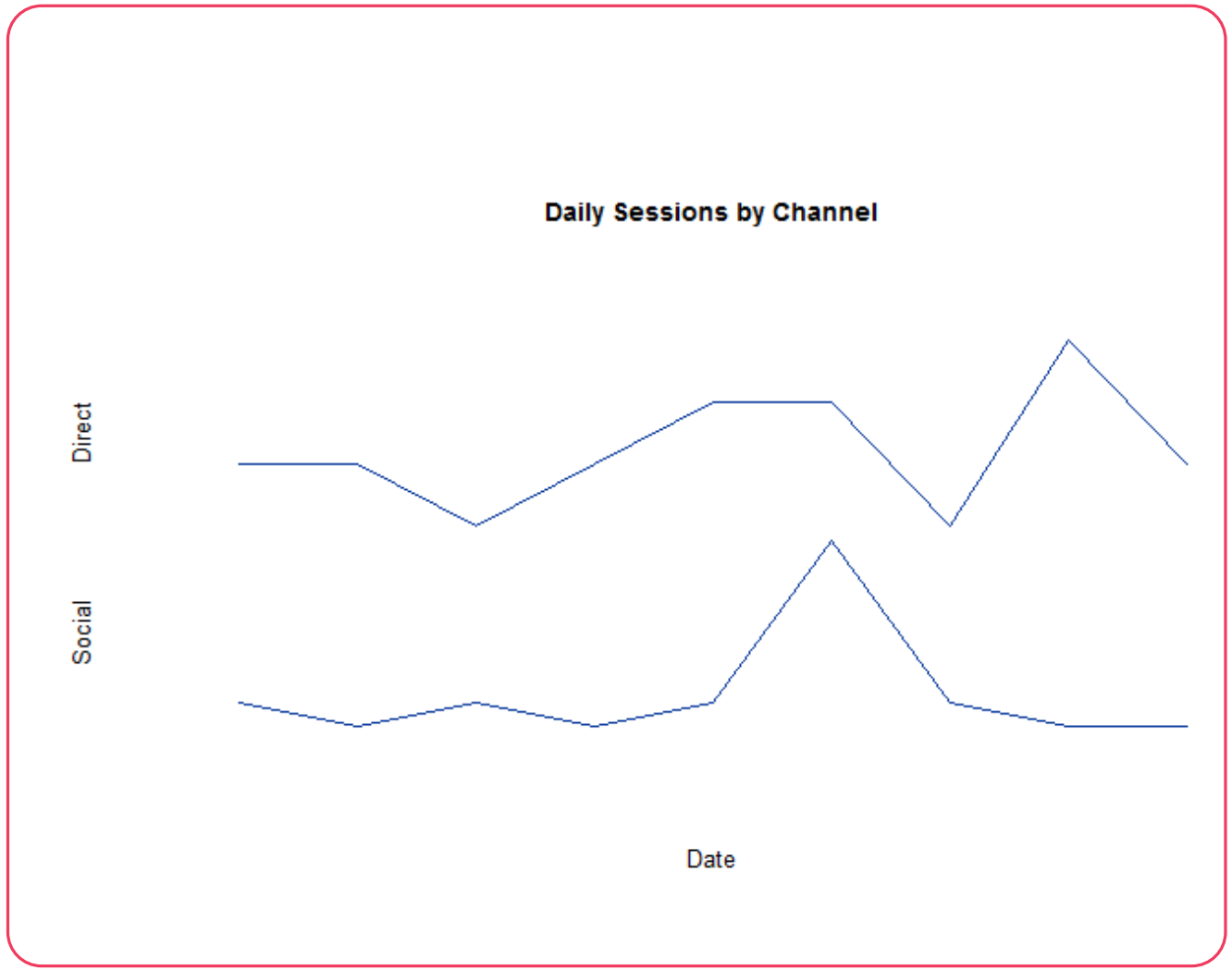
```
gadata %>%
ggplot(aes(x = gadata$date, y= gadata$sessions) ) +
  geom_point() +
  geom_smooth() +
  theme(axis.text.x = element_text(angle = 90, hjust = 1))
```

`geom_smooth()` using method = 'loess' and formula 'y ~ x'

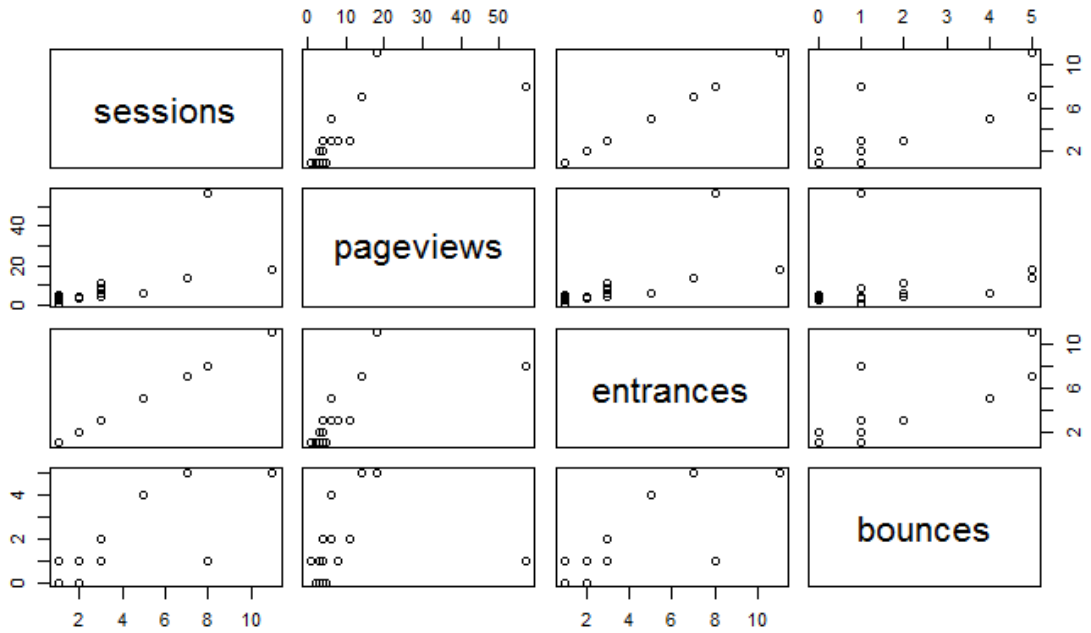


trend line

With split per marketing channels and better visual features

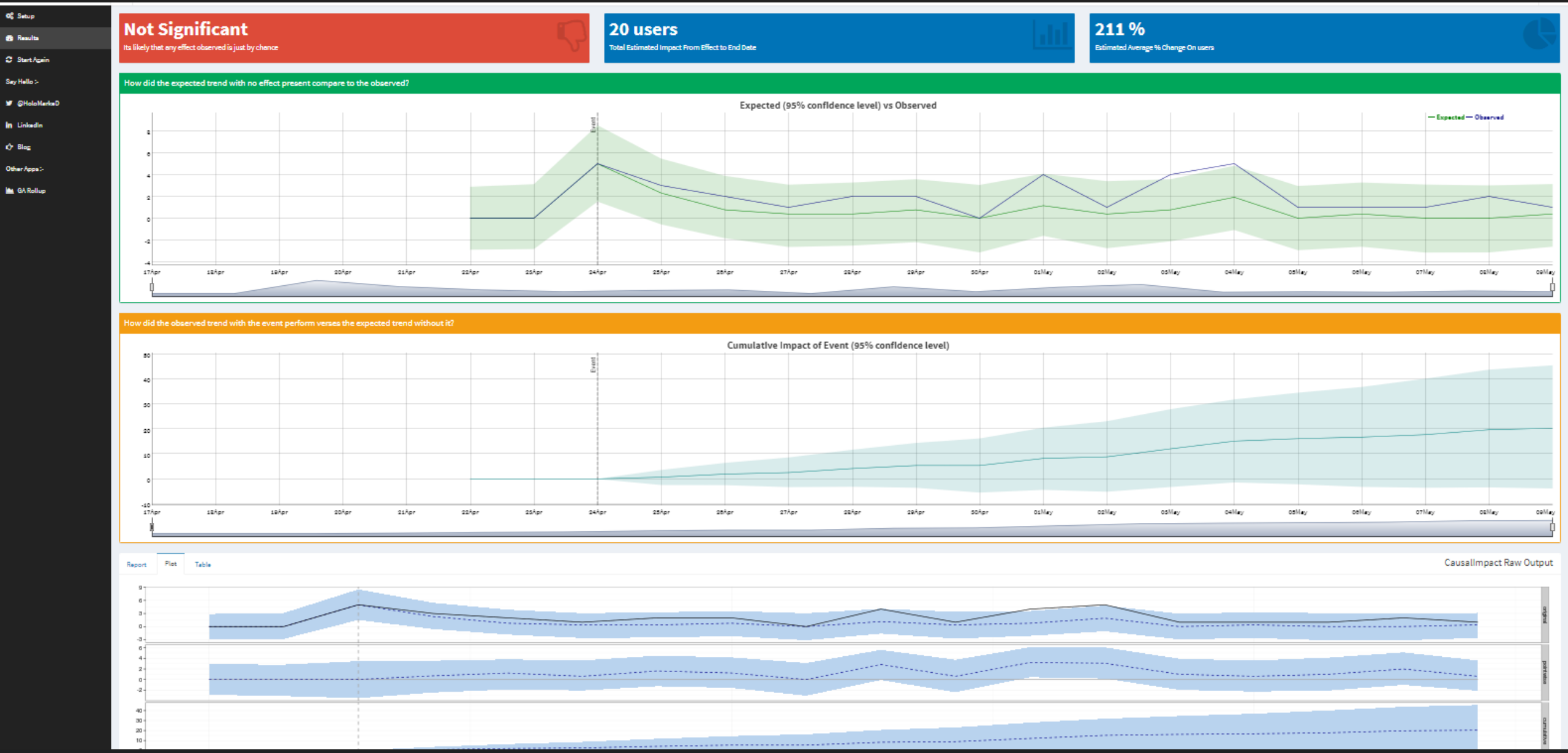


correlations



Shiny Dashboards

https://gallery.shinyapps.io/ga-effect/ by Mark Edmondson



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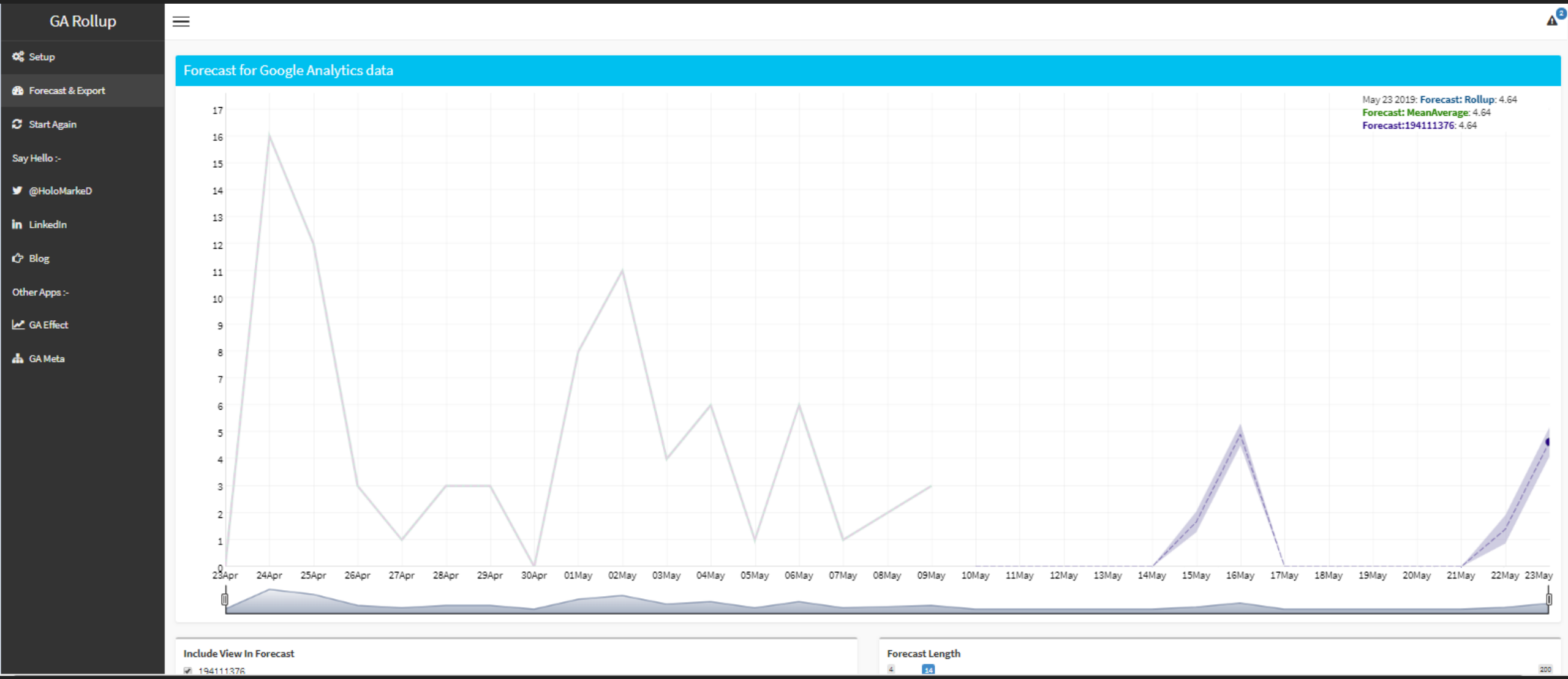

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THE END

Contact details: Linkedin

GitHub Notebook: https://github.com/ineszz/R_MARTECH

Blog ineszz.blogspot.com

→ Stay Close (or get in touch), we prepare de **R-Ladies Bucharest** meetup for more R goodies!