

永續數據分析

(Sustainability and ESG Data Analytics)

TCFD 氣候相關財務揭露與En-ROADS 氣候變遷模擬 (Task Force on Climate-Related Financial Disclosures (TCFD) and En-Roads Interactive)

1122ESGDA05

DM4, NTPU (N4084) (Spring 2024)

Fri, 10, 11, 12 (18:30-21:15) (臺北大學民生校區 305)

戴敏育 教授

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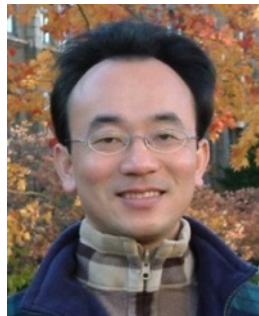
Institute of Information Management, National Taipei University

<https://web.ntpu.edu.tw/~myday>

2024-03-29



<https://meet.google.com/miy-fbif-max>



課程大綱 (Syllabus)

- | 週次 (Week) | 日期 (Date) | 內容 (Subject/Topics) |
|-----------|------------|---|
| 1 | 2024/02/23 | 永續數據分析概論
(Introduction Sustainability and ESG Data Analytics) |
| 2 | 2024/03/01 | 環境、社會與治理 (ESG) 淨零數位轉型
(Environmental, Social, and Governance (ESG) in Net-Zero Digital Transformation) |
| 3 | 2024/03/08 | 永續與ESG 資料科學
(Data Science for Sustainability and ESG) |
| 4 | 2024/03/15 | 永續數據分析個案研究 I
(Case Study on Sustainability and ESG Data Analytics I) |
| 5 | 2024/03/22 | Web 3.0 和大數據分析在金融科技、綠色永續金融
(Web 3.0 and Big Data Analysis in Fintech, Green and Sustainable Finance) |

課程大綱 (Syllabus)

週次 (Week)	日期 (Date)	內容 (Subject/Topics)
6	2024/03/29	TCFD 氣候相關財務揭露與En-ROADS 氣候變遷模擬 (Task Force on Climate-Related Financial Disclosures (TCFD) and En-Roads Interactive)
7	2024/04/05	放假 (No Classes)
8	2024/04/12	期中報告 (Midterm Project Report)
9	2024/04/19	ESG數據的收集、分析和視覺化 (ESG Data Gathering, Analysis, and Visualization)
10	2024/04/26	ESG數據報告 (ESG Data Reporting); 企業永續報告書 (Corporate Sustainability Reports)

課程大綱 (Syllabus)

- | 週次 (Week) | 日期 (Date) | 內容 (Subject/Topics) |
|-----------|------------|--|
| 11 | 2024/05/03 | ESG數據驗證 (ESG Data Verification) |
| 12 | 2024/05/10 | 永續數據分析個案研究 II
(Case Study on Sustainability and ESG Data Analytics II) |
| 13 | 2024/05/17 | 能源之星報告與數據揭露
(Energy Star Reporting and Data Disclosure) |
| 14 | 2024/05/24 | 人工智慧物聯網在ESG永續應用
(Artificial Intelligence of things (AIoT) in ESG and Sustainability Applications) |
| 15 | 2024/05/31 | 生成式AI於永續評等和報告生成
(Generative AI for ESG Rating and Reporting Generation) |
| 16 | 2024/06/07 | 期末報告 (Final Project Report) |

Task Force on Climate-Related Financial Disclosures (TCFD) and En-Roads Interactive

Outline

- **Task Force on Climate-Related Financial Disclosures (TCFD)**
- **En-Roads Interactive Platform**
- **Integrating TCFD and En-Roads for ESG Data Analysis**

Sustainability and ESG Data Analytics



Task Force on Climate-Related Financial Disclosures (TCFD)

TCFD

(Task Force on Climate-related Financial Disclosures)



<https://www.ifrs.org/sustainability/tcf/>



ABOUT US | IFRS ACCOUNTING | IFRS SUSTAINABILITY

Home > ISSB and TCFD

ISSB and TCFD

The Financial Stability Board has announced that the work of the TCFD has been completed, with the ISSB's Standards marking the '**culmination of the work of the TCFD**'.

Companies applying IFRS S1 *General Requirements for Disclosure of Sustainability-related Financial Information* and IFRS S2 *Climate-related Disclosures* will meet the TCFD recommendations as the recommendations are fully incorporated into the ISSB's Standards.

Companies can continue to use the **TCFD recommendations** should they choose to do so, and some companies may still be required to use the TCFD recommendations. Using the recommendations is a good entry point for companies as they move to use the ISSB's Standards.

The IFRS Foundation has **published a comparison** of the requirements in IFRS S2 and the TCFD recommendations.

Related Information

[IFRS Foundation welcomes culmination of TCFD work and transfer of TCFD monitoring responsibilities to ISSB from 2024](#)

[Comparison: IFRS S2 Climate-related Disclosures with the TCFD Recommendations](#)

[Resource: Making the transition from TCFD to ISSB](#)

[IFRS Sustainability Standards Navigator](#)

<https://www.fsb-tcf.org/>

Task Force on Climate-Related Financial Disclosures (TCFD)

- **Introduce climate change as a financial risk**
- **Importance of transparency and informed decision-making**
- **Task Force on Climate-Related Financial Disclosures (TCFD)**

What is TCFD?

- **The origins of TCFD by the Financial Stability Board (FSB) in 2015**
- **The voluntary nature of TCFD recommendations**
- **The objectives of TCFD**
 - **improve transparency and support informed decision-making by investors**

The Four Core TCFD Recommendations

- **Governance**
 - **Board oversight of climate risks and opportunities**
- **Strategy**
 - **Describing climate-related risks and opportunities for the company**
- **Risk Management**
 - **How the company identifies, assesses, and manages climate risks**
- **Metrics and Targets**
 - **Disclosing relevant metrics and targets for climate performance**

Benefits of TCFD Implementation

- **Attract sustainable investor**
- **Improve risk management**
- **Enhance brand reputation**
- **Foster long-term financial resilience**

Challenges of TCFD Implementation

- **Resource constraints**
- **Data availability and quality**
- **Integrating climate considerations into existing processes**

En-Roads Interactive

The En-ROADS Climate Solutions Simulator



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[Our Work](#)

[Get Involved](#)

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THE EN-ROADS CLIMATE SOLUTIONS SIMULATOR

En-ROADS is an online simulator that provides policymakers, educators, businesses, the media, and the public with the ability to test and explore cross-sector climate solutions.

[EXPLORE THE EN-ROADS SIMULATOR >](#)

<https://www.climateinteractive.org/en-roads/>

En-Roads Interactive Platform

- **En-Roads**
 - **A free, online platform for climate scenario modeling**
- **En-Roads's value in exploring pathways to a sustainable future**

Getting Started with En-Roads

- **Step-by-step guide to navigating the En-Roads platform**
- **En-Roads Key functionalities:**
 - **Selecting climate policies and socioeconomic factors**
 - **Visualizing climate impacts
(temperature, sea level rise, etc.)**

Exploring Climate Scenarios with En-Roads

- **En-Roads platform's capabilities through real-world examples:**
 - **Analyzing the impact of different emissions reduction pathways.**
 - **Exploring the consequences of inaction on climate change.**
 - **How En-Roads can inform investment decisions.**

En-Roads for Business Sustainability

- **How businesses can leverage En-Roads for:**
 - **Identifying climate risks specific to their operations.**
 - **Setting science-based emissions reduction targets.**
 - **Assessing the effectiveness of climate mitigation strategies.**

Integrating TCFD and En-Roads for ESG Data Analysis

Integrating TCFD and En-Roads for ESG Data Analysis

- **The Link Between TCFD and En-Roads**
 - **How TCFD helps identify climate-related risks and opportunities.**
 - **How En-Roads can be used to quantify those risks and opportunities.**

ESG Data Analysis with TCFD and En-Roads

- **Environmental, Social, and Governance (ESG) data.**
- **Practical framework for ESG data analysis using TCFD recommendations and En-Roads outputs.**
- **Case study**
 - **How a company can use this approach**

Benefits of Integrated Approach (TCFD and En-Roads)

- **The advantages of combining TCFD and En-Roads for ESG analysis:**
 - **More comprehensive understanding of climate-related risks.**
 - **Data-driven decision-making for sustainability.**
 - **Improved ESG performance reporting.**

Summary

- **Task Force on Climate-Related Financial Disclosures (TCFD)**
- **En-Roads Interactive Platform**
- **Integrating TCFD and En-Roads for ESG Data Analysis**

References

- Cino Robin Castelli, Cyril Shmatov (2022), Quantitative Methods for ESG Finance, Wiley
- Simon Thompson (2023), Green and Sustainable Finance: Principles and Practice in Banking, Investment and Insurance, 2nd Edition, Kogan Page.
- Chrissa Pagitsas (2023), Chief Sustainability Officers At Work: How CSOs Build Successful Sustainability and ESG Strategies, Apress.
- TCFD (Task Force on Climate-related Financial Disclosures):
<https://www.fsb-tcfd.org/>
- En-Roads Climate Interactive:
<https://www.climateinteractive.org/en-roads/>
- Min-Yuh Day (2024), Python 101, <https://tinyurl.com/aintpupython101>