

# Single Day Event

## admiral (ADaM In R Asset Library)

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# Background



- Roche & GSK had been exploring use of open source languages (primarily R) in areas of clinical reporting such as TLGs, interactive displays and QC
- For ADaM, we each had heavily invested in SAS® macro based tools to achieve our company-specific implementations
- Realisation came from both sides that given the endless nature of ADaM there had to be potential to **collaborate on a modular framework**, to give the platform for this challenge to **enable across-industry crowd-sourcing**
- LinkedIn post -> Video call -> Programming heads talk



# Introducing admiral *(ADaM In R Asset Library)*

admiral is an **open source modularized toolbox** that **enables companies and communities** to develop ADaM datasets in R.



Think of **admiral** as a **toolbox of modular** blocks (R functions) →

- each block has a **stand alone** purpose (each function provides a specific functionality)
- Data Scientists can create their **own** blocks (create own R functions)

Constructing an ADaM dataset should become like building out of blocks that are based on admiral modular functions and user-created modular functions.

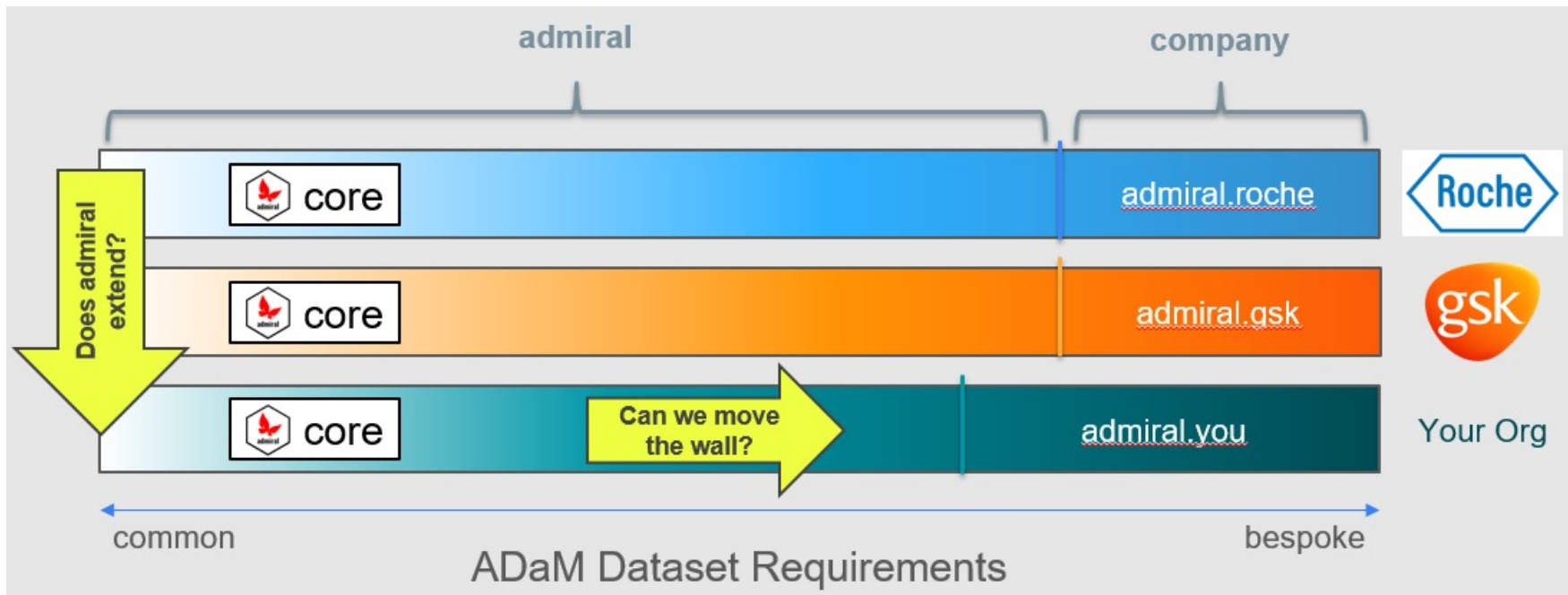


# What's in it for you?

- **As a company: harmonization & robustness**
  - A robust framework for R-based ADaM shared ready-to-use modules
  - Imagine ADaM code becomes more transparent across the industry (QC, readable code, talent flow)
- **As a Data Scientist: contribute to something bigger**
  - An option to make a name for yourself in the Pharma open-source community (i.e. an extension of just sharing a paper), and an avenue to collaborate with other like-minded people across the world
  - Share, re-use and inheritance as a community instead of re-inventing the analysis for each study
- **Patients & Society: concentrate on the right work**
  - If we can collectively reduce the burden of ADaM across-industry, imagine the data scientist skills and resources this unleashes towards making more with the insights of our data, and the speed at which we're able to bring treatments to patients



# How we see industry collaboration working?





# Tech details

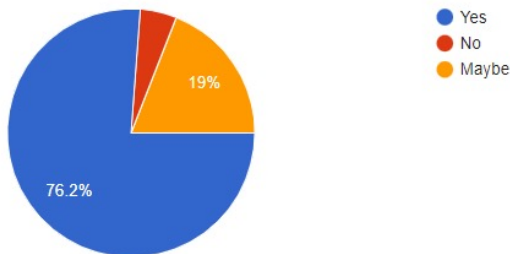
- R functions include example calls and are unit tested (with >80% coverage level) to create the common standards for the following datasets:
  - *ADSL (~50%)*
  - *BDS: ADVS, ADEG, ADEX & TTE (70-80%)*
  - *OCCDS: ADAE, ADCM (80%)*
- Documentation contains vignettes on how to create ADSL, BDS and OCCUR datasets, including example scripts, but functions can also be used for other datasets
- Tested across various SDTM & ADaM versions
- R Platform / Environment: no explicit requirements. Suggest  $R \geq v3.5$ .
- Direct Package Dependencies: *assertthat*, *dplyr*, *lubridate*, *magrittr*, *purrr*, *rlang*, *stringr* and *tidyr*



# External Testing Read-out

- During Sept/Oct '21 we held a testing phase where **18** other companies (incl. J&J, Merck, Atorus, AZ, EQRx, IQVIA, Novo Nordisk, Pfizer) and **>60** individuals were kind enough to commit time to try out admiral
- Some highlights...

Once this becomes open source licensed, would you **advocate admiral** as your foundation for ADaM transformations in R?



## Tester Quotes:

- *Extremely easy to learn and get into, well thought and planned. Plenty of minor functions instead of aiming to create a large "jack of all trades" framework. The toolkit does not attempt to become a large one-button ADaM generator (which is fantastic). It was extremely easy to setup and to test.*
- *It is a huge advantage for all pharma companies that we have common functions for common stuff we develop. It will be easier for the authorities when it is the same foundation in the ADaM programs. The development goes faster for every one when we develop across companies, and bug-fixing is faster as many are using same package and will most likely find potential bugs.*
- *I think this is a really nice starting point, and as Admiral is matured and expanded this package will just become even more powerful. Furthermore, if this is picked up by multiple companies it will likely make the ADaM generations more streamlined across the industry.*



# Demo

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**admiral site:** <https://pharmaverse.github.io/admiral/index.html>



# Status & Next Steps

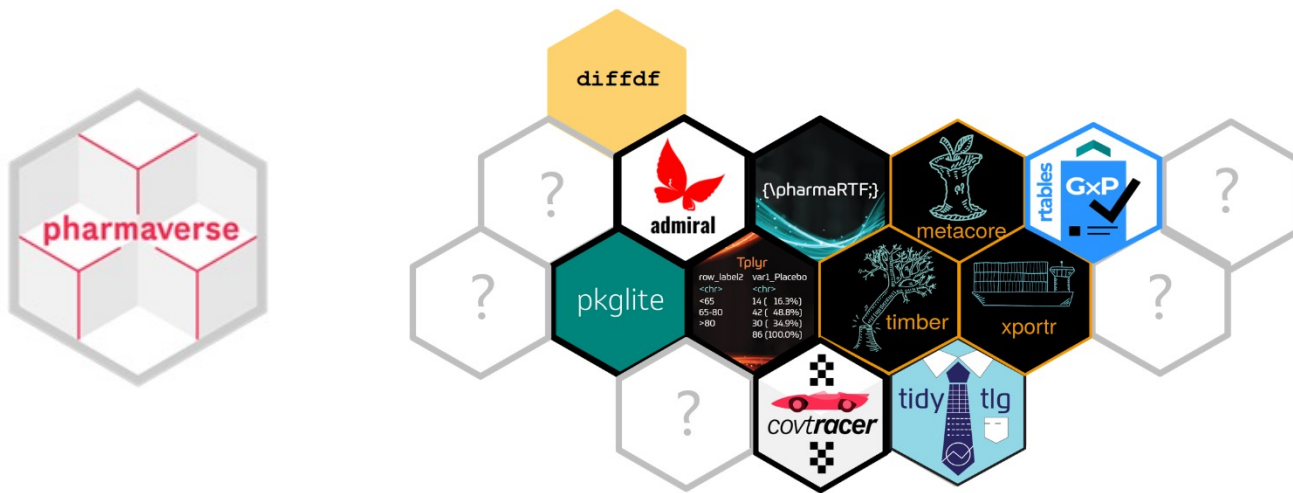
WE NEED  
YOU!

- At the end of 2021 **we open sourced {admiral}** and this year the focus is on enhancing the foundation we've built for creating ADaM in R.
- Our priority updates include ADLB, metadata & TA-specific package extensions
- If you are interested to **use and contribute** to admiral, then please do reach out to [ross.farrugia@roche.com](mailto:ross.farrugia@roche.com) or [lucy.a.hoch@gsk.com](mailto:lucy.a.hoch@gsk.com) (or join our Slack!)
- We are actively forming a **community** to help us maintain and grow this resource for the benefit of all our industry, whilst supporting one another as users



# The pharmaverse

admiral is one component of a wider vision of open source R packages to enable e2e clinical reporting called the **pharmaverse**



# Any Questions?

Slack channel <https://app.slack.com/client/T028PB489D3/C02M8KN8269>  
(use this [link](#) to join our community, if you don't already have access)



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