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WEBINAR

Solving the Spreadsheet Conundrum

Building reliable sustainability data

Lachlan Higgins
Full Stack Software Developer, SESG

Where the time goes

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Reliable reporting starts with the source data

Start with three reconciliation questions.

Sources → Spreadsheet → Factor → Board report

EVERY HAND ALONG THE WAY

Assume some of the data is wrong.

COVERAGE

Are reporting periods missing from any source?

TOTALS

Do the monthly totals agree across sources?

MEMBERSHIP

Is there an asset with no evidence, or evidence with no asset?

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Software helps. Source evidence still needs checking.

DARWIN PORT · BOARD REPORT

2 days saved

Each month, by their written account.

SOLO · REPORTING ON REQUEST

Filters in minutes

Cleaned data, mapped to profit centres.

PAPUA NEW GUINEA · AI EXTRACTION

6,500 invoices, approx.

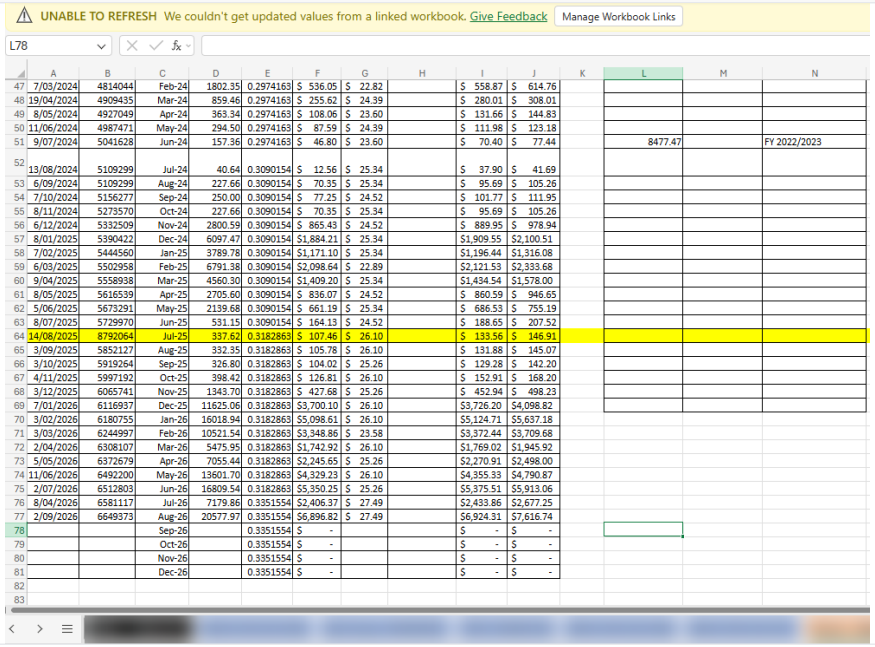
Output checked against the source documents.

Software makes reporting productive. What you do to the data decides whether you can trust it.

Software can enforce checks and remove repetitive work. It cannot establish that source evidence is correct or complete on its own.

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What a spreadsheet gets asked to do



One multi-user electricity spreadsheet on SharePoint. Tab names removed. Note the emission factor sitting in column E.

WHAT KEPT GOING WRONG

- Two people editing at once: overwrite conflicts
- Emission factors went stale in a cell
- All validation manual, slower every month as the file grew

"SharePoint Excel defaulting to US date format halfway down the sheet will forever be the bane of my existence."

Darwin Port

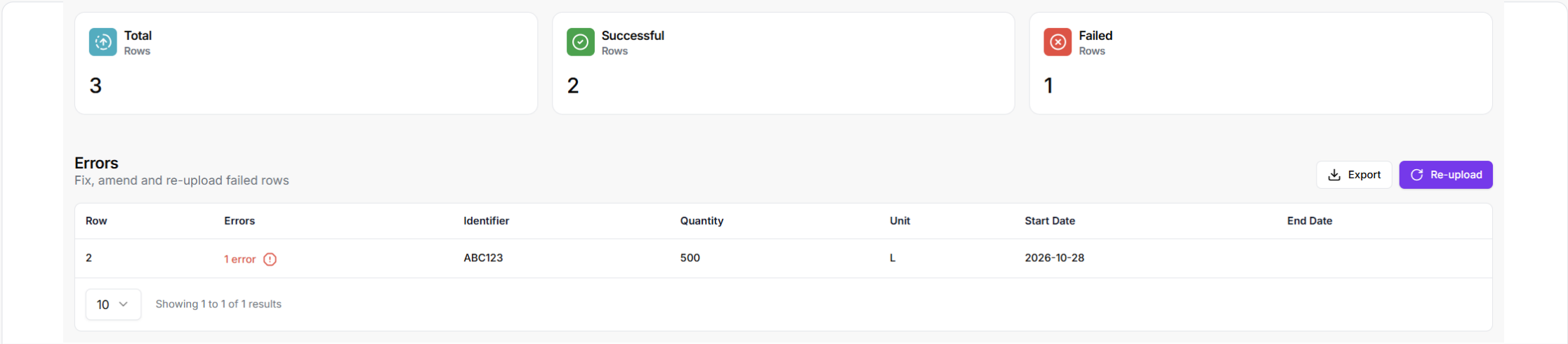
2 days

a month on the board report, by their written account

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What has to change

Sources › One entry point › Checks on the way in › Factors resolved by date › One dataset to report from



Demo data. Three rows in, one held: "Date range must not be in the future." The check cannot tell whether the invoice was right.

5 min
to upload, issues flagged

5 min
to generate the board report

2 days saved
each month, by their written account

DARWIN PORT, ON THE MIGRATION

Once the data was clean, set-up took a thirty minute call.

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Reporting on request

BEFORE

Preparing and checking the data, not analysing it. Factors in a separate spreadsheet.

Preparation could take dozens of hours.

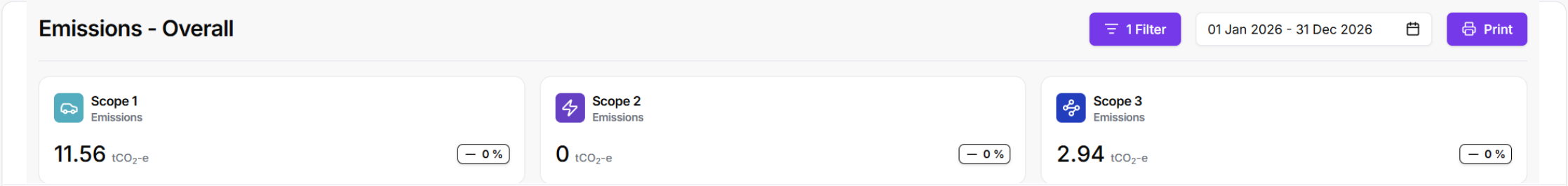
NOW

Every quantity assigned to its reporting groups before anyone asks: by council, by job.

Filtering takes minutes.

SOLO'S PROCESS, IN THEIR WORDS

1. Source systems
2. Structured data extraction
3. **Validation and mapping**
4. Emissions calculations
5. Dashboards and analysis
6. ESG reporting and disclosure



Demo data. One tag filter applied at the top, and the same view shows only that tag's rows: 14.5 of 1,141.9 tCO2e.

"The greatest effort has been getting the underlying data right. The platform can make reporting and analysis significantly easier, but its value ultimately depends on the quality and consistency of the source information."

Solo

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One PDF is not one invoice

CLIENT-SUPPLIED PDFS
2,405

PAGES INSIDE THEM
17,976

INVOICES INSIDE THEM
6,500 approx.

A monthly bundle holds dozens of invoices

A supplier payment pack runs to hundreds of pages

Fuel invoices arrive as zips nested inside zips

One entity's whole set: scans with no text layer

An ADB policy-based loan initiative building 2025 greenhouse gas baselines for five state-owned enterprises in Papua New Guinea.

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Extraction, then checking

PDFs

Claude Code

Anthropic's coding agent.

- Read page by page
- One row per source line, with file and page
- Flag whether the line supports a purchase

Workbook checks

Import format

Reporting tool

It did not do the extraction.

WHAT THE MODEL DID

Read and transcribed

WHAT THE HUMAN DID

Wrote the rules, checked, accepted

An import can pass while a source quantity is wrong.

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How we checked the extraction

1

Cross-check the reading

4 independent reads

One fuel set. Zero discrepancies.

Agree: a cross-check. **Disagree:** investigate against the source.

2

Reconcile and record gaps

4,102 rows reconciled

Against the supplier's listing.

Recheck affected data. Document remaining gaps.

3

Manual checks throughout

300 corrections logged

One entity's scanned set.

External audit is a separate stage and is still pending.

Checks during extraction and external audit are separate stages.

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What the extraction and reconciliation checks found

COVERAGE CHECK

Unread pages inside packs already marked complete

PLAUSIBILITY CHECK

A recorded fuel quantity far above the vehicle's other fills

Correction required client confirmation.

DUPLICATE CHECK

The same invoice in two suppliers' payment packs

CLASSIFICATION CHECK

Vehicle diesel put in the generator category

SECOND READ

"Illegible" scans were landscape sheets scanned in portrait

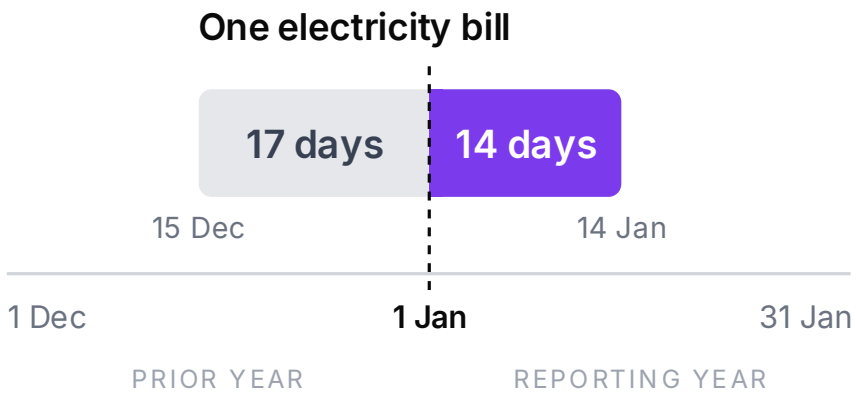
Finding an anomaly and confirming its correction are separate steps.

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Clean quantities still need documented calculation choices

REPORTING PERIOD

One bill can cross the year boundary



Apportion by days. Disclose the assumption.

EMISSION FACTOR

Same electricity quantity, different estimates

Local utility derivation

Utility generation data; greenhouse gases expressed as CO_2e.

International Energy Agency estimate

National generation estimate, including self-generation; CO_2 only.

Both reported, with sources and limitations. For an Australian port: the NGA factor for your state and year.

Document the basis of the result.

Waste adds waste type and disposal route.

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Software makes reporting productive. What you do to the data decides whether you can trust it.

Solo's advice: do not treat it "as simply transferring an existing carbon spreadsheet into a new system."

1

Structure the records

Keep source references. Map quantities to the groups you report on.

2

Check the evidence

Reconcile coverage, totals and membership. Check rows against the source documents.

3

Document decisions

Methods, assumptions, exclusions and unresolved gaps, kept with the result.

ANY TOOL PASSES IF IT DOES FOUR THINGS

- One entry point
- Checks on the way in
- Factors resolved by date
- One dataset to report from

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Thanks.

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Happy to walk through any of the checks in detail, or the workbook layout.