



INSTITUTO NACIONAL DE ESTATÍSTICA  
STATISTICS PORTUGAL

# Statistical Business Registers updates monitoring and dashboards

27 – 29 November 2024

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# Introduction



## BIUE – Database of statistical units (National Business Register)

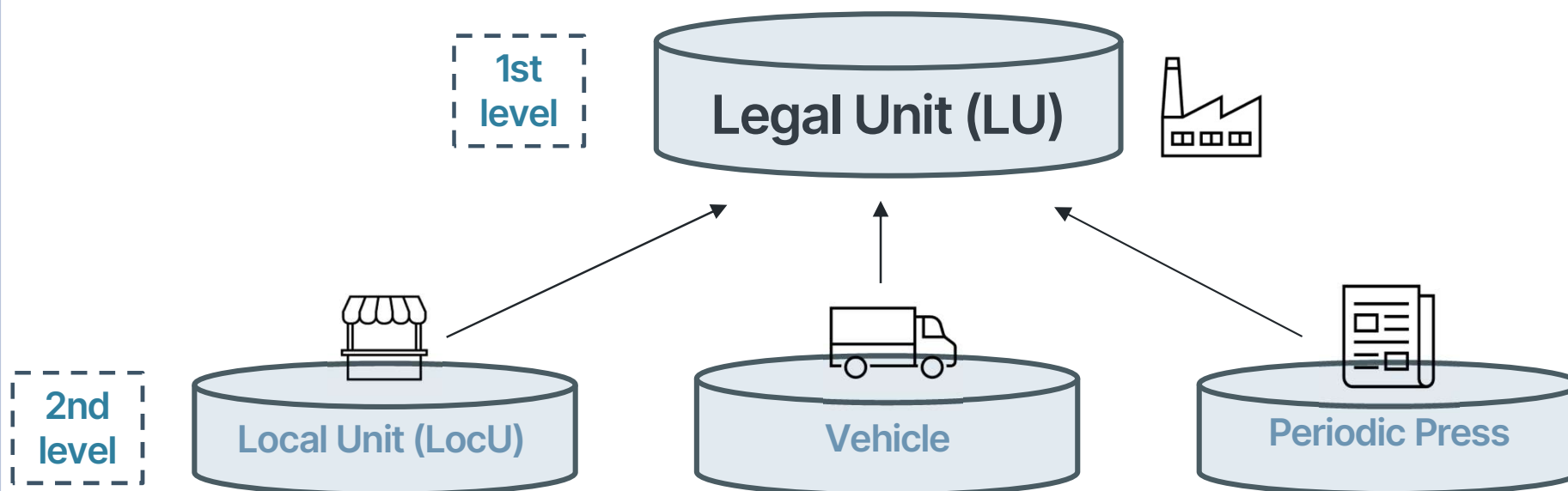
- The data warehouse is designed to provide statistical information on the entities that develop economic activity in Portugal.
- It's always been updated with new data of Statistical Units

## Objective

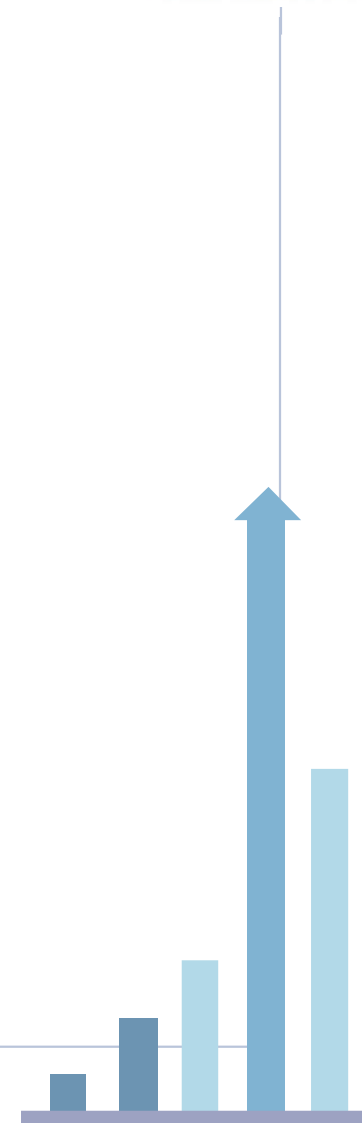
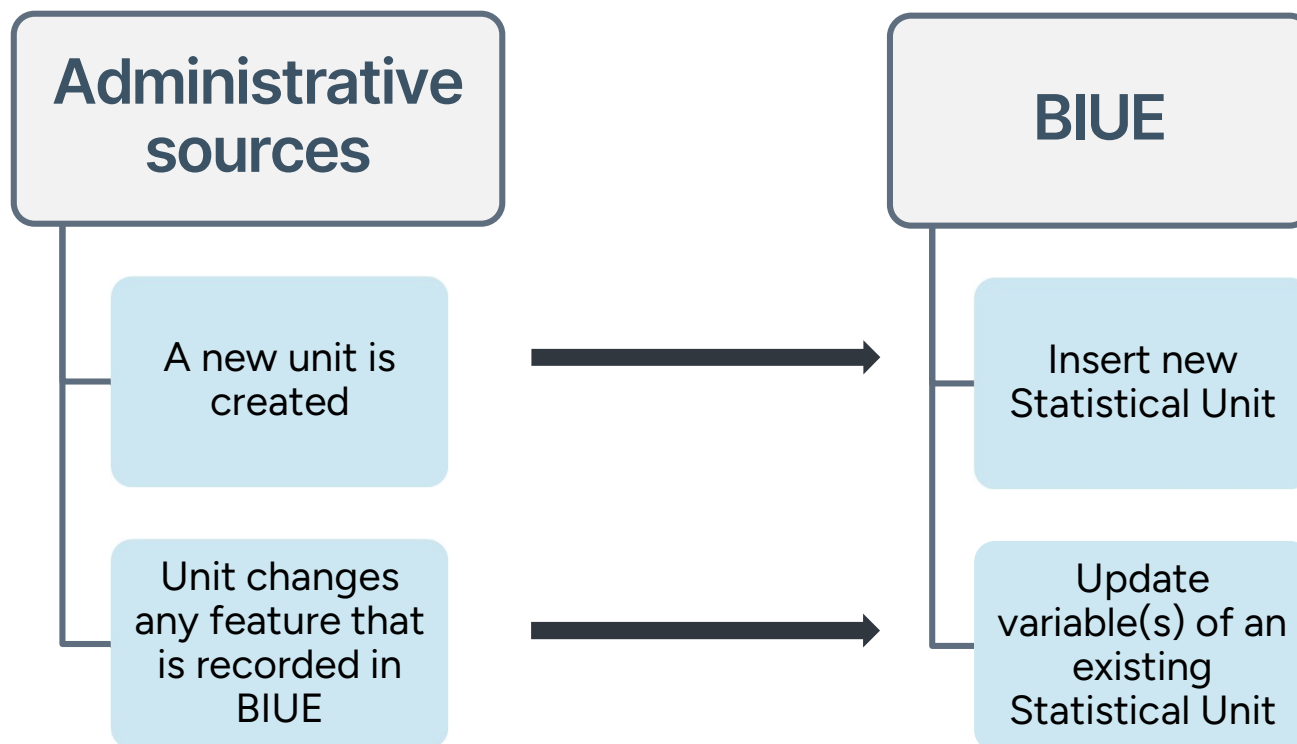


- Design a periodic dashboard built automatically to report the workflow of tasks performed to update statistical unit data
- Select a set of dimensions to summarise data
  - Write an automatic system in R to release the periodic dashboard

# Types of Statistical Units in BIUE



# Updating BIUE with new data from Economic Units



# BIUE – building the dashboard report



Analysis is performed every month

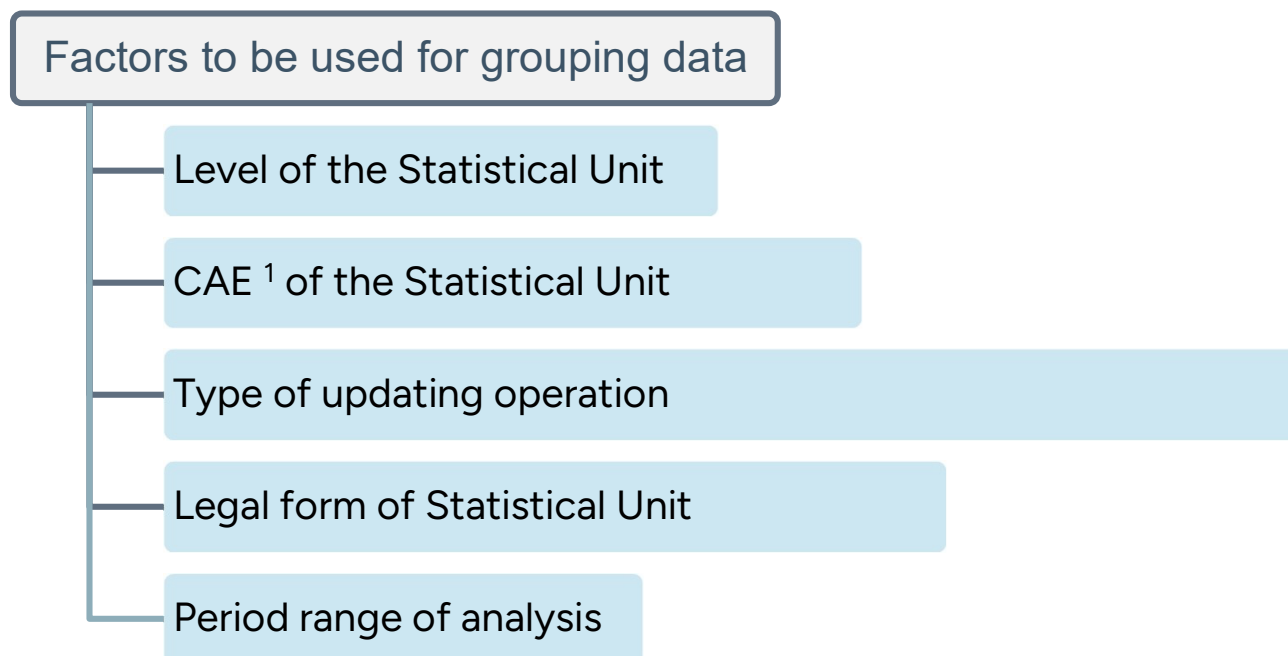


Changes in BIUE are summarized and segmented by a set of selected dimensions



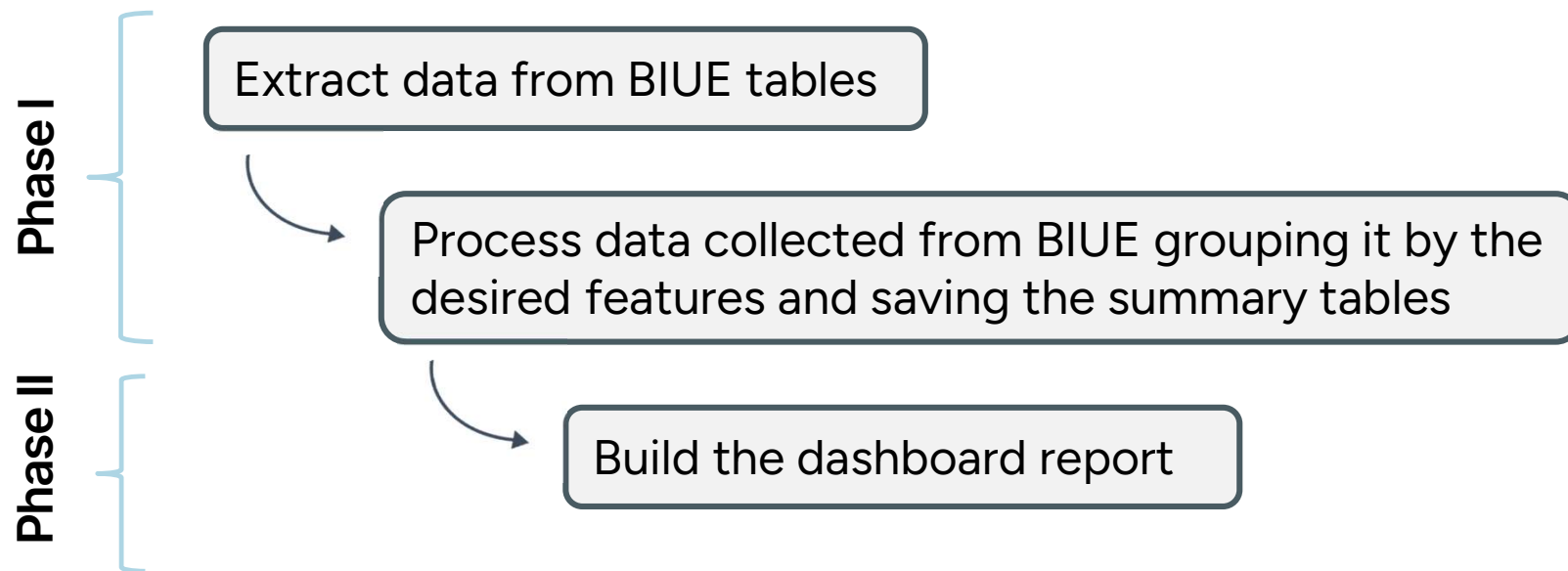
The process is completely automated since data collection to dashboard release

# BIUE – building the dashboard report



<sup>1</sup> CAE is the portuguese NACE\_COD version

# Automated system to produce dashboard report



# Phase I

## Data extraction from BIUE

Set up connection to BIUE  
from R Server using RStudio

Write SQL queries

Write R program embedded  
in R code

Data collection encompasses  
querying about 10 times BIUE  
data tables

## Data processing

The data extracted is used to  
build the summary data tables

Data table structure depends  
on the feature to be drawn

20 data tables are produced to  
be used for reporting



# Phase II

## Dashboard production

Coded in R and running in RStudio

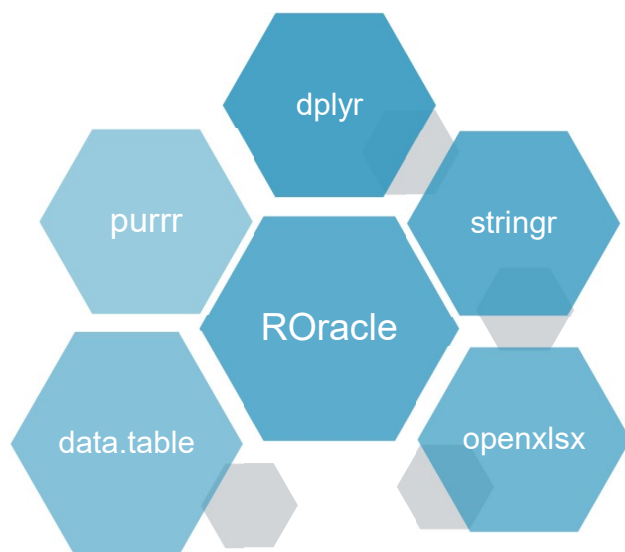
Based on Flexdashboard package

Built on data tables produced in the former step

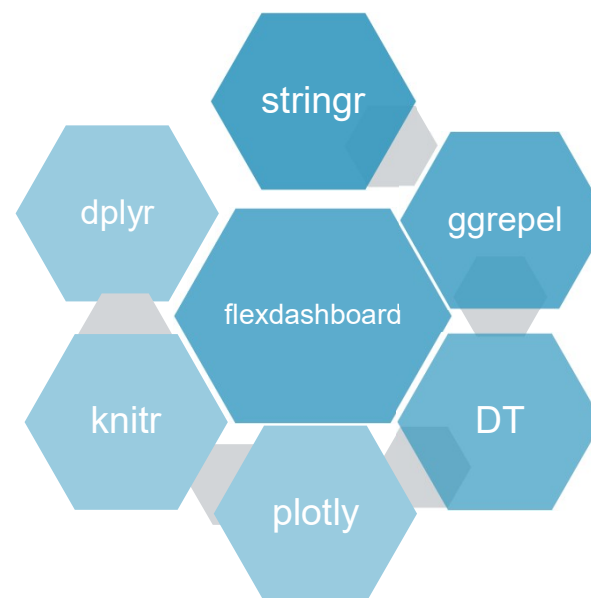
Output is automatically customized for each monthly report

# R libraries used by the automated system

## Data extraction and processing (Phase I)



## Building dashboard (Phase II)



# BIUE – building the dashboard report

## Dashboard content

Html document contains 3 sheets

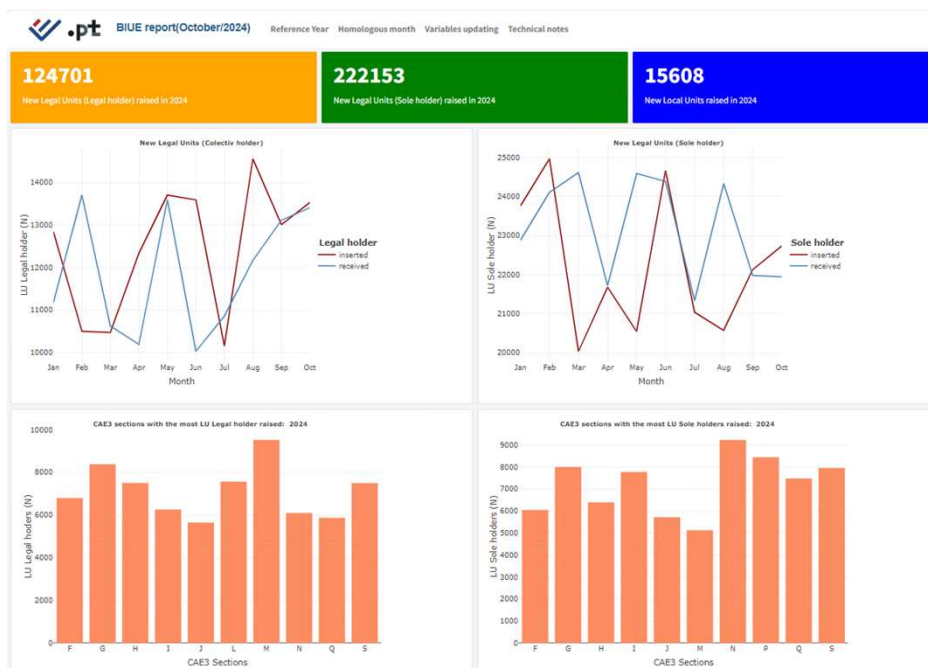
First sheet reports data on new Units created

Second sheet is devoted to the comparison between homologous months

Third sheet reports data of variables updating



# Dashboard report example





# Future work

Build a library written in R to embed the automated system

Release the dashboard in Shiny



# Thank you!

Statistics Portugal  
Methodology and Information Systems – Information Infrastructure  
Pedro Carrasqueira  
Isabel Farinha  
António Portugal

