Incorporating carbon emissions into decision-making

The case of transactional connectivity

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Context: Connectivity

IIRC, IRCC, EFRAG:

- Connectivity between content, time dimensions, communication sources;

- Connectivity in reports, product, and process;

- Direct, and indirect connectivity

Prior literature

- Kaplan and Ramanna (2021a): e-liability system
- Reichelstein (2024): uses e-liability approach to develop carbon accrual accounting system
- Penman (2024): further aligns carbon accounting with financial principles, introducing double-entry system
- Glenk (2024): advocates for decision-useful emissions reporting

Transactional carbon accounting

"consistently adds greenhouse gas emission information to transactions recorded in a firm's general ledger"

Advantages

1. Goes beyond prior literature emphasis on presentation, actively promotes integrated thinking

2. Allows managers at all levels to consider emissions in decision-making

3. Provides standardized reporting, improving quality for users

4. Facilitates application of established audit procedures

5. Requires less effort than other approaches, as adds to existing financial transactions - not a separate accounting system

Contributions

1. Connectivity literature, by introducing transactional connectivity

2. Views carbon accounting from foundational, and not only presentation/outcomes (report) based

3. Has potential to transform practice, by bringing emissions into financial decision-making

Clarifications

1. Current regulations on carbon reporting (p. 7)
   - CA not new, there is more than GHG Protocol alone!
   - Mandatory emissions reporting for close to 20 years
   - (e.g., EU (2005), US (2009), California (2007), Canada (2004), UK (2013), Japan (2006), Australia (2008)
   - In some instances, very detailed and rigorous measurement methodologies

2. Carbon v financial reporting (pp.9-10):
   - Reporting boundaries differ (FA is group/CA is value chain)
   - FA based on past events, CA based on future assets (e.g., S3 downstream)

Assumes scope 3 only

Clarifications

3. Concerns of GHG Protocol

- Scope 3 required for entire value chain (difficult without estimates)
- To resolve difficulty, firms use averages, which may result in lower reported emissions
- S3 downstream emissions have high levels of uncertainty (e.g., emissions of plane over lifetime)
- Firms do not control downstream S3 value chain (e.g., apple has no control over iPhone users)
- S3 reported multiple times, so there is double counting
- Do not require information on a transactional level

Most points more relevant to e-liability approach than transactional accounting.

Clarify relevance in paper

Again, Scope 3 primary concern

Clarify in paper

Summary

- Excellent, well-developed paper, and conceptually super interesting.
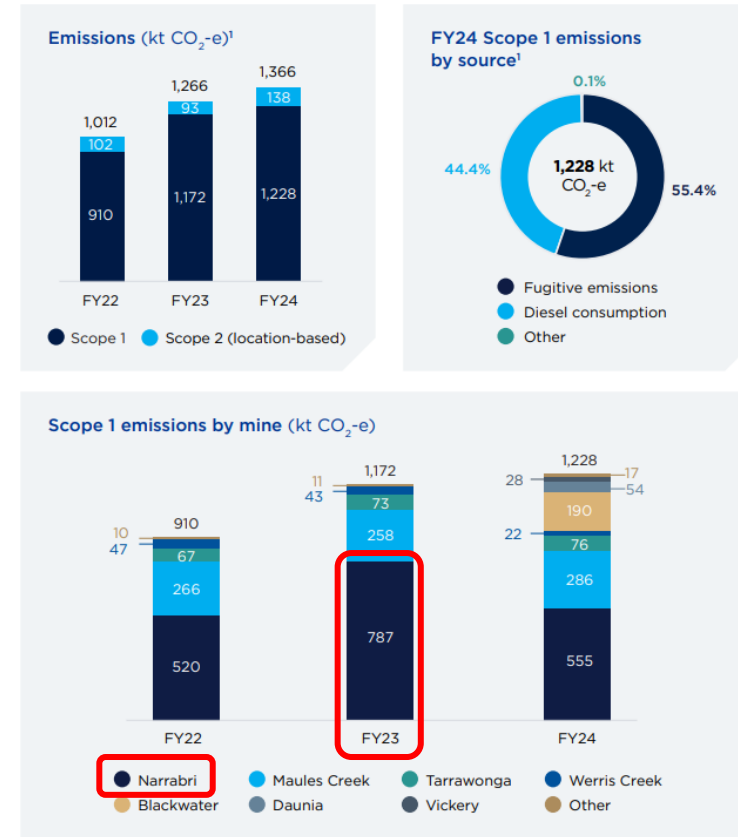- And I mean that very sincerely and would like to see it published!

But, **very much through the lens of accounting**

If we start thinking from a planetary perspective, human and natural systems are coupled
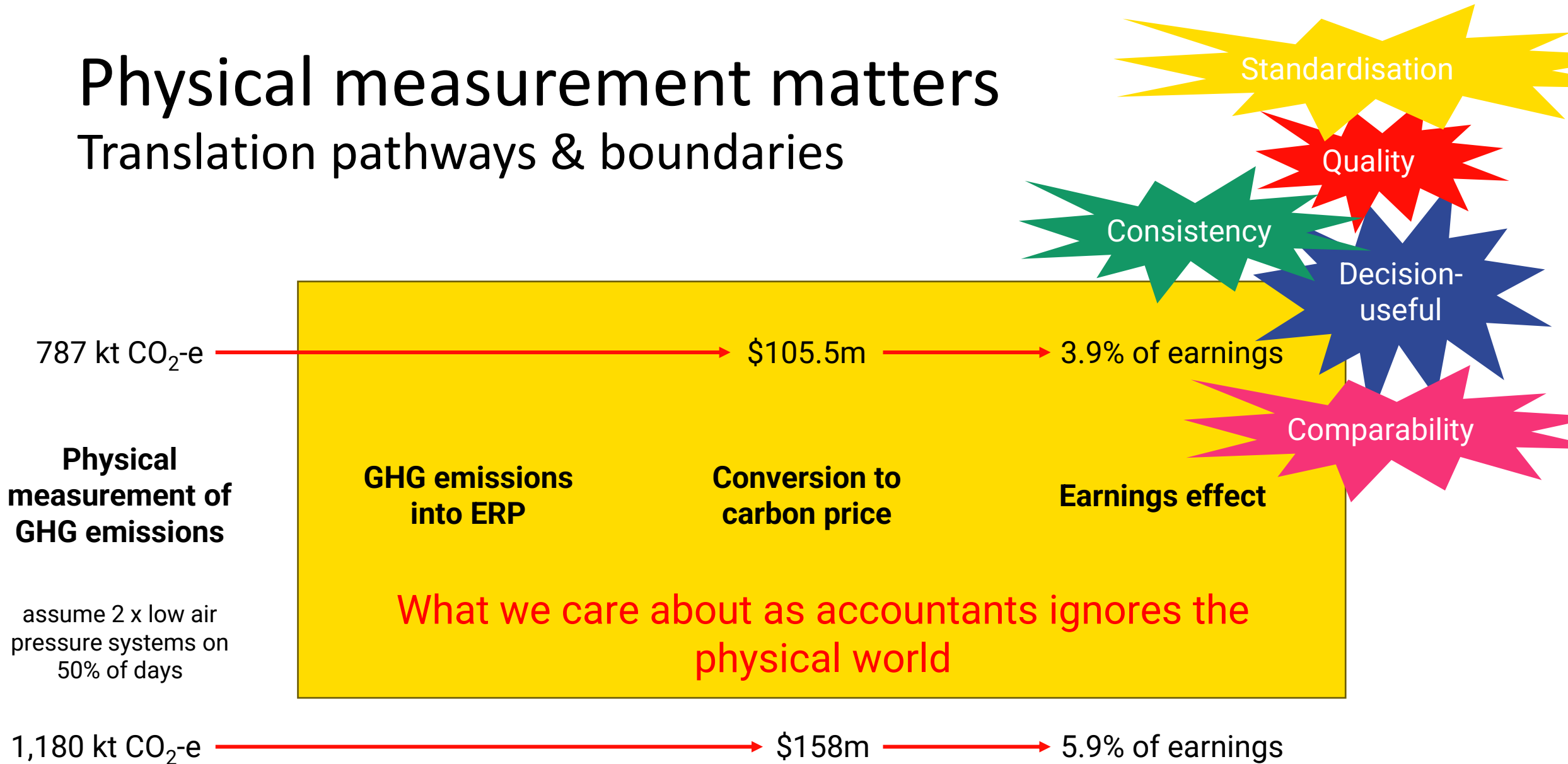
Physical measurement matters
e.g., Narrabri coal mine

- Mines breath! 2 low air pressure systems in a day = double the volume recorded, but not emitted.
- EU carbon price €81 or AUD $134. For Narrabri alone, White Haven carbon liability of $105.5m 2023 is 3.9% of $2.7b profit

Physical measurement matters
Translation pathways & boundaries

Standardisation

Quality

Consistency

Decision-useful

Comparability

787 kt CO_2-e → $105.5m → 3.9% of earnings

Physical measurement of GHG emissions

assume 2 x low air pressure systems on 50% of days

GHG emissions into ERP

Conversion to carbon price

Earnings effect

What we care about as accountants ignores the physical world

1,180 kt CO_2-e → $158m → 5.9% of earnings

Summary

Again, conceptually interesting and am deeply supportive of the idea that we integrate emissions into internal and external decision-making.

But to what extent can we honestly say that we have achieved the **quality**, **decision-utility**, or **standardisation** if we do not actively take the physical world into account.

Parting gift and provocation: what about connectivity in measurement?

(e.g., IAS19: actuarial methods AND assumptions to calculate employee benefits)