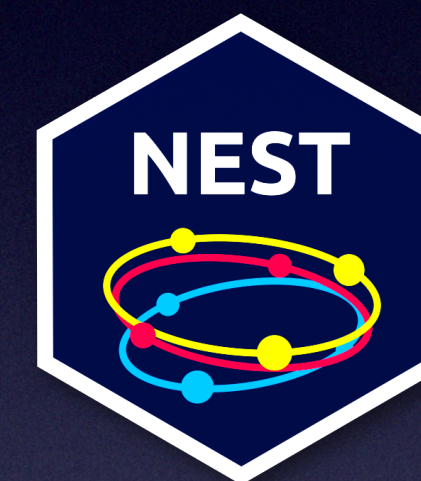


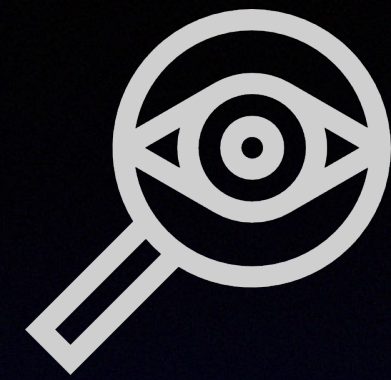
An Overview of



Vincent Shen

**Principal Data Scientist & Chief Product Owner of NEST
Roche**

PHUSE US Connect
Mar 7, 2023



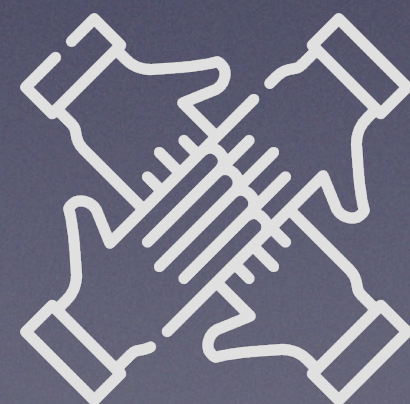
What Is NEST?



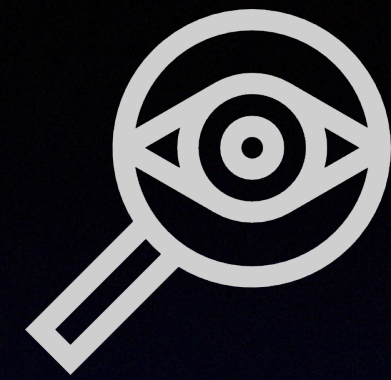
How To Use NEST?



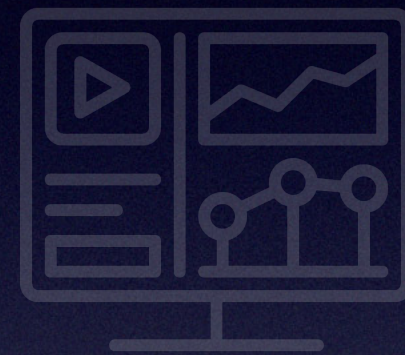
Our Strategy & Vision



Industry Collaboration



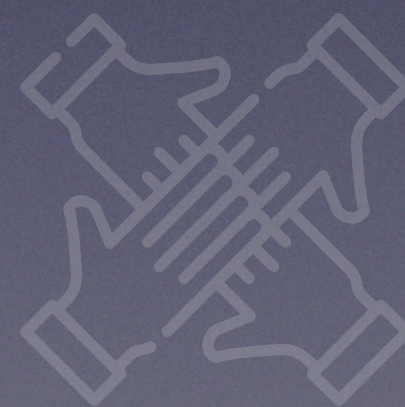
What Is NEST?



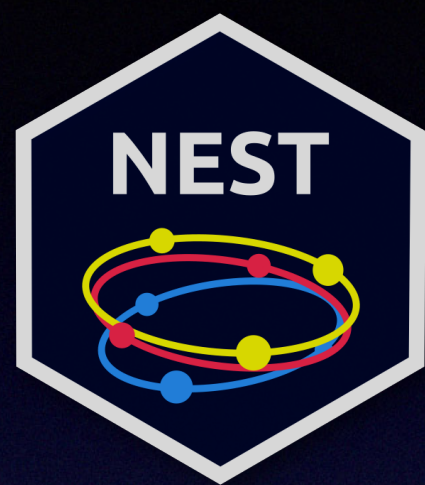
How To Use NEST?



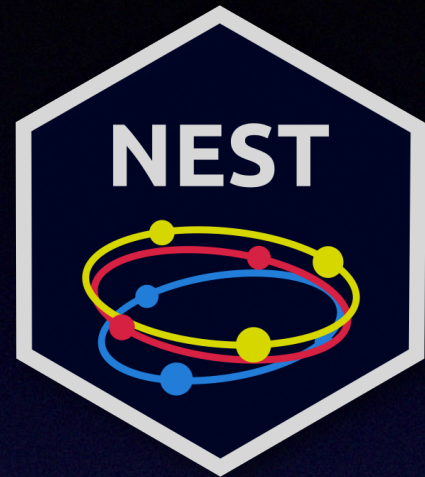
Our Strategy & Vision



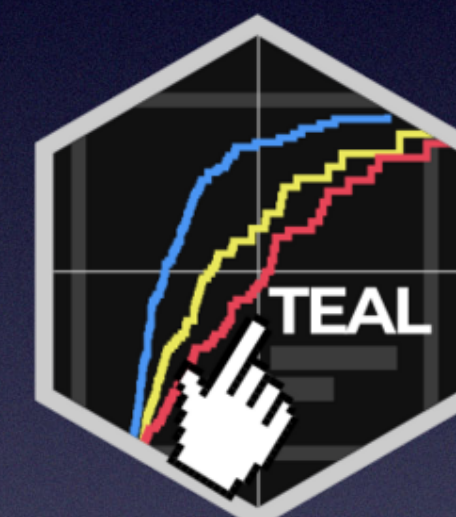
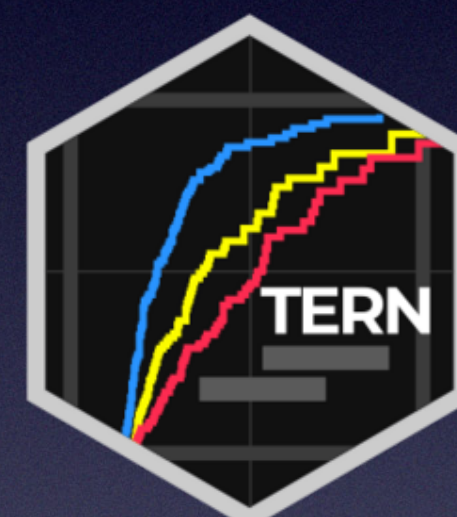
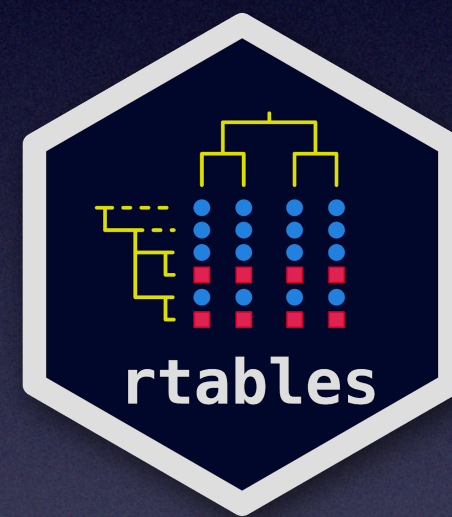
Industry Collaboration



A collection of R packages enabling **faster and more efficient insights generation** for **exploratory** and **regulatory** purposes under clinical research settings

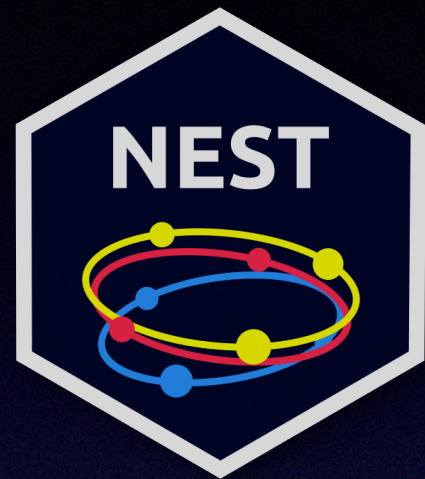


A collection of R packages enabling **faster and more efficient insights generation** for **exploratory** and **regulatory** purposes under clinical research settings

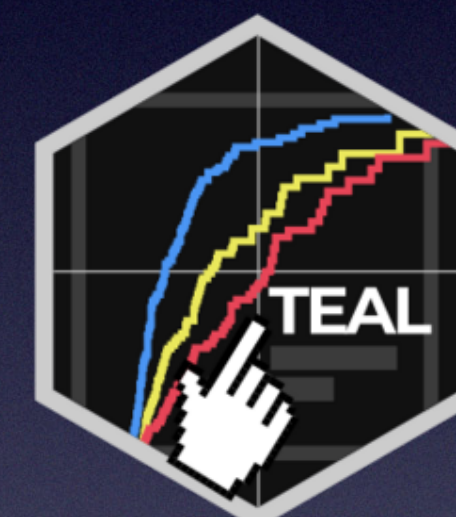
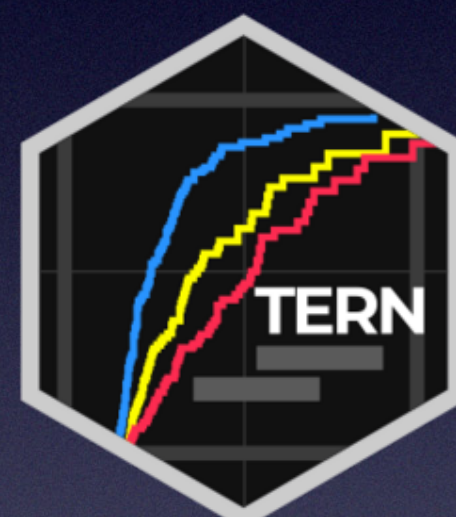
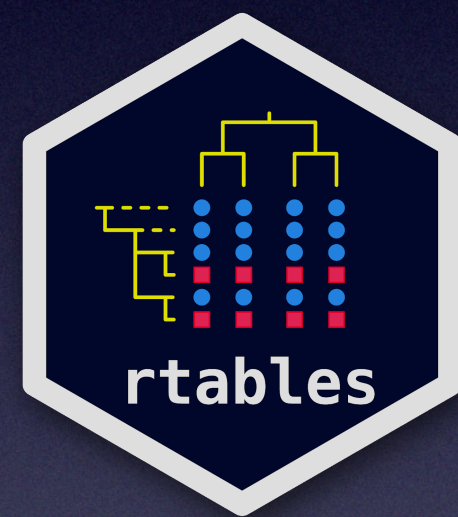


Static TLG outputs

Modularized Shiny App

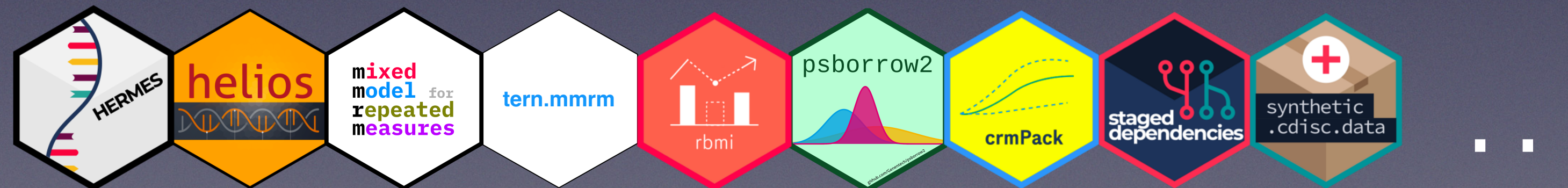


A collection of R packages enabling **faster and more efficient insights generation** for **exploratory** and **regulatory** purposes under clinical research settings

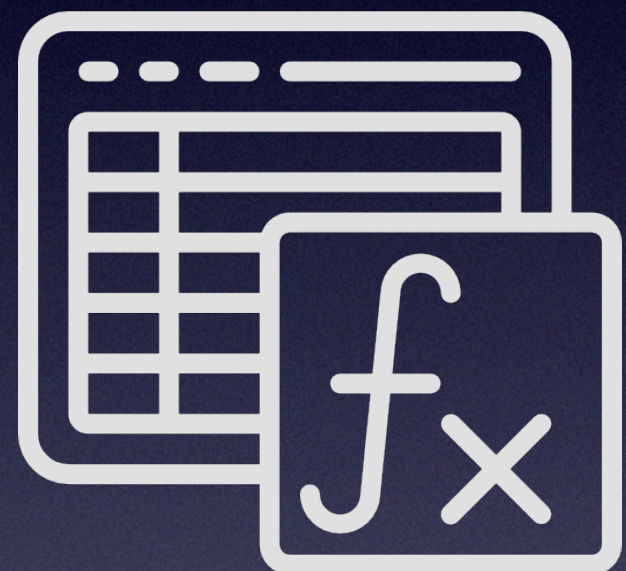


Static TLG outputs

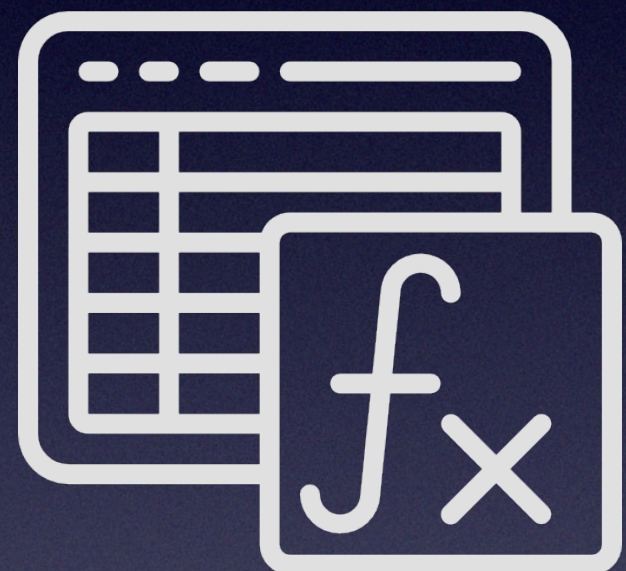
Modularized Shiny App



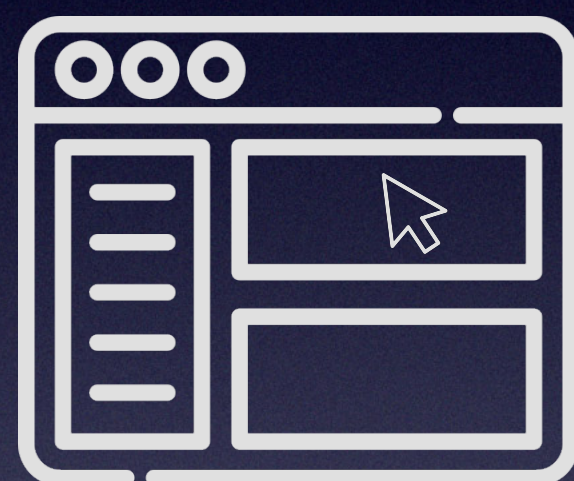
<https://github.com/insightsengineering>



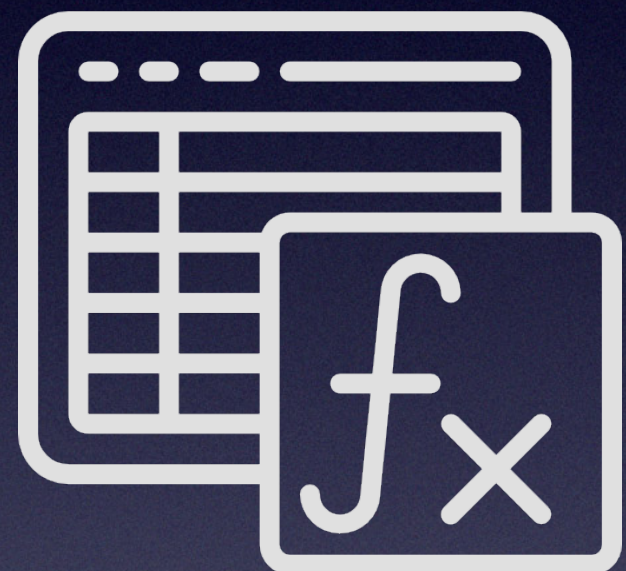
200+ TLG
Templates



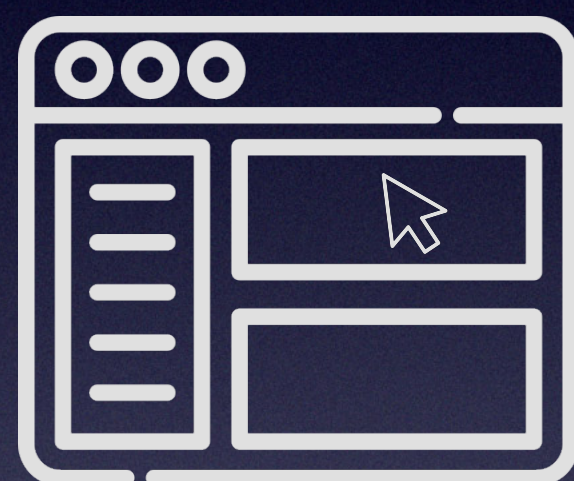
200+ TLG
Templates



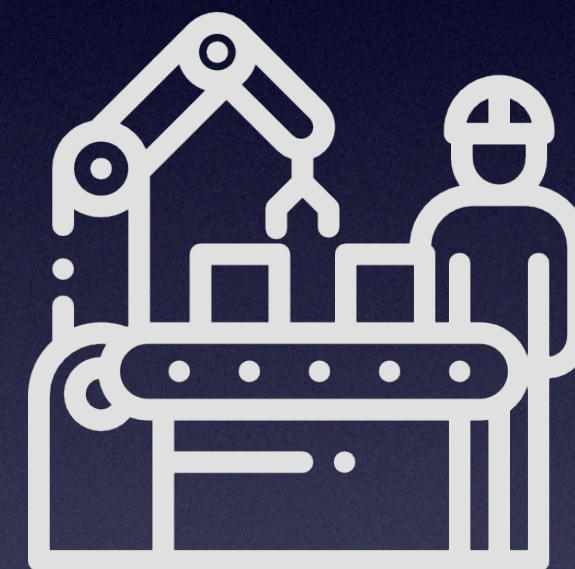
70+ Built-In
Shiny Modules



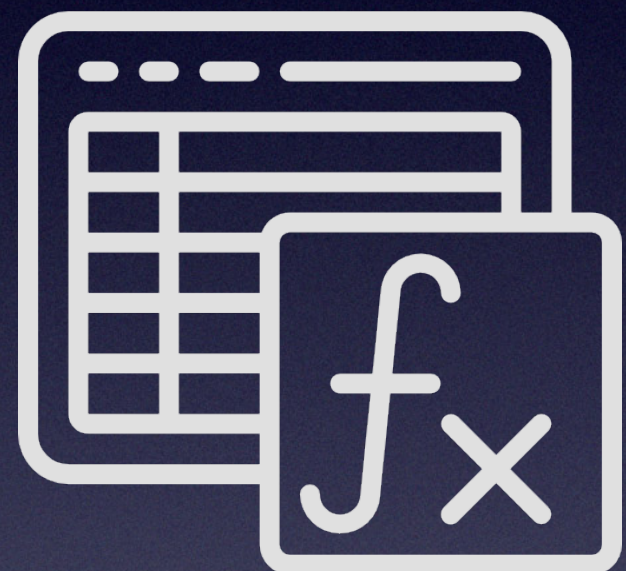
200+ TLG
Templates



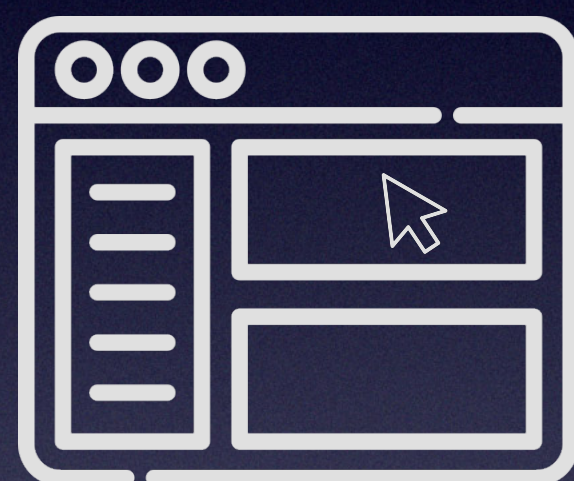
70+ Built-In
Shiny Modules



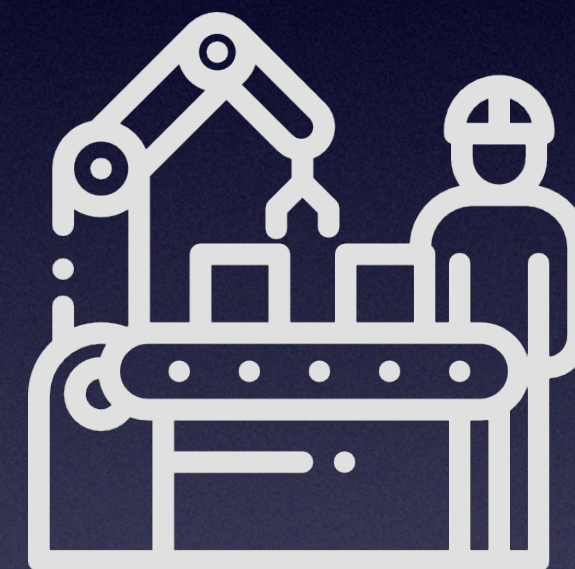
Automated
Deployment &
Validation Pipeline



200+ TLG
Templates



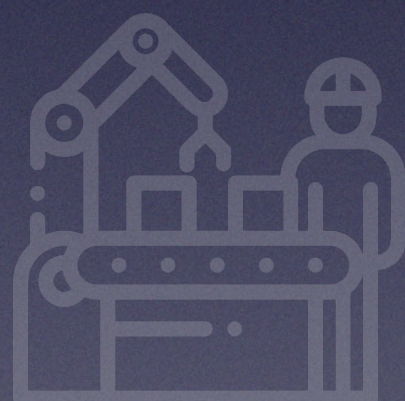
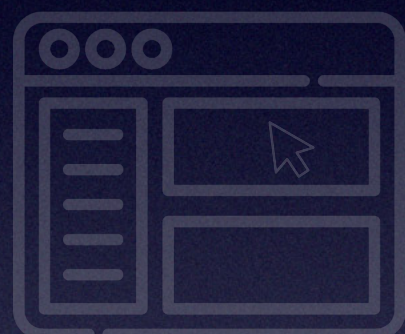
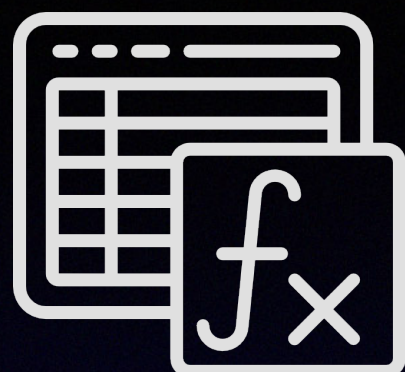
70+ Built-In
Shiny Modules



Automated
Deployment &
Validation Pipeline



Used by **1000+**
Data Scientists
@ Roche



<https://insightsengineering.github.io/tlg-catalog/>

TLG Catalog



Introduction

- Tables >
- Listings >
- Graphs >
- Index

TLG Catalog

Tables, Listings, and Graphs Catalog

PUBLISHED
February 17, 2023

Introduction

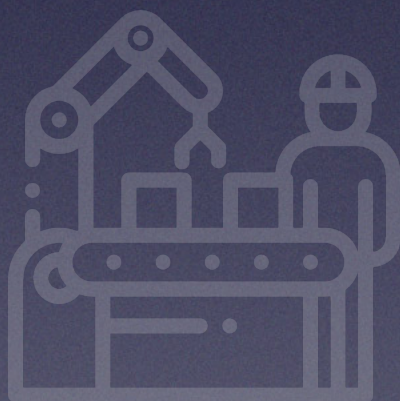
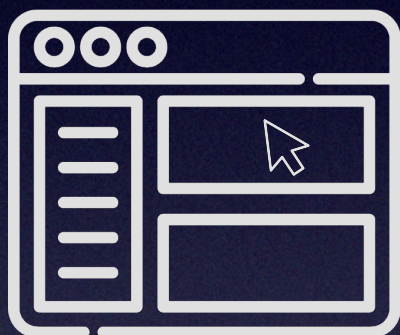
A catalog of Tables, Listings, and Graphs output produced by NEST tools.

See the full index of available TLG templates on the [Index page](#).



Made with ❤️ by the NEST SME Team

[Cookie Preferences](#)



<https://insightsengineering.github.io/teal.gallery/main/>

Example App with teal.modules.clinical modules

[Study Information](#) [Data Table](#) [Variable Browser](#) [Demographic Table](#) [Forest Plots](#) [Kaplan Meier Plot](#) [Response Table](#) [Time To Event Table](#) [Cross Table](#) [Cox Reg](#) [Logistic Reg](#) [MMRM](#) [Binary Response](#) [ANCOVA](#) [Report previewer](#) [Menu](#)

Info about data source

Random data are used that have been created with the 'scda' R package

NEST packages used

Packages
teal.modules.general
teal.modules.clinical
scda
scda.2021

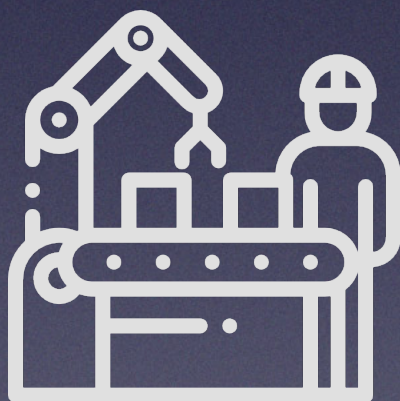
Teal is an R package that provides a modular framework to set up interactive data analyses web apps based on R shiny. Teal apps are often configured with very little effort, so our strategy is to have the statistical programmers set up particular teal/shiny apps for different aspects and deliveries of their respective study. Creating a teal app involves specifying the data source, choosing and configuring teal modules, and then deploying the app to a shiny or rsconnect server. The app users/stakeholders will then get an analysis ready application where they can dynamically subset the data and change the analysis via the encoding panel. The teal framework combines the configured teal modules, provides a navigation menu and the data filter panel. Most teal modules provide a Show R Code button which generates the R code to reproduce the static output that is displayed at the time of requesting the R code. Please note that the R code displayed via the show R code button includes Roche internal packages that are part of the NEST portfolio.

Requesting Help

If you need any support or have any questions regarding the app usage please contact [James Black](#)

Source: teal.gallery package

Pid:1027 Token:f48e97f5



A dedicated team managing all integrations, deployments and releases

Integrations, Deployments, and Releases

All Issues

Statuses

Backlog

Dinakar

Klaudia

Arek

Franek

Daphne

Previous Sprint

Current Sprint

Next Sprint

is:issue

387

X

Title

...

Assignees

...

Status

↑

...

Story ...

...

Labels

...

Sprint

...

Priority

...

Repository

...

+

▼

Todo

44

1

Cleanup process for Gitlab CR for daily images #31

Todo

enhancement

★

insightsengineering/ld...

2

[scribe] Create docker image base on r-base #25

Todo

insightsengineering/s...

3

Workflow(s) enhancements #84

Todo

enhancement

★

insightsengineering/ld...

4

Update dev-guide with new Gitlab/Github/RSPM info #105

Todo

8

documentation

★

insightsengineering/ld...

5

Remove staged.dependency yml files from agile-R and catalogs #160

Todo

chore

★

insightsengineering/ld...

6

Integration checks seem not to be running with depth 5 for teal.modules.hermes #220

Todo

chore

★

insightsengineering/ld...

7

Dev-guide rewrite #279

Todo

13

documentation

★

insightsengineering/ld...

8

Disable NEWS version check when only devel version component is bumped? #78

Todo

2

enhancement

★

insightsengineering/r...

9

convert_renv2csv.sh is not working for non-standard name of branches from github #290

Todo

bug

★

insightsengineering/ld...

10

Standardize the names of PATs in dockers #293

Todo

enhancement

★

insightsengineering/ld...

11

Explore new renv features #298

Todo

learning

★

insightsengineering/ld...

12

New repositories on RSPM for better package management #294

Todo

chore

★★

insightsengineering/ld...

13

Add how-to documentation subsection for installing NEST packages locally from G... #261

Todo

documentation

★

insightsengineering/ld...

14

Consider new pkgdown::check_pkgdown() function #4

Todo

insightsengineering/p...

15

Implementation of Engg Productivity dashboard #377

Todo

enhancement

insightsengineering/ld...

16

Architecture for engineering productivity dashboard #378

Todo

documentation

insightsengineering/ld...

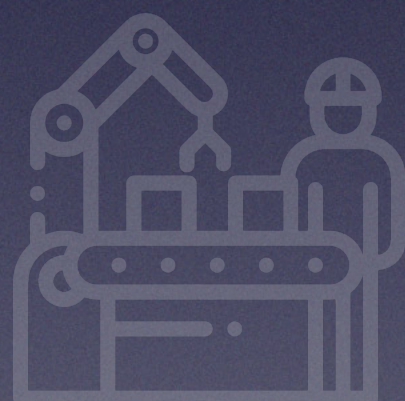
17

Research on engineering productivity KPIs #379

Todo

learning

insightsengineering/ld...



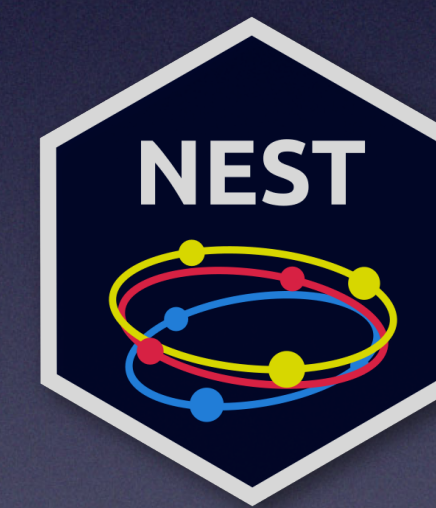
Starting from 2023, **ALL** new trials at Roche start using **R** as their **core data science tool**



SDTM



ADaM



TLG



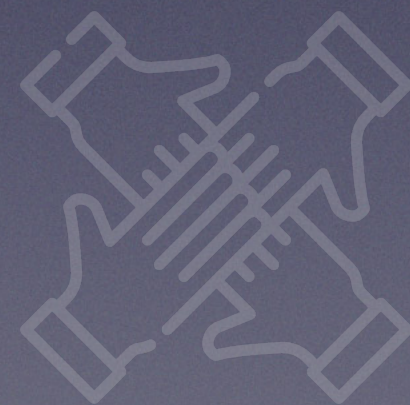
What Is NEST?



How To Use NEST?



Our Strategy & Vision



Industry Collaboration



To try NEST on your local environment, follow the instructions here:
<https://github.com/insightsengineering/depositary#usage>

For *production* releases ...

```
# choose a release you'd like to use ...
release_date <- "2022_10_13"
options(
  repos = c(
    insightsengineering = paste0(
      "https://insightsengineering.github.io/depositary/",
      release_date
    ),
    CRAN = "https://cloud.r-project.org/"
  )
)

# install packages ...
install.packages("teal.modules.clinical")
```

For *development* version ...

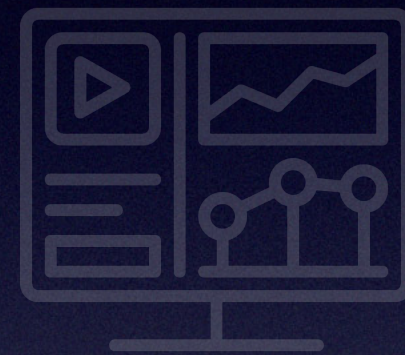
```
# Enable the pharmaverse universe -
# for latest dev version of packages
options(
  repos = c(
    pharmaverse = 'https://pharmaverse.r-universe.dev',
    CRAN = 'https://cloud.r-project.org'
  )
)

install.packages("teal")
```

We plan to release NEST on CRAN in **Q2/Q3 2023**



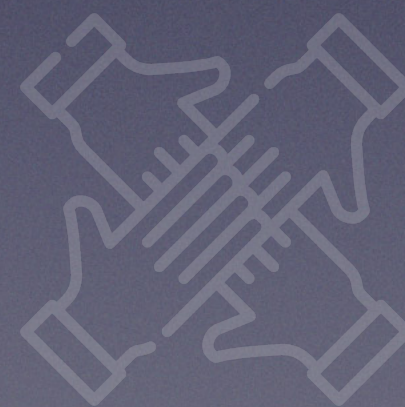
What Is NEST?



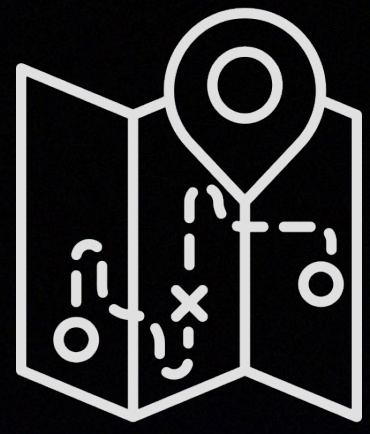
How To Use NEST?



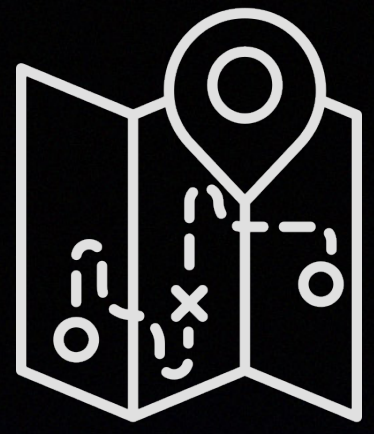
Our Strategy & Vision



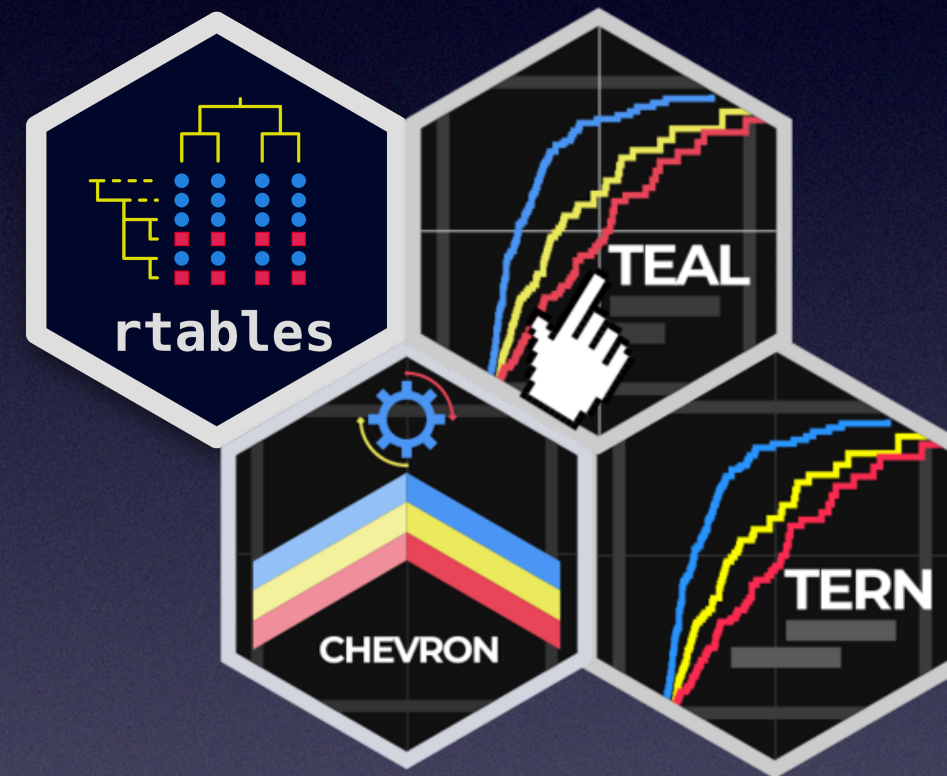
Industry Collaboration

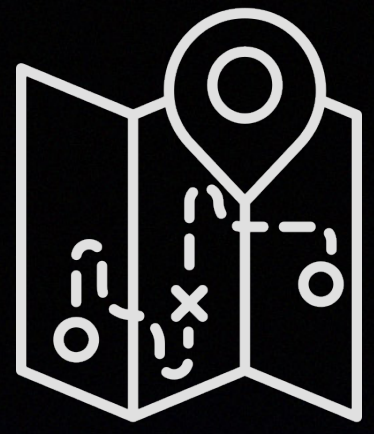


Our Team Setup & How We Work



Our Team Setup & How We Work

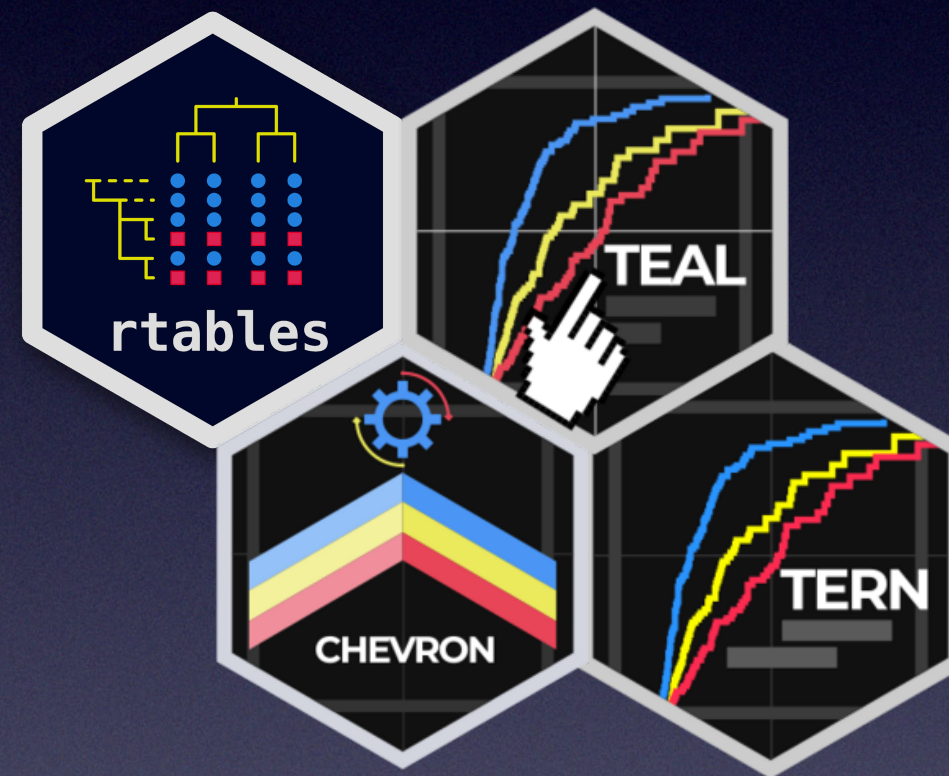


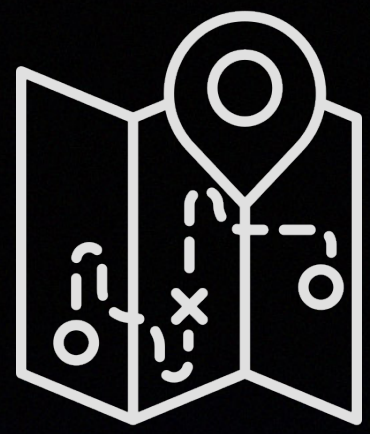


Our Team Setup & How We Work



Users

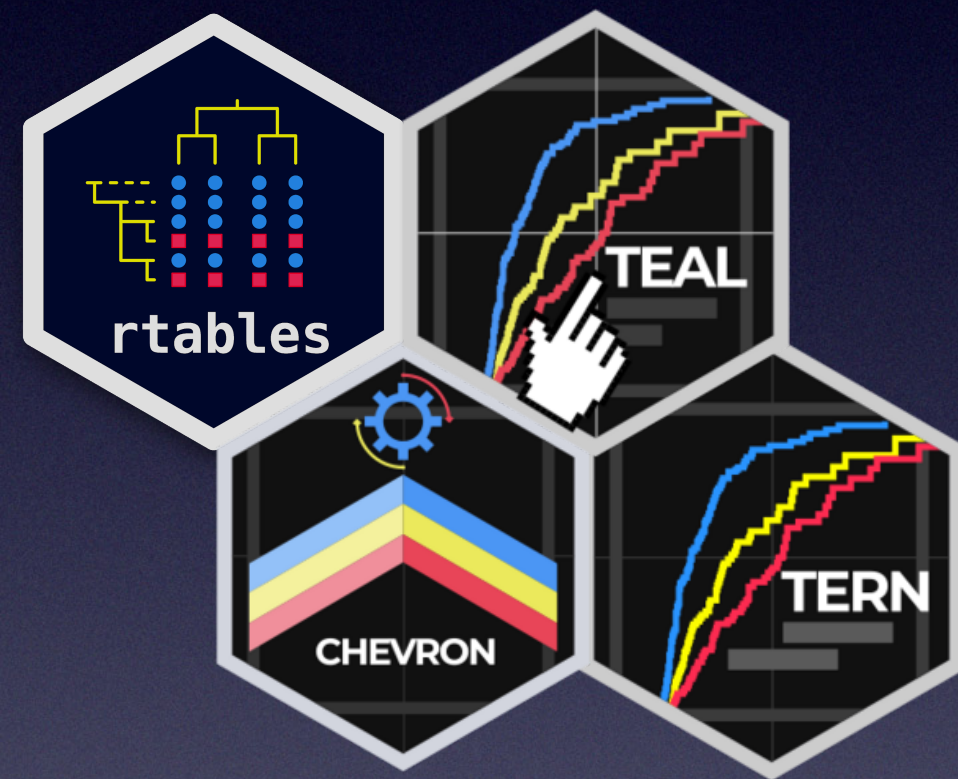


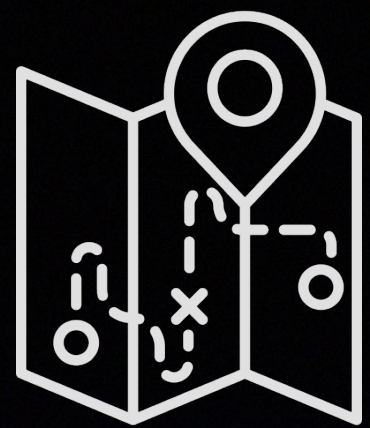


Our Team Setup & How We Work



Users

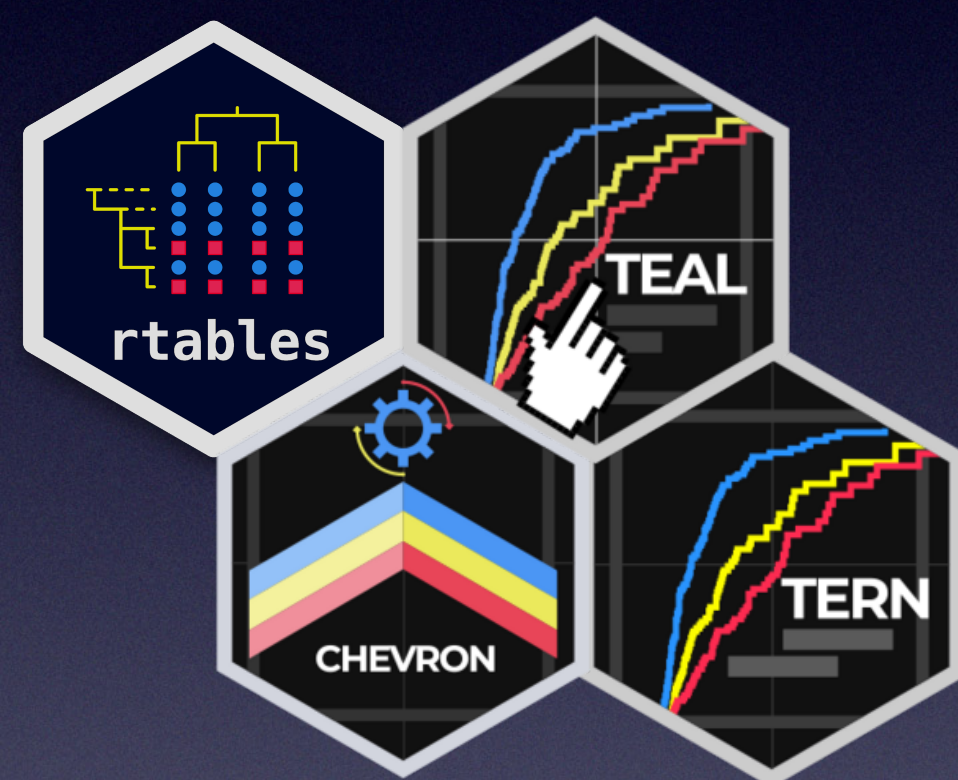


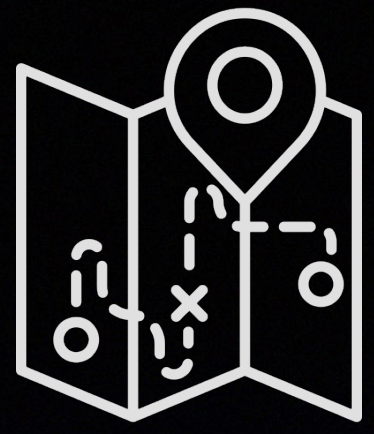


Our Team Setup & How We Work



Users

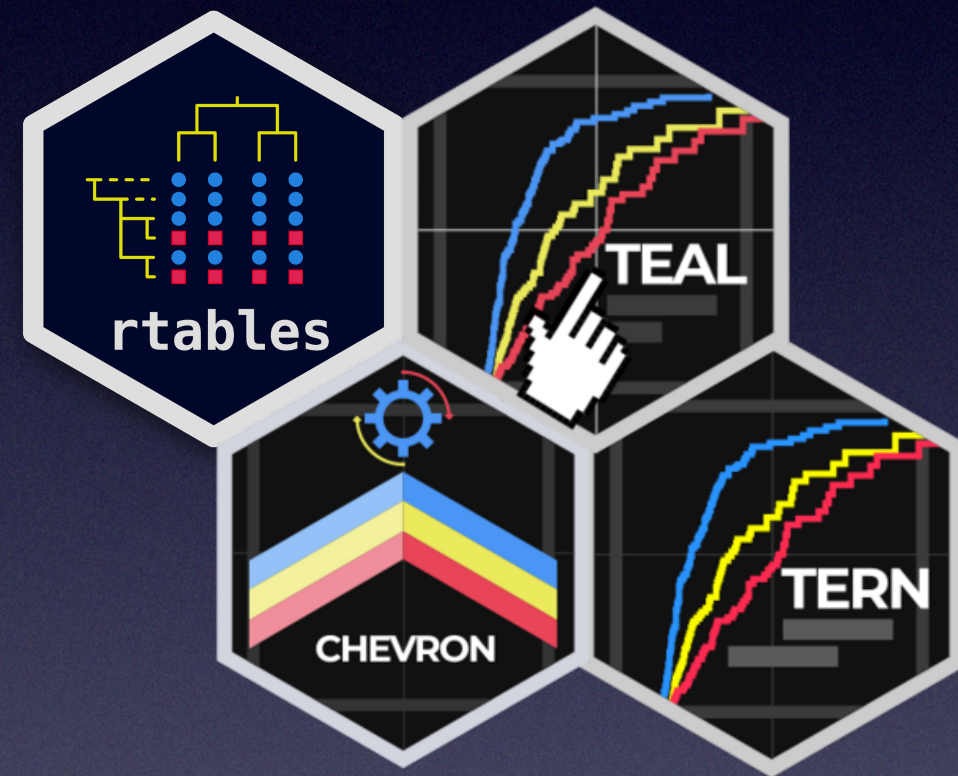




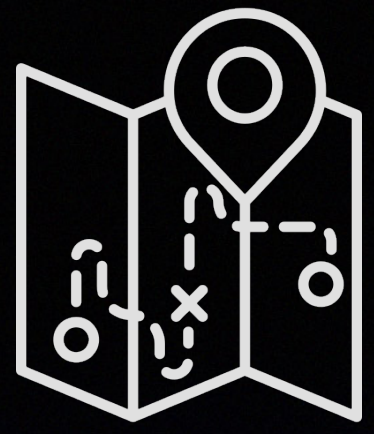
Our Team Setup & How We Work



Users



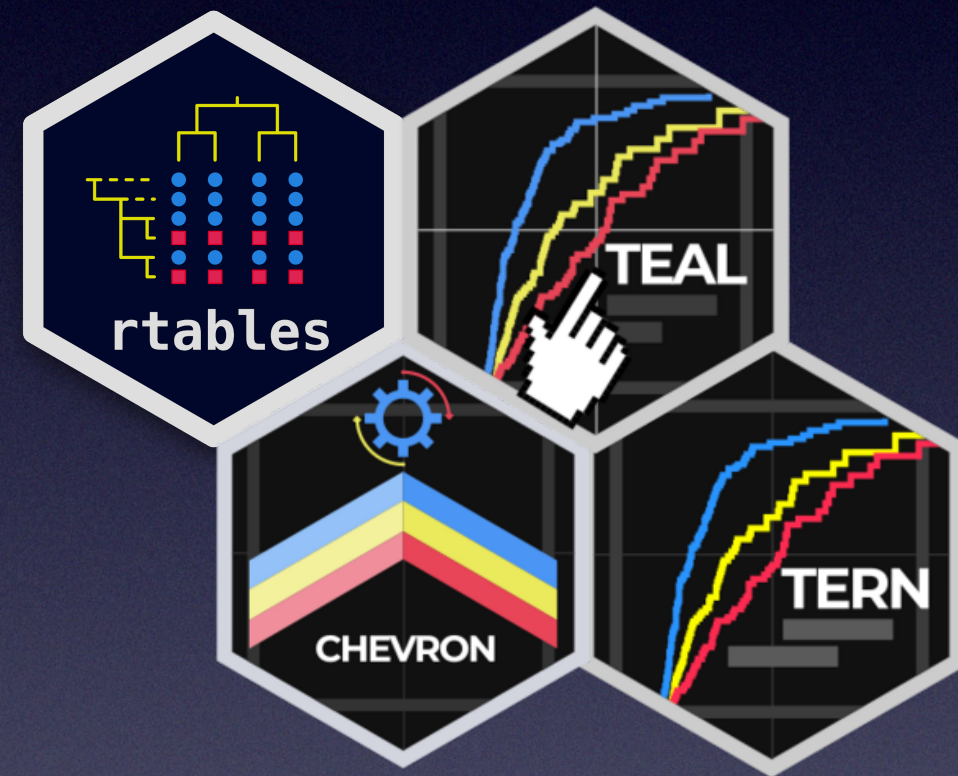
**Product
Owners**



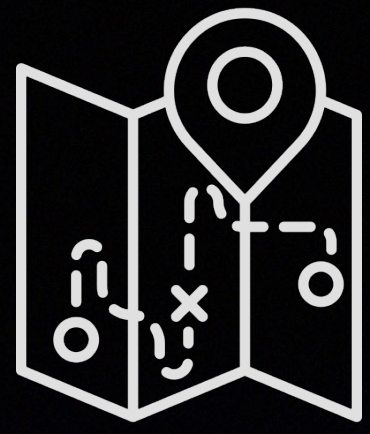
Our Team Setup & How We Work



Users



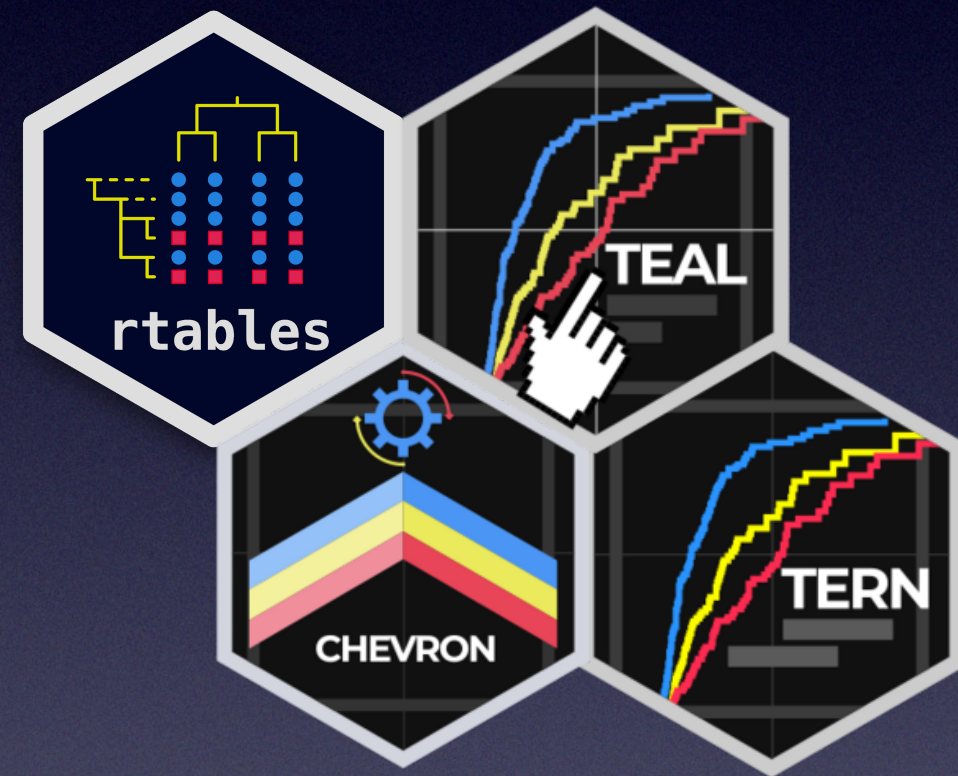
**Product
Owners**



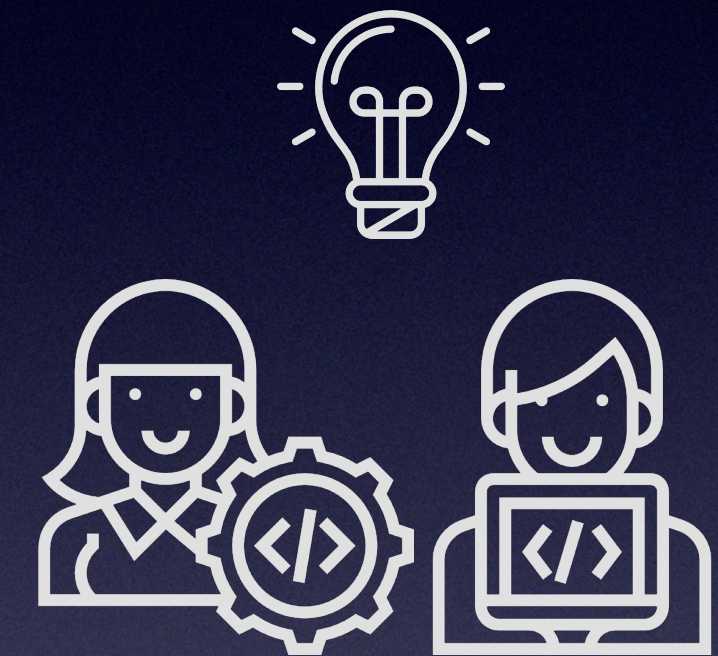
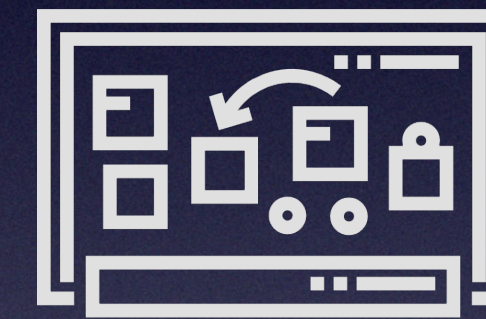
Our Team Setup & How We Work



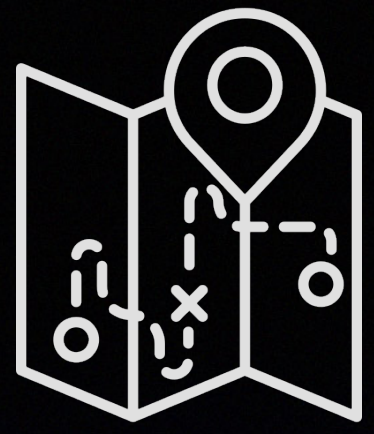
Users



**Product
Owners**



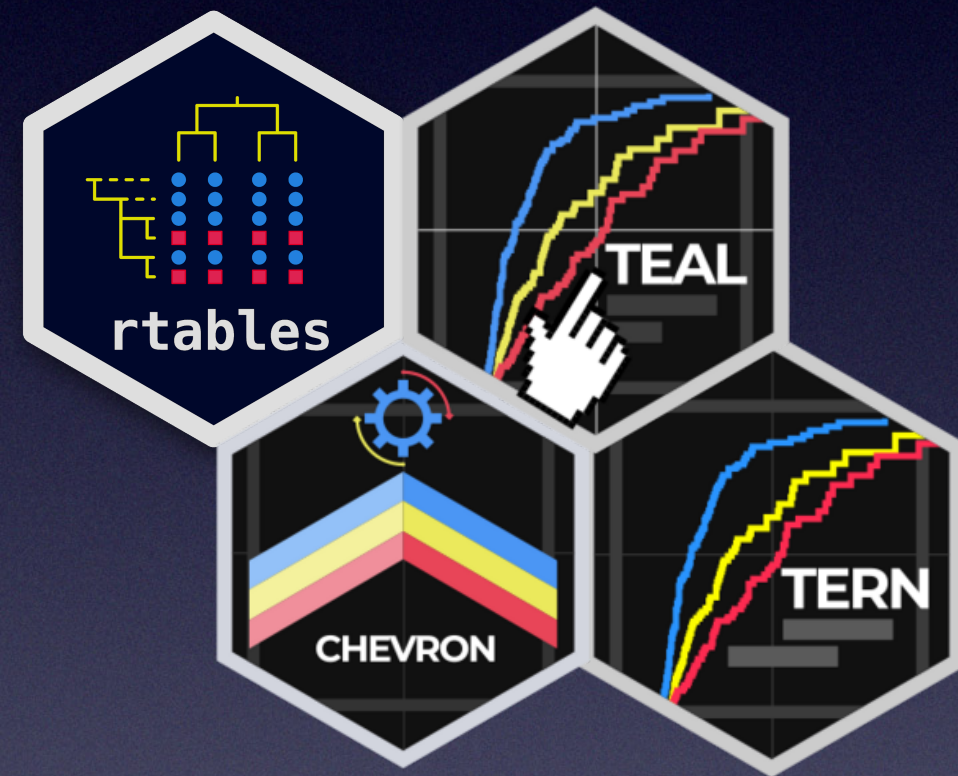
**Engineering
Leads**



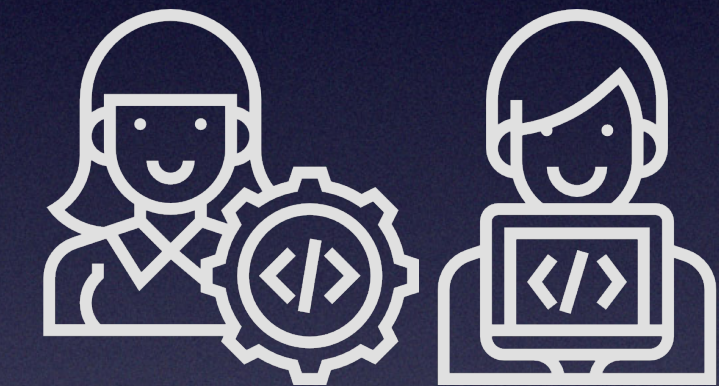
Our Team Setup & How We Work



Users



**Product
Owners**

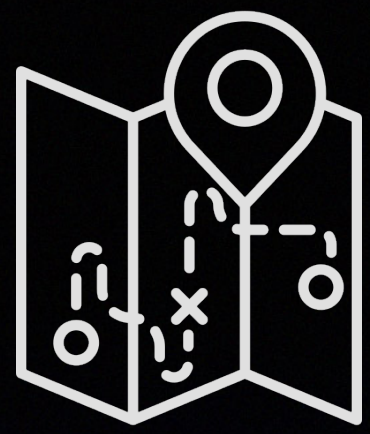


**Engineering
Leads**



Developers

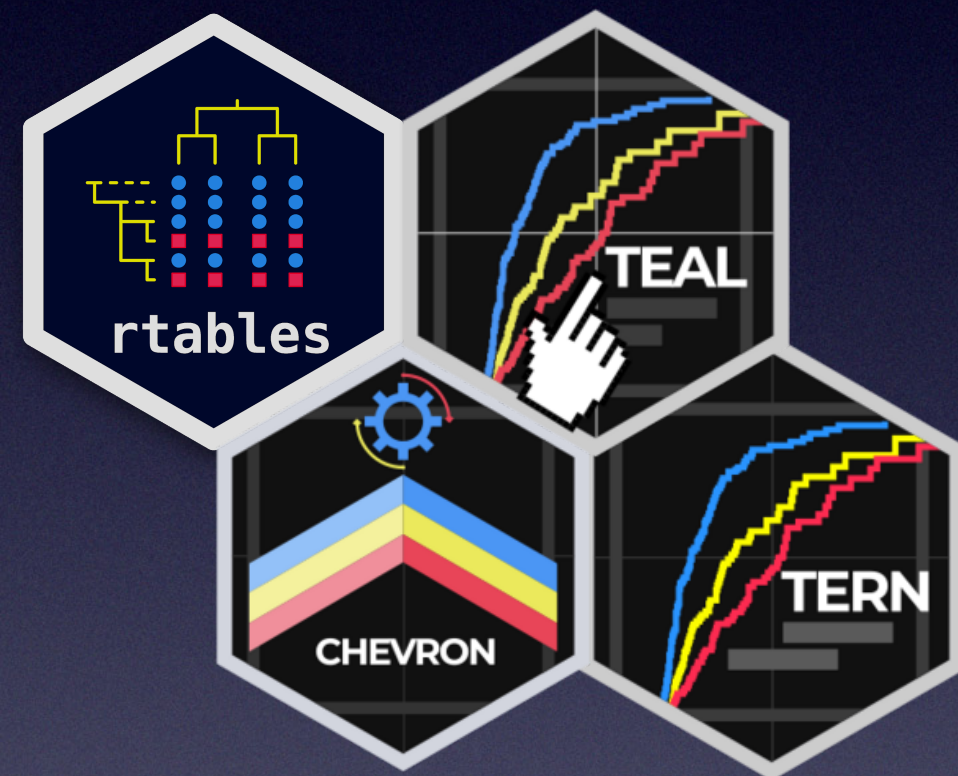




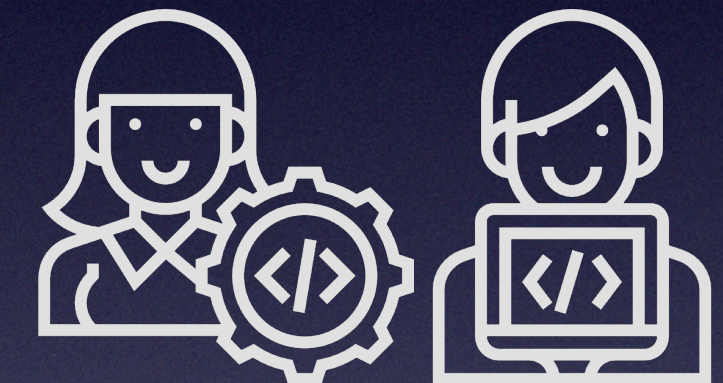
Our Team Setup & How We Work



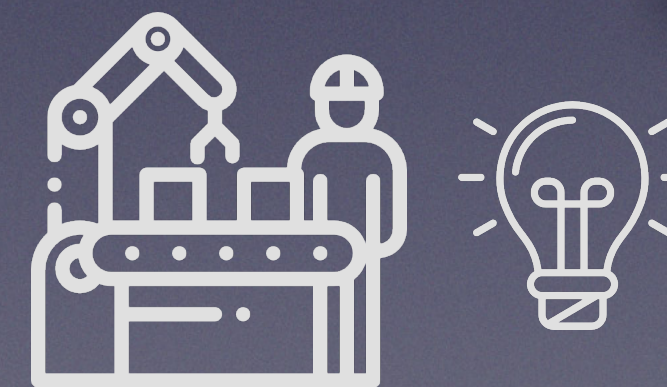
Users



Product Owners



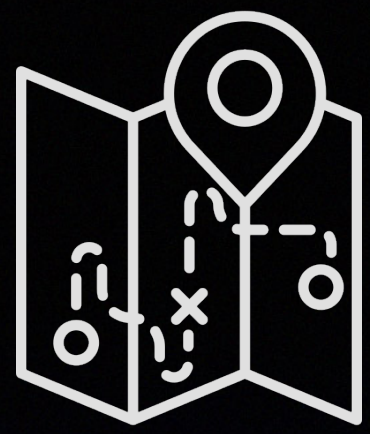
Engineering Leads



Integration & Deployment



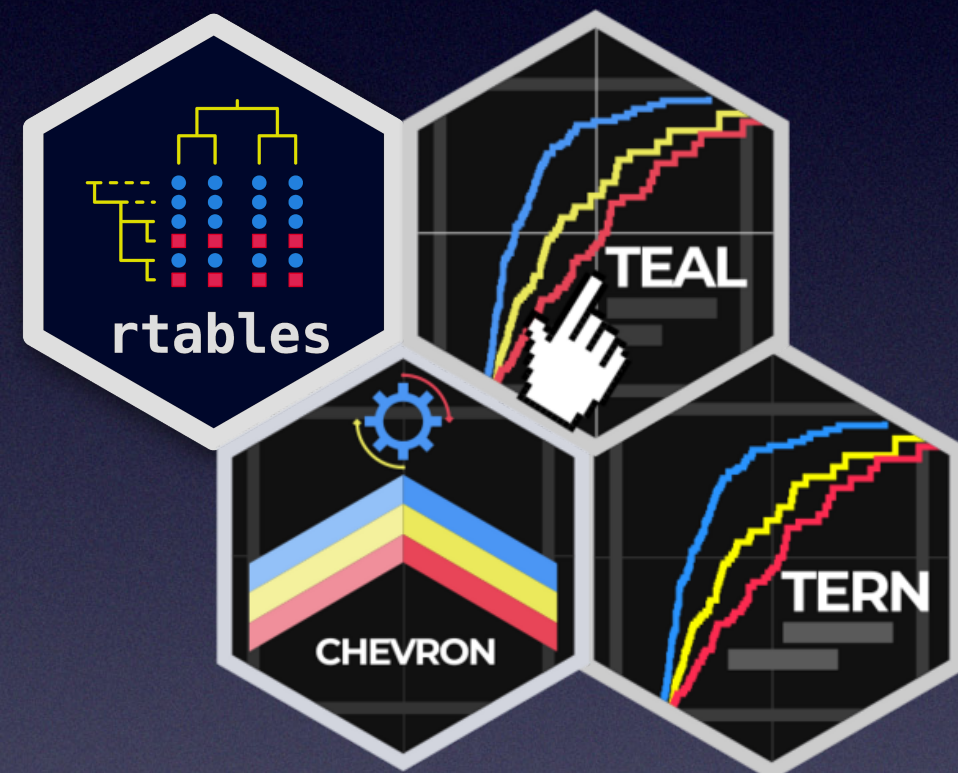
Developers



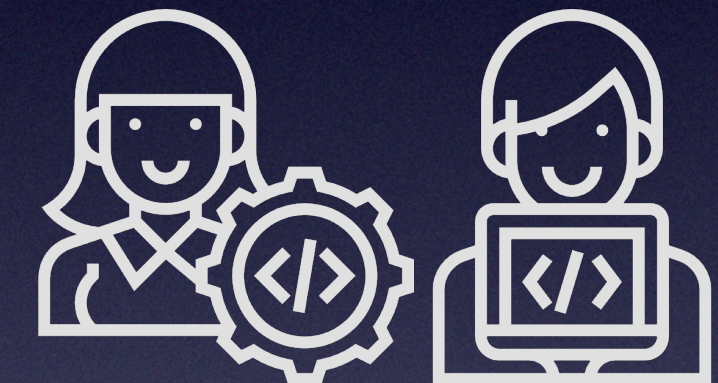
Our Team Setup & How We Work



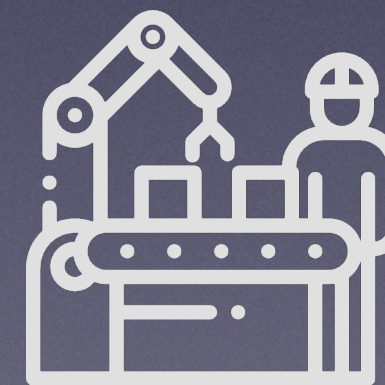
Users



Product Owners



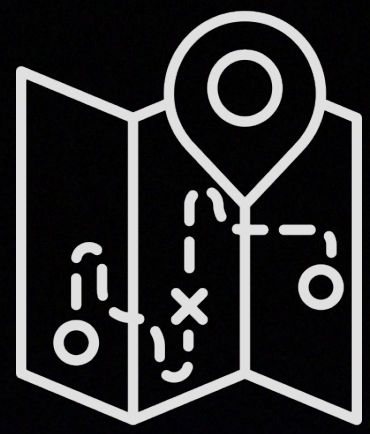
Engineering Leads



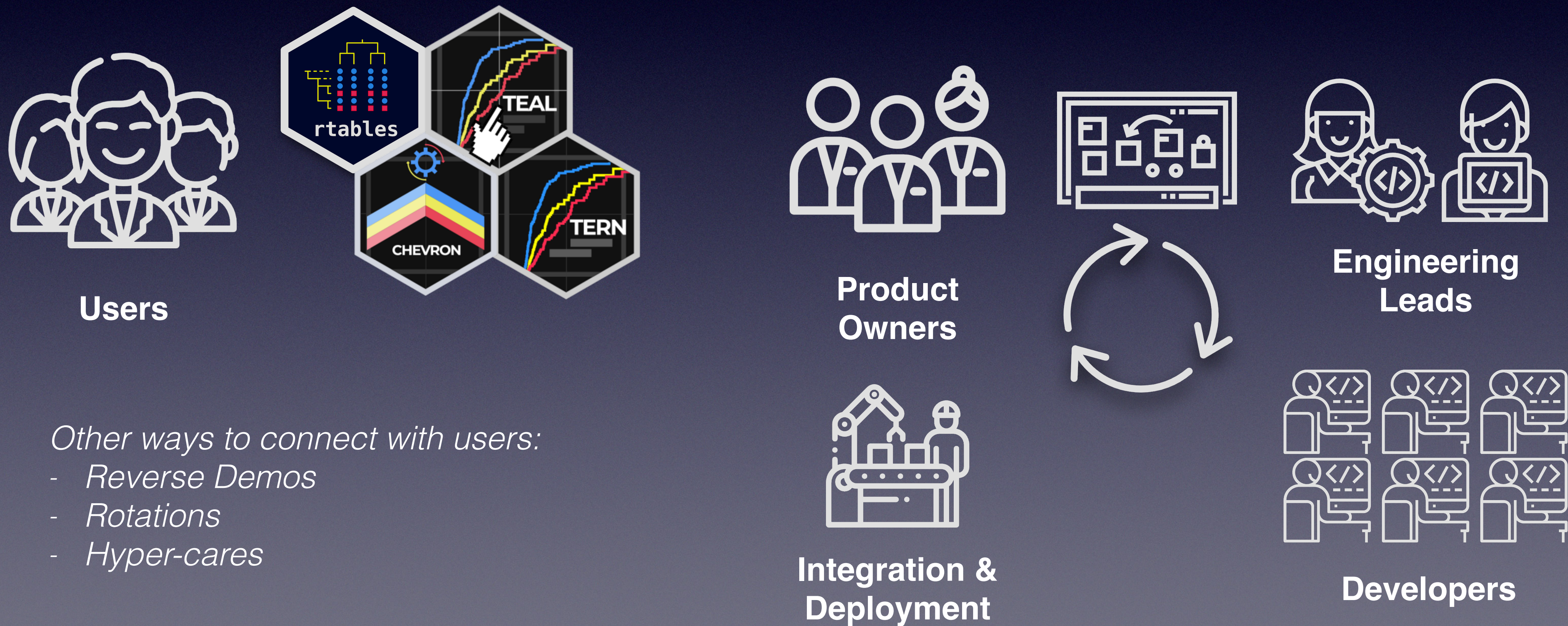
Integration & Deployment



Developers



Our Team Setup & How We Work



2022Q4

2023H1

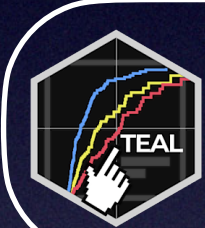
2023H2

2024H1

2024H2+



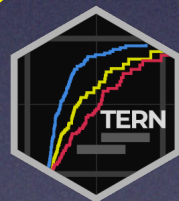
ready-to-adopt, robust solution for regulatory reporting, with streamlined workflow & automation
From 2023 onwards, R-based solutions will become the default reporting workflow for any GxP relevant & exploratory work for ALL of our new molecules at Roche



enhancements & extensions based on current framework, with industry collaboration
(e.g. redesign filter panel, support of more data types, easier customization of modules, etc.)



TLG templates library & modularized approach to generate customized outputs



redesign to enhance accessibility to analysis results & metadata, add support for other table generation engines

Analysis Result Data & Metadata (ARD & ARM)
(POC & Product, engagement with CDISC)



new shiny framework to create, review, & explore regulatory outputs, enabling submission with shiny apps

existing products
& planned work

new products
& POCs

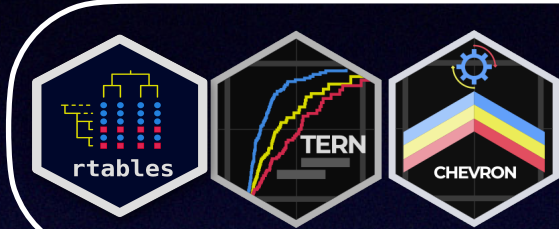
2022Q4

2023H1

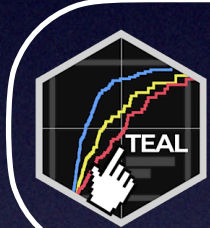
2023H2

2024H1

2024H2+



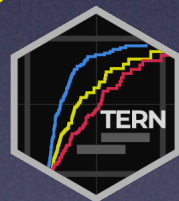
ready-to-adopt, robust solution for regulatory reporting, with streamlined workflow & automation
From 2023 onwards, R-based solutions will become the default reporting workflow for any GxP relevant & exploratory work for ALL of our new molecules at Roche



enhancements & extensions based on current framework, with industry collaboration
(e.g. redesign filter panel, support of more data types, easier customization of modules, etc.)



TLG templates library & modularized approach to generate customized outputs



redesign to enhance accessibility to analysis results & metadata, add support for other table generation engines

Analysis Result Data & Metadata (ARD & ARM)
(POC & Product, engagement with CDISC)



new shiny framework to create, review, & explore regulatory outputs, enabling submission with shiny apps

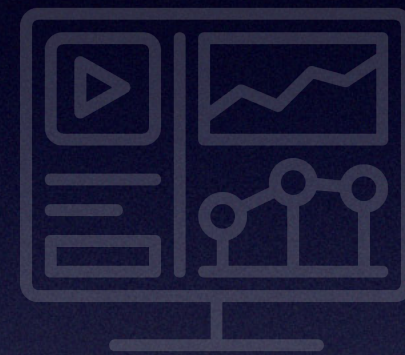
**industry harmonized solution for
TLG creation**

existing products
& planned work

new products
& POCs



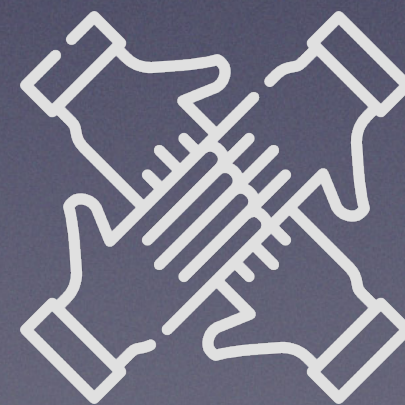
What Is NEST?



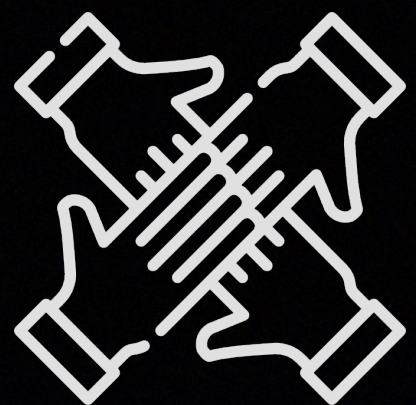
A Quick Demo



Our Strategy & Vision



Industry Collaboration



Open-Source, Industry Collaboration & Pharmaverse

Imagine a world where ...



every company (large & small), charity, academic group, etc., all have access to **FREE** solutions to support creating a clinical submission



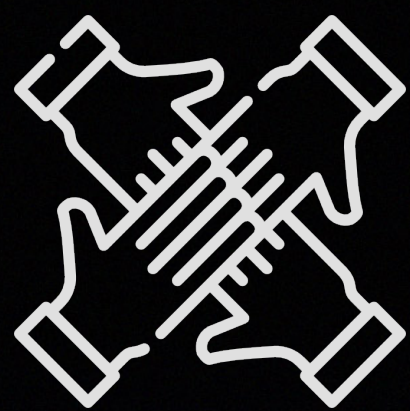
regulators receive more **consistent packages** delivered using **trusted code**, thus speeding up approval times and patient access



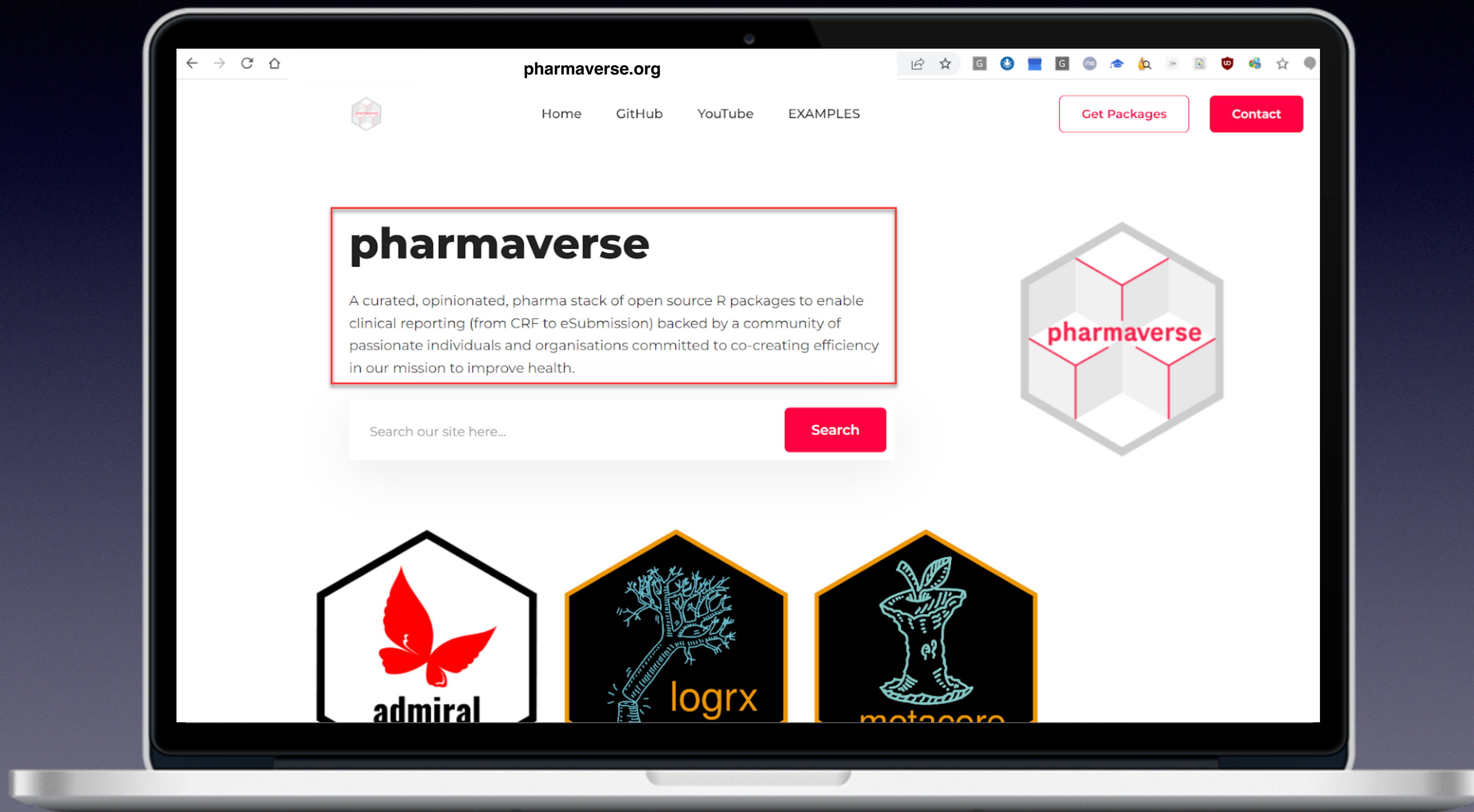
less resource intensive clinical reporting leads to individual data science talents being freed to help generate **new scientific insights**



our regulatory pathways are **revolutionized**, opening the doors for less paper-based submissions via **interactive tools**



Open-Source, Industry Collaboration & Pharmaverse



Thank
You