

Visualizing University Research and SDG Contributions in South Africa



INTRODUCTION

- The South African SDG Hub provides access to a large collection of Sustainable Development Goals (SDGs) related research articles that are harvested from South African and selected international universities.

PROBLEM STATEMENT

- It is difficult for users to make sense of the huge volume of research, limiting the ability of stakeholders to promote sustainable development.

RESEARCH QUESTIONS

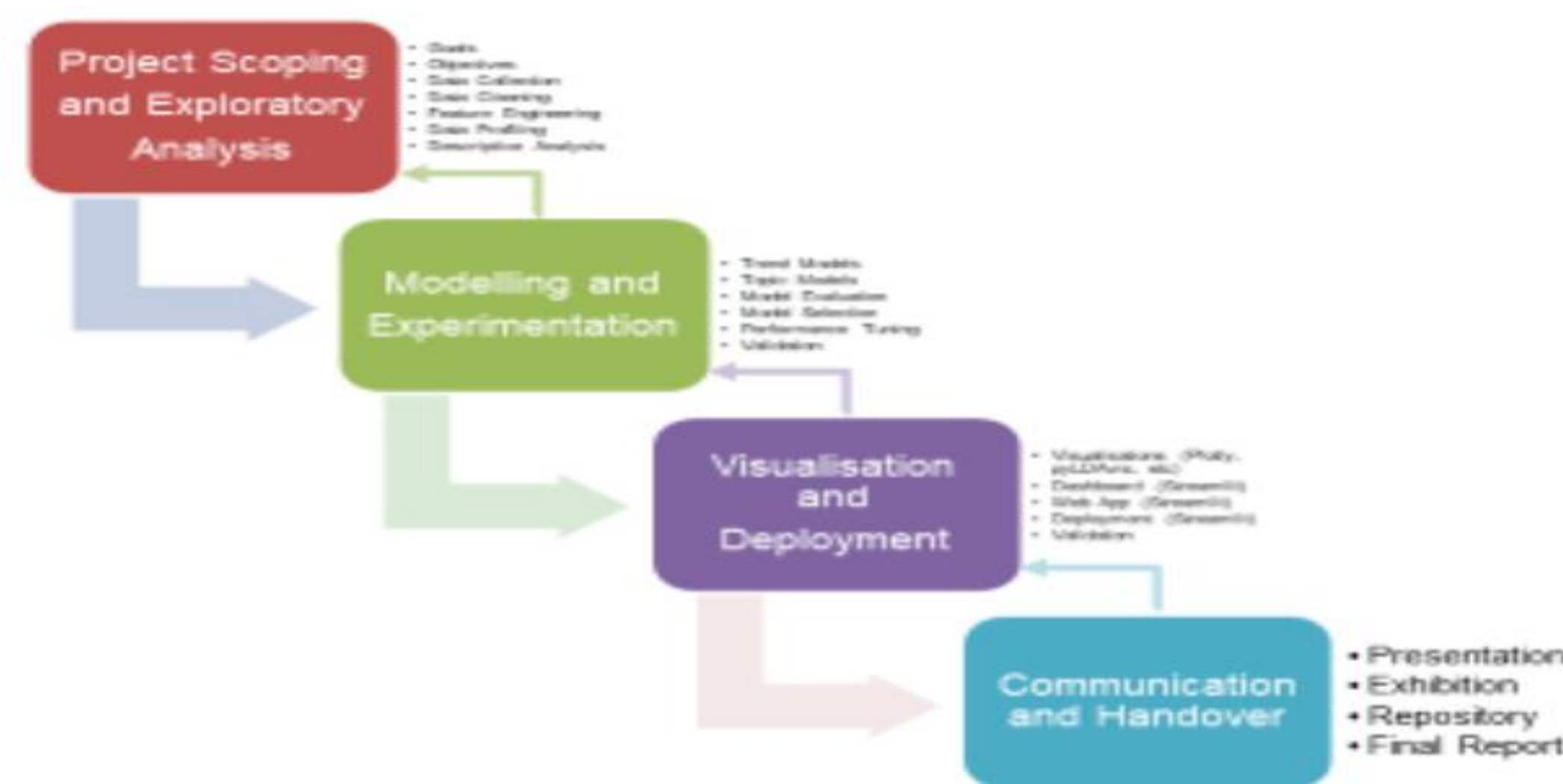
- How can Data Science facilitate better access, usage, and understanding of research contributions towards sustainable development?
- Sub-questions:**
 - What tools and techniques can be utilised to provide a user-friendly visual representation of the SDG research landscape in South Africa?
 - What meaningful insights and patterns can be generated from SDG relevant research data?
 - How can the insights generated from SDG research data contribute to promoting sustainable development in South Africa?

BUSINESS VALUE

The project facilitates monitoring of progress and impact of SDG research to identify gaps and set priorities for research, funding, collaboration, and other efforts towards sustainable development in South Africa and globally.

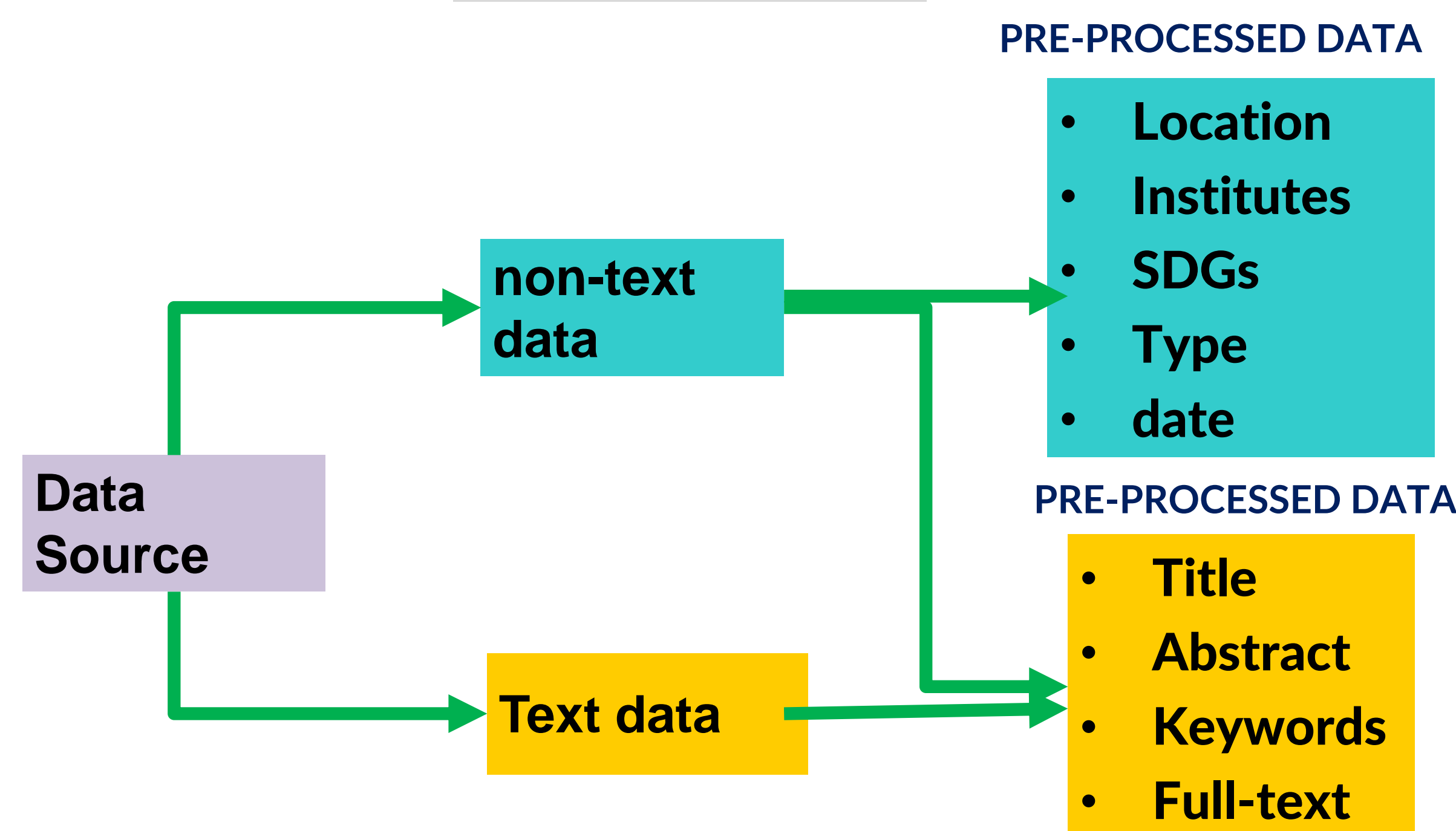
Mailwane Phoebe, Sundire Desire

METHODOLOGY & EXPERIMENTS



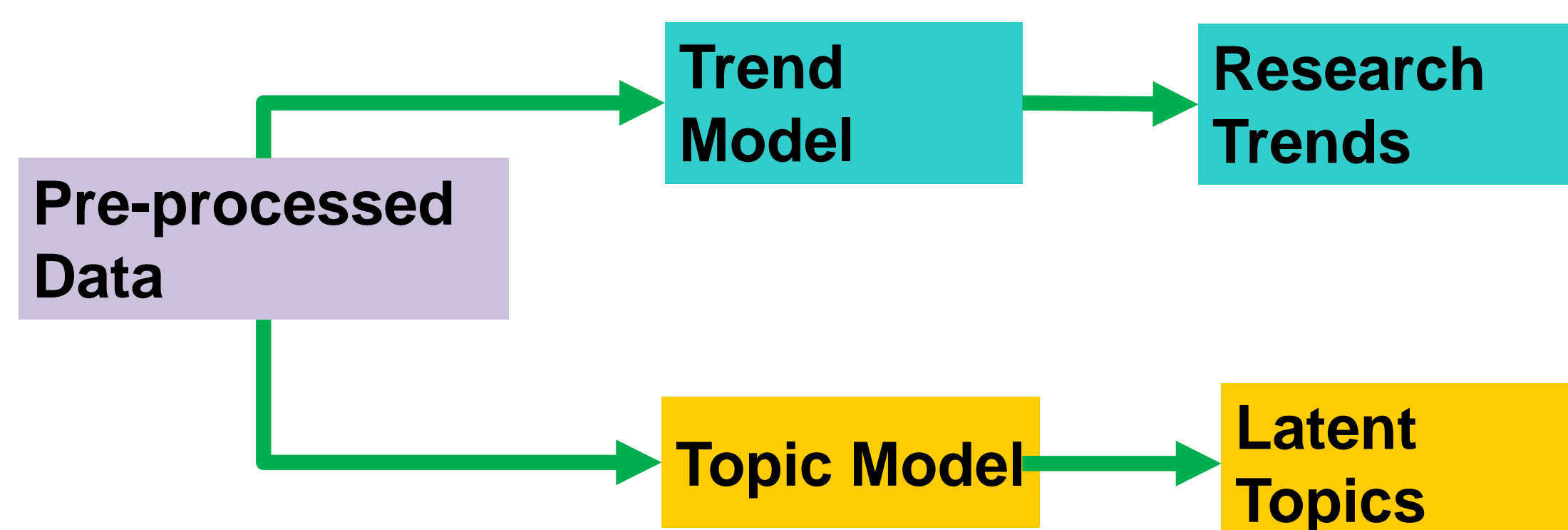
1. Project Scoping and Exploratory Data Analysis

- Define project scope, goals, objectives, and Collect data
- Data cleaning, Feature engineering, & Visualization
- Interrogate data, Identify trends, Generate word frequency & corpus



2. Modelling and Experiments

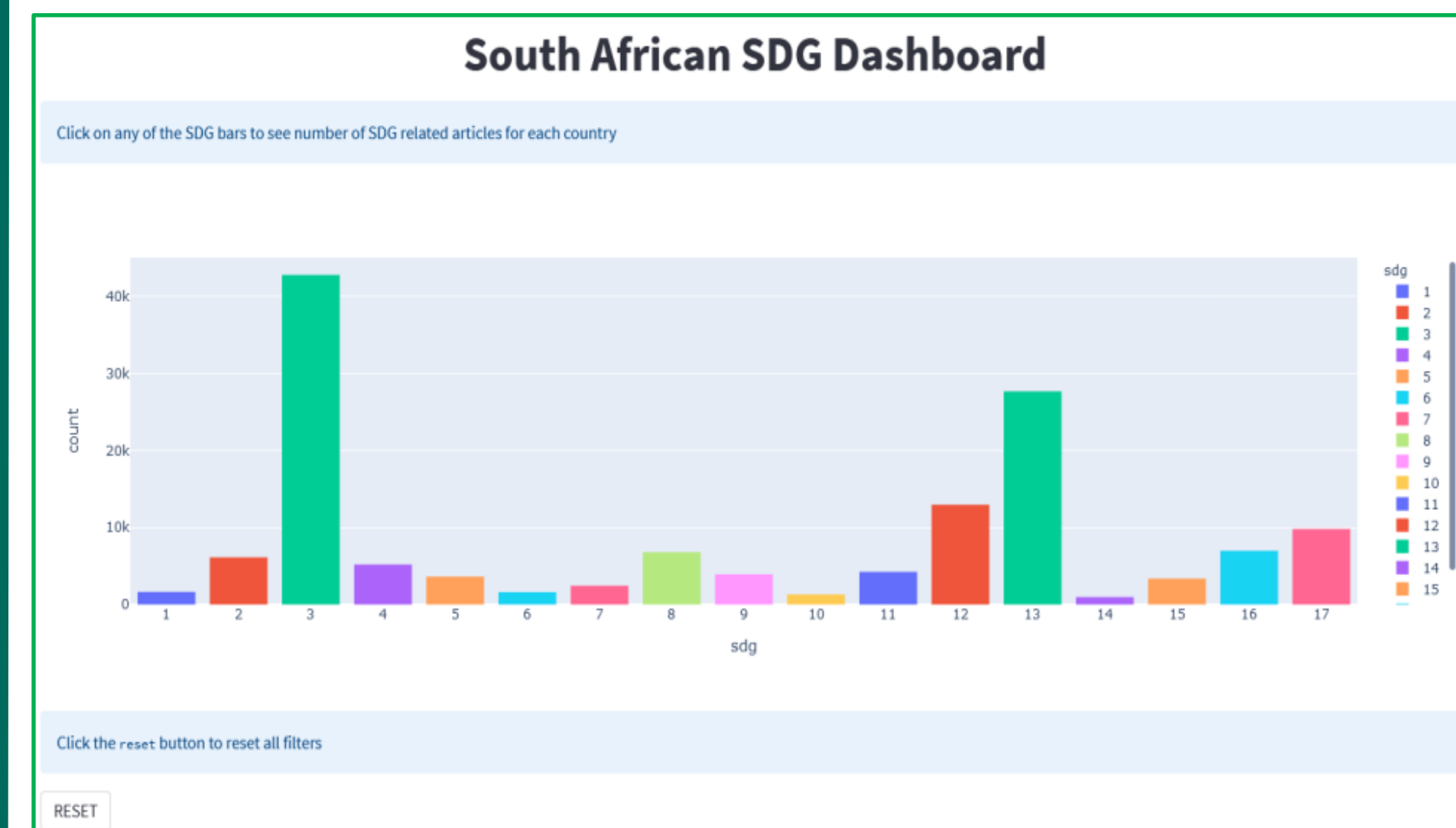
- Build ML models, Cross validation, Hyper-parameter tuning.
- Evaluation of model accuracy and stability, & PCS checks
- Model selection and Validation. Visualize model results.



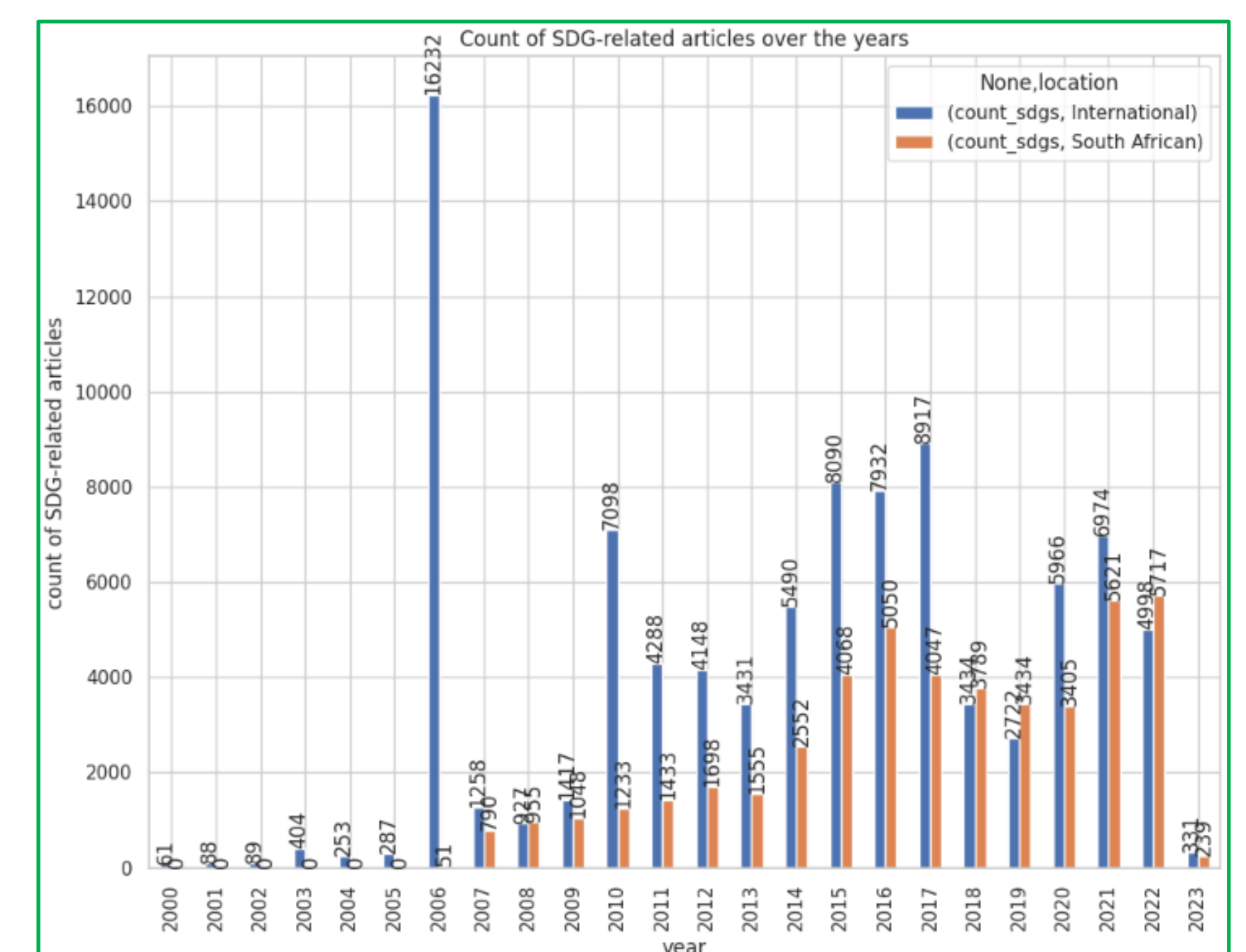
3. Visualization and deployment

- Create dashboard, Visualize trends, & topics
- Visualize model results
- Deploy ML models and Visualization using Streamlit. Create requirements.txt file

RESULTS



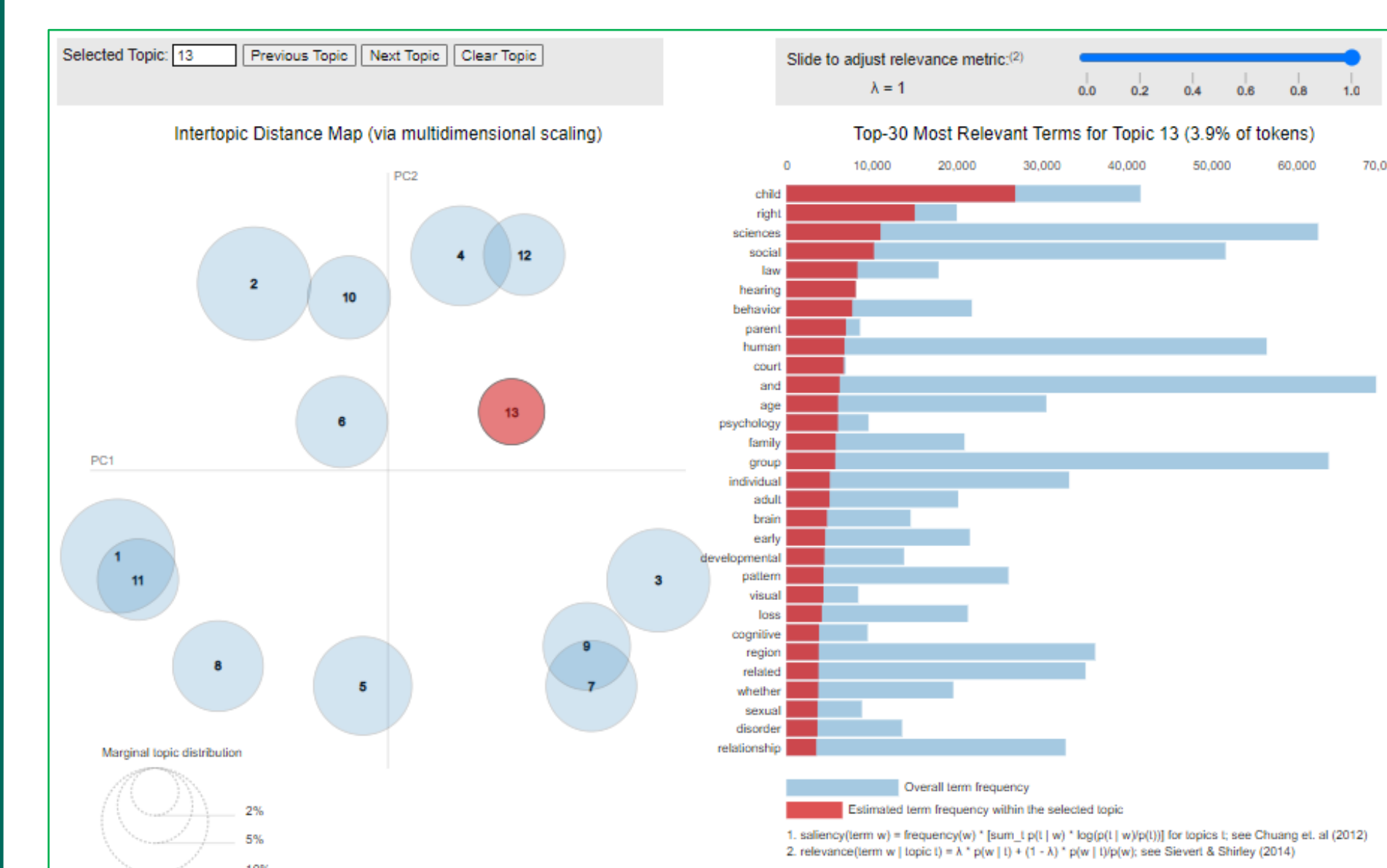
SD3 (Good health and well-being) and (SDG13) climate change are the top focus of research.



SDG research participation by South African universities date back to 2006 but has improved significantly since then.



information systems, and mathematical modelling are some of the popular topics.



13 latent topics were identified. Popular topics include child, right, psychology, hearing.

Department of Computer Science

Faculty of Engineering, Built Environment and Information Technology

Fakulteit Ingenieurswese, Bou-omgewing en Inligtingstechnologie / Lefapha la Boetšenere, Tikologo ya Kago le Theknolotši ya Tshedimošo

Capstone Project - MIT 808

Course Coordinators:
Dr. Vukosi Marivate (vukosi.marivate@cs.up.ac.za)
Abiodun Modupe (abiodun.modupe@cs.up.ac.za)

