



Instituto  
René Rachou  
**FIOCRUZ MINAS**



**Desafios futuros**

- Integração de dados
- Experimentos conclusivos e não especulativos
- Combinar conhecimentos específicos nos modelos

Project Definition



```
graph TD; A[Project Definition] --> B[Data Collection]; B --> C[Data Analysis]; C --> D[Statistics]; D --> E[Modelling]; E --> F[Deployment]; F --> G[Model Monitoring];
```

The diagram illustrates a sequential machine learning workflow. It consists of seven steps, each in a colored box with a downward arrow pointing to the next step. The steps are: Project Definition (orange), Data Collection (gray), Data Analysis (yellow), Statistics (orange), Modelling (gray), Deployment (yellow), and Model Monitoring (blue). The arrows are colored to match the boxes they connect: orange, gray, yellow, green, orange, gray, and yellow.

Data Collection

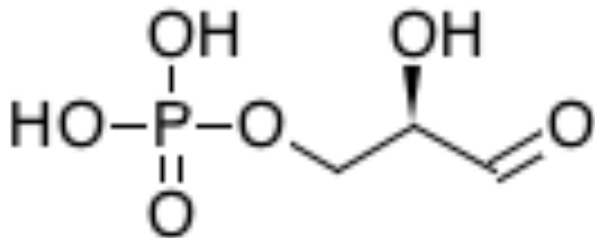
Data Analysis

Statistics

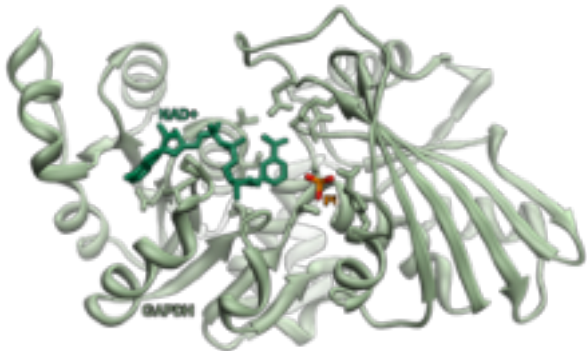
Modelling

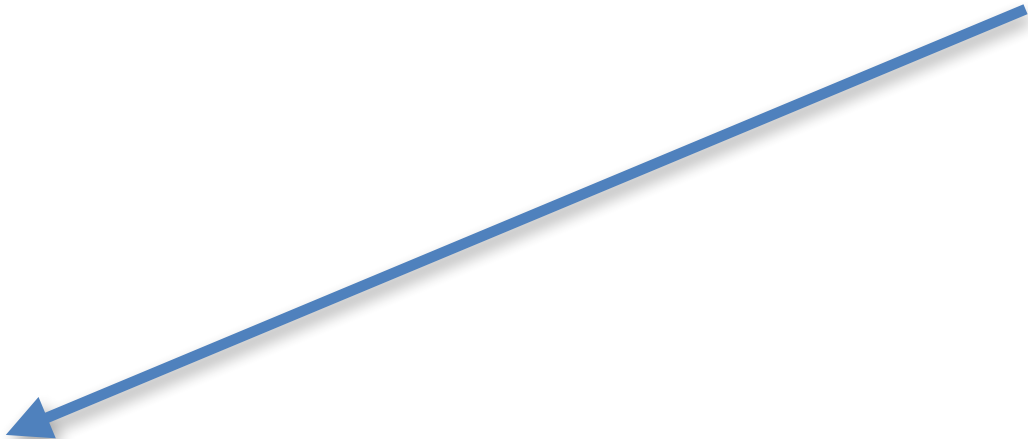
Deployment

Model Monitoring

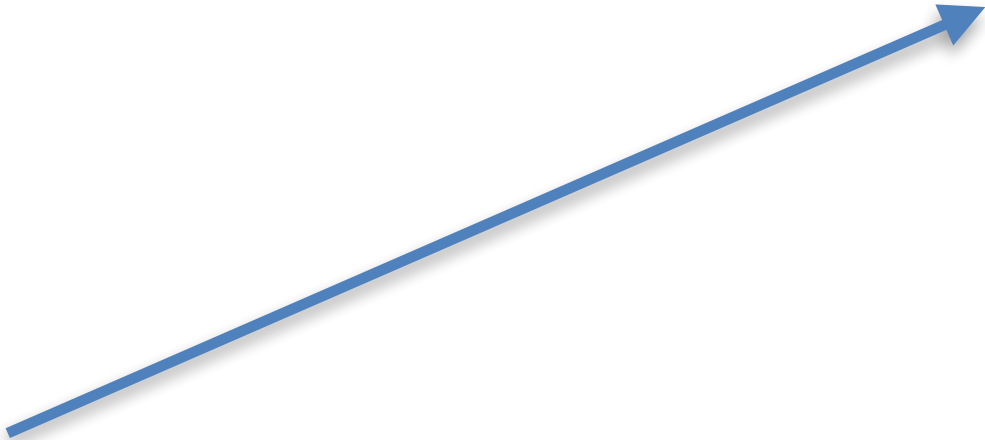


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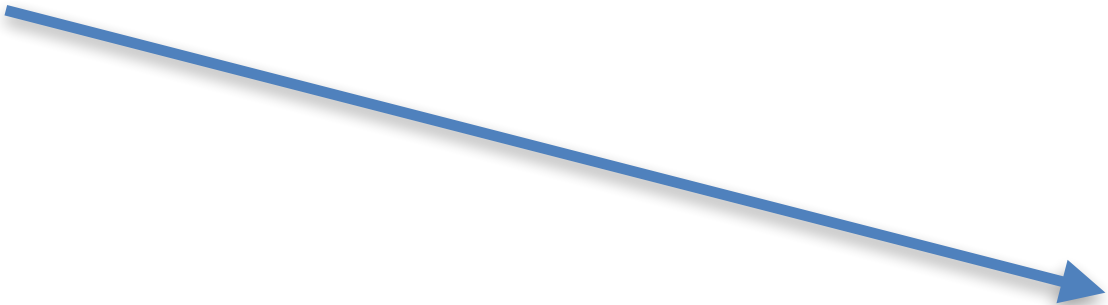


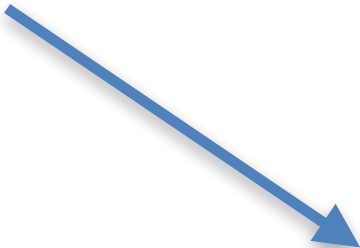


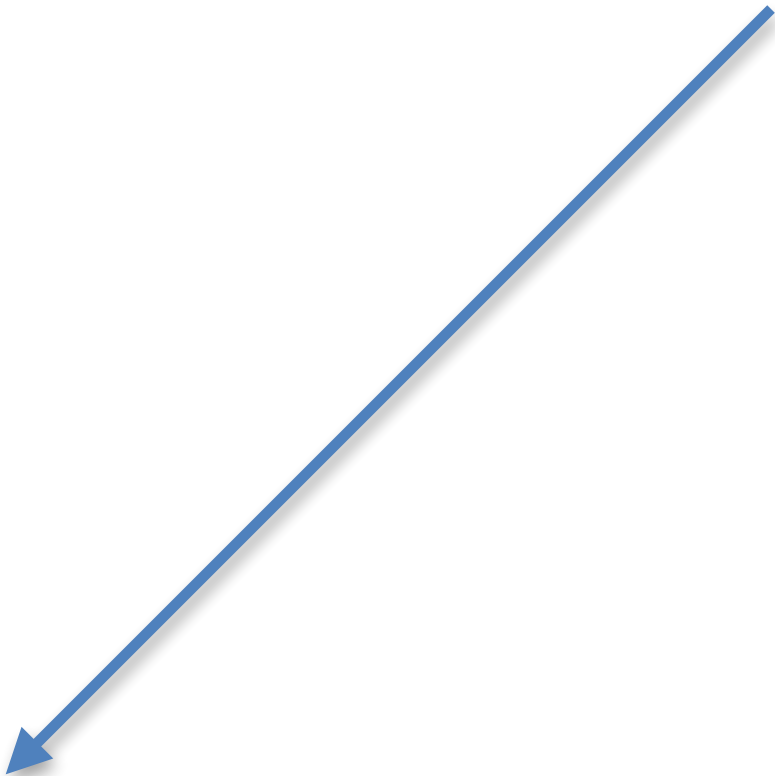














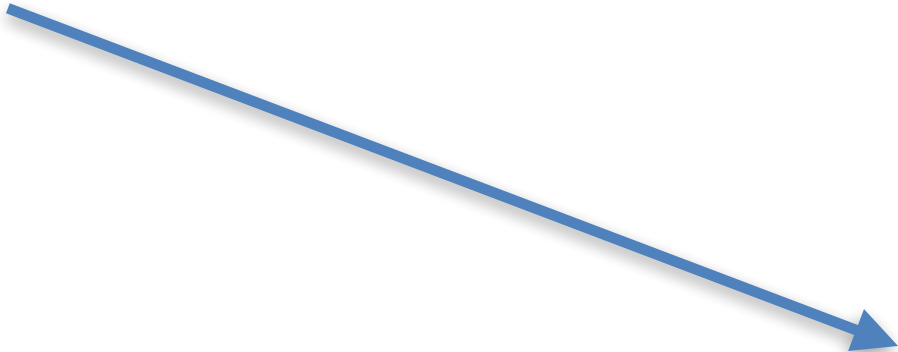




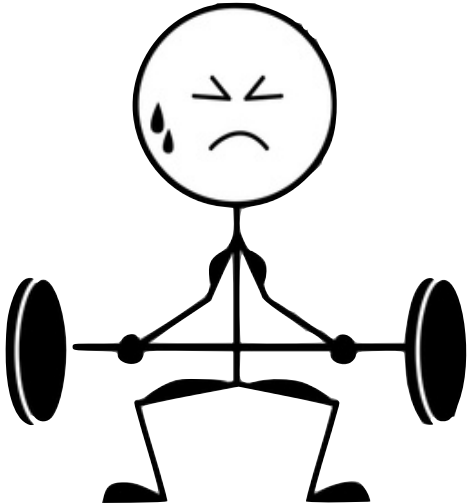






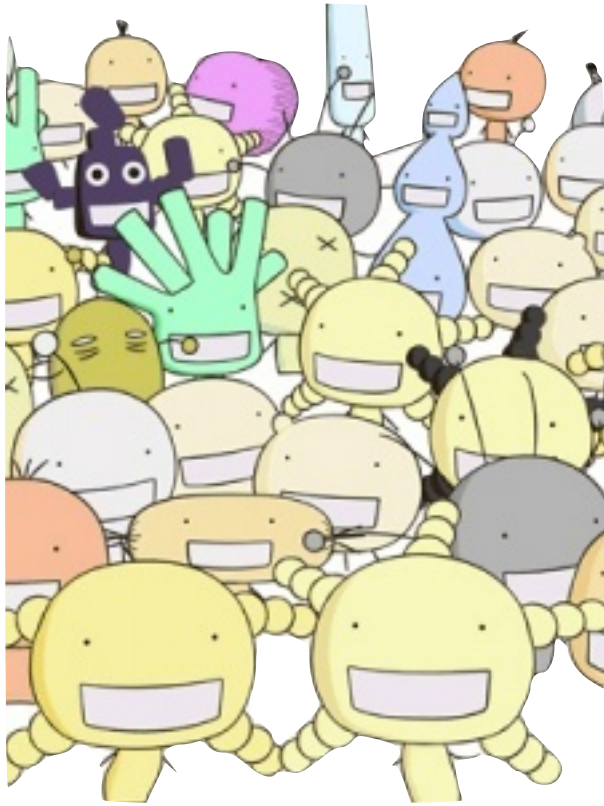




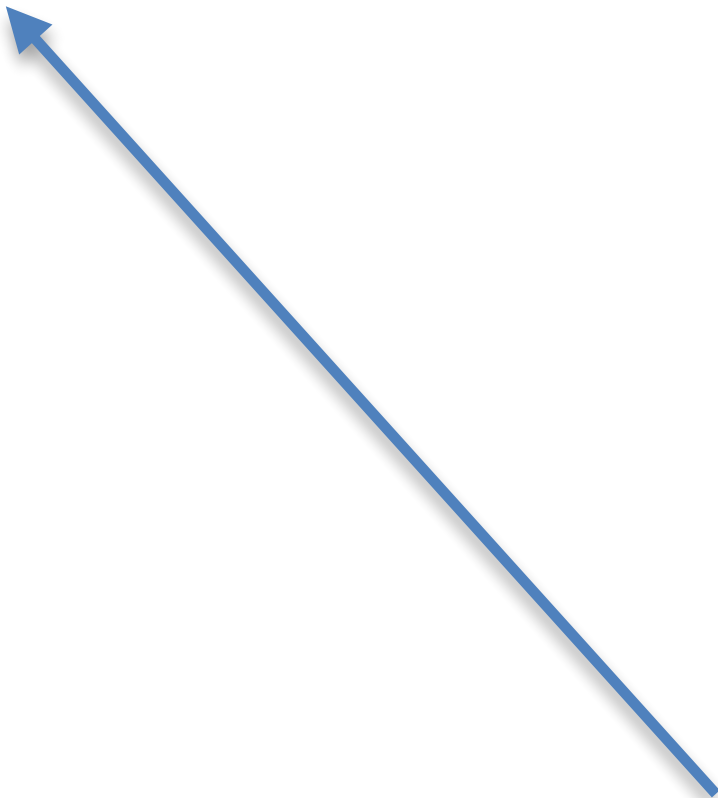




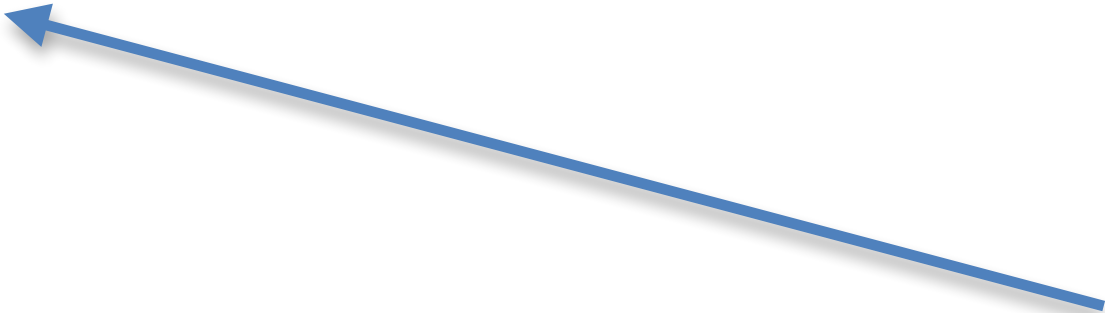




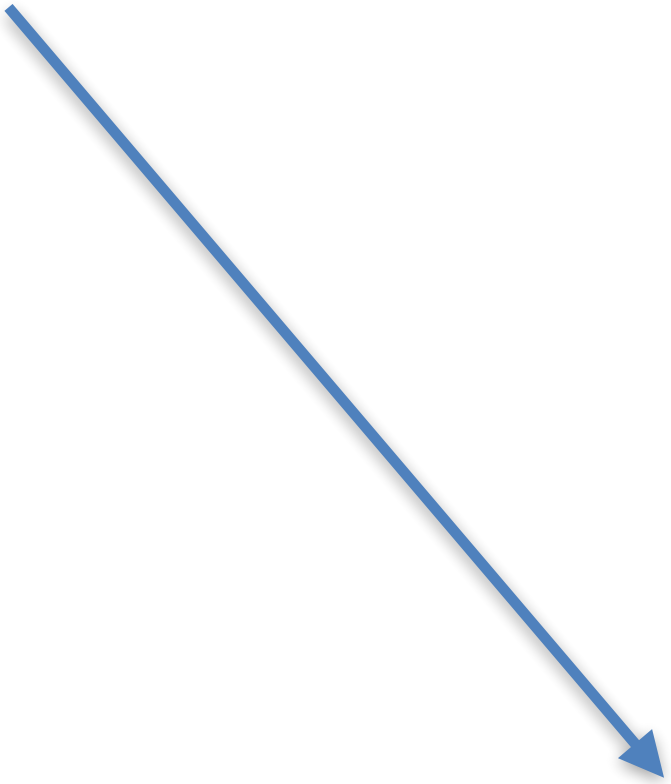




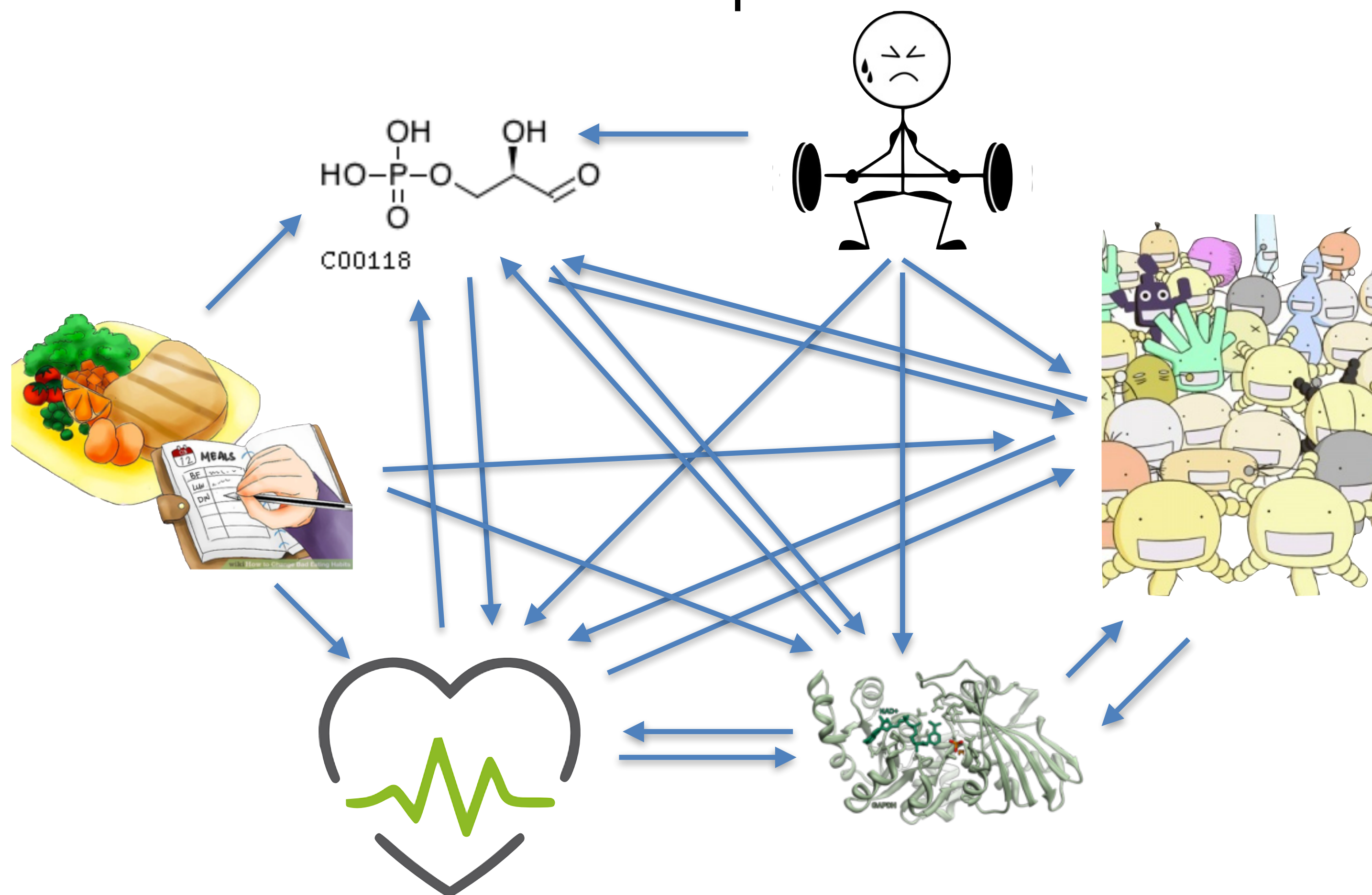








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- Combinar conhecimentos específicos nos modelos



Project Definition

Data Collection

Data Analysis

Statistics

Modelling

Deployment

Model Monitoring



- A maioria dos trabalhos não são reprodutíveis
  - Falta de comunicação e interação entre os pesquisadores
  - Falta de desenho experimental
  - Falta de cuidado acadêmico
- Um abismo que separa o “existe associação com o fenótipo” e o “é importante para o fenótipo”.
  - Modelagem
  - Identificação da importância dos marcadores
  - Medidas de sensibilidade e especificidade
- Ensaio clínicos sobre aplicações
- Uma década no calendário científico é só um começo...