**Problem Definition**

Global warming is one of the biggest problems that the Globe is facing. It have significant implications: (Brüggemann & Rödder 2020)

* direct physical risks that impacts agriculture destruction, animals extinction, natural disasters, human wellbeing
* financial impacts that affect asset damage, transition from energy source risk,supply chain disruption, volatile markets.

**Challenges to standardised reporting**

To understand how severe the problem is, carbon emissions should be tracked, monitored and reported regularly which requires adequate reporting. However, many challenges arise while trying to create a standardised report:(WU, RAICH & XIAO 2023)

1. Different geography: There are different standards and requirements based on different regions. The SEC focuses only on the US(U.S. Securities and Exchange Commission 2022), while ECB focuses on Europe (Bank 2023). Meanwhile the ISSB has its own standards that are supposed to address the issue globally.(IFRS 2022)
2. Different scopes: Some countries focus on financial institutes, others focus on public trading companies and so on. Hence there is no standardised scope.
3. Data availability: Different Countries, industries and companies, have different capabilities in data capturing. While some enjoy the power of technological and infrastructure advancements others fall short due to educational and economical challenges.
4. Diversified industries: Every industry has its own processes for production and delivering services. Each process exhibits different requirements from the aspect of energy type, level of energy consumption, amount of operating hours and number of employees. All these factors are contributors to the carbon footprint of that particular industry.
5. Size of a company: The bigger it is, the more it is producing, the more it is emitting. Additionally, the more capability to benefit from its economic scales and adapt to alternative energy.
6. Sharing and privacy: Different government bodies in the same country, fail to share the information amongst each other. This results in multiple data entry on behalf of organisations to multiple government bodies which is redundant, time and resource inefficient and error prone.

Those are some of the obstacles for creating a unified report. This is a wicked problem and the need for a system thinking approach is important to change the behaviour of the parties involved, businesses and governments, to be able to properly face the issues of CO2 emissions.

**Problem Break Down**

To address this, will reframe the problem into smaller micro problems, where we tackle each one individually.

1. Largest Carbon Emitters in Australia from industry perspective
2. Start identifying the main variables in each industry that contributes to carbon emission using open source data and data mining
3. Define and understand the data capturing methods that are available for the industries
4. Creation of intensive schemes for companies in the targeted industries to purchase the identified data capturing technology

**Data Sets Used:**

<https://ourworldindata.org/grapher/annual-co-emissions-by-region>

<https://www.cleanenergyregulator.gov.au/NGER/National%20greenhouse%20and%20energy%20reporting%20data/Corporate%20emissions%20and%20energy%20data/corporate-emissions-and-energy-data-2021-22>

<https://edgar.jrc.ec.europa.eu/report_2022>

**Proposed Solution**

Allow legislation to empower the third party such as infosys to do the following:

* 1. Create policies and documentation requirements for companies to comply with them
  2. Create a data hub that allows for the storage of each companies data
  3. Create a platform where the companies in different industries can upload their data on a monthly basis. This data needs to be automated and contain the variables that affect the carbon footprint.
  4. Mandate that the 3rd party would be an energy auditor. Supporting documents are collected in this process

**Benefits of the Solution:**

1. Inclusive Scope
2. Compliance Assurance
3. Identifying company specific capturing point
4. Cost & time efficiency
5. Data reliability
6. Physical and financial impacts are all gathered
7. All stakeholders are up to date because the data is gathered in a standardised manner and stored.
8. Incentive and rewards such as task cuts are now applicable

**References**

Government Bodies collecting emission data in Australia:

Clean Energy Regulator (CER)

National Greenhouse and Energy Reporting (NGER) Scheme

Australian Securities and Investments Commission (ASIC)

Australian Energy Regulator (AER)

Brüggemann, M & Rödder, S 2020, Global Warming in Local Discourses, Global Communications, Open Book Publishers, viewed 19 August 2023, <<https://www.openbookpublishers.com/books/10.11647/obp.0212>>.

U.S. Securities and Exchange Commission 2022, SEC.gov | SEC Proposes Rules to Enhance and Standardize Climate-Related Disclosures for Investors, Sec.gov, viewed 19 August 2023, <<https://www.sec.gov/news/press-release/2022-46>>.

Bank, EC 2023, ‘Climate-related financial disclosures’, www.ecb.europa.eu, viewed 19 August 2023, <<https://www.ecb.europa.eu/ecb/climate/climate-related-financial-disclosures/html/index.en.html>>.

IFRS 2022, IFRS - ISSB issues inaugural global sustainability disclosure standards, www.ifrs.org, viewed 19 August 2023, <<https://www.ifrs.org/news-and-events/news/2023/06/issb-issues-ifrs-s1-ifrs-s2/>>.

WU, X, RAICH, U & XIAO, Y 2023, Getting the fundamentals right: Measuring, reporting, and verifying carbon emissions at the city level in China, blogs.worldbank.org, viewed 19 August 2023, <<https://blogs.worldbank.org/sustainablecities/getting-fundamentals-right-measuring-reporting-and-verifying-carbon-emissions>>.