

BOT Digital Finance Conference 2023

AI-Powered Carbon Management Solutions



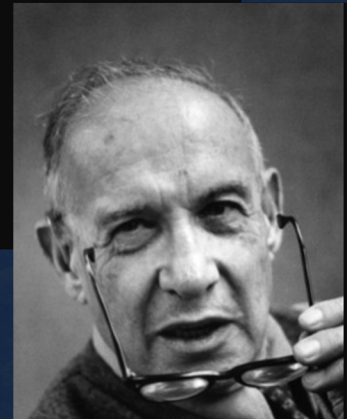
Nurul Syaheedah Jes Izman
Chief Operating Officer
Pantas Software



Eong Tat Ooi
Chief Technology Officer
Pantas Software

What gets measured gets managed.

— *Peter Drucker* —



Agenda



State of Play

Carbon Emission Disclosure Trends and The Business Solution



Data Drive Decisions

Beyond Regulatory Compliance, How Carbon Disclosure Turns Into Opportunity



AI Powered Transformations

Transforming the industry, setting new standards with Pantas Carbon Management Solutions





THE STATE OF PLAY



Macro Trends Are Fueling Carbon Footprints Disclosure



Regulatory Bodies

Mandating carbon disclosure for environmental compliance



Investors

Prioritizing sustainability for long-term returns



Stock exchanges

Requiring green benchmarks for listings



Customers

Demanding eco-friendly products and practices



Carbon Accounting Is The New Norm

Pantas currently serves companies across 4 countries in SEA

To meet stakeholder demands and requirements



Customers



Investors



Regulators

To avoid misreporting and greenwashing



To embed sustainability within their business strategy



Deals/
Tenders



Stock
Price



Company
Image



Companies Who Trusts Pantas

“ Without a doubt, there's a new endgame in today's digital economy. Consumers don't just buy products and services anymore; they buy experiences. ”

— Ben Jackson, The Future of Commerce



Sole Software Partner of the
Greening Value Chain
(GVC) Programme



Pantas replaces excel templates and speeds up the data collection process.
An easy-to-use system out of the box!



Pantas highlights our carbon emission hotspots, **helping us plan and act better to reduce them**



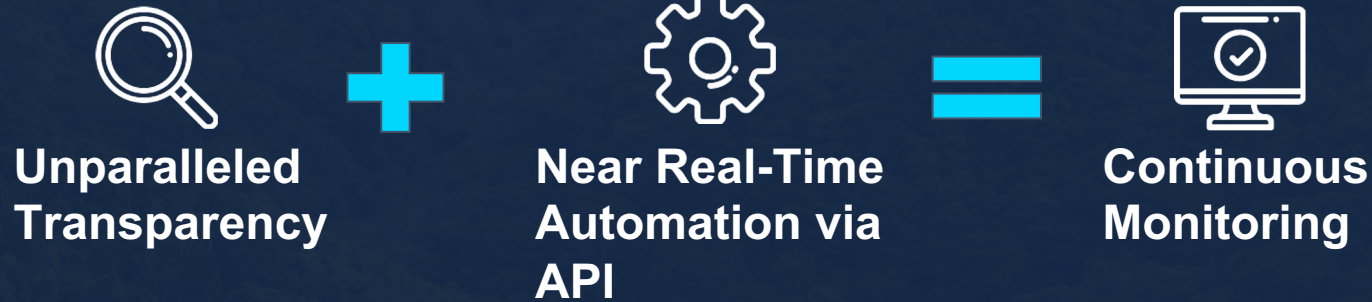
Pantas plays a crucial role in our carbon disclosure. **We value the customizable software capabilities!**



Together with Pantas, we've been able to **implement a comprehensive climate program for our clients**



Continuous Monitoring with Pantas



Transparent real-time insights into **WHO** made **WHICH** changes, and **WHERE**, empower companies to easily **IDENTIFY** data inaccuracies, enabling swift **RESPONSES** to **PREVENT** the risk of greenwashing

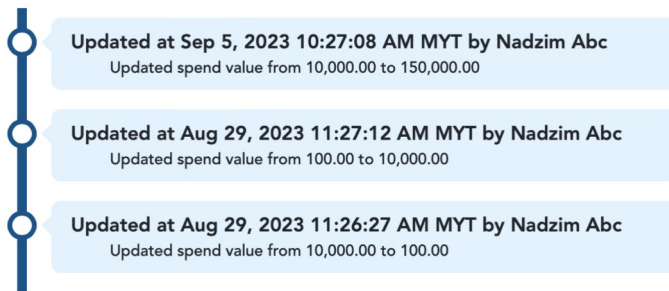


Advanced Error Recognition & Auto-Correction Features

Product Snapshot

Audit trail for Scope 1: Mobile Combustion - Motor Gasoline Cars

Timeline of changes:



Audit Trail

Real-time Monitoring & Tracking Audit Trail



Validation Workflow

Streamlined Review Process



Progress Insight

At-a-Glance Completion Monitoring



Inherit Global Reporting Frameworks & Compliance

The TCFD logo consists of the letters "TCFD" in a bold, blue, sans-serif font.The Science Based Targets logo features a circular icon with three wavy lines in blue, green, and red. To the right of the icon, the text "SCIENCE BASED TARGETS" is written in a sans-serif font, with "DRIVING AMBITIOUS CORPORATE CLIMATE ACTION" in a smaller font below it.The Greenhouse Gas Protocol logo features a circular icon with a green and blue gradient. To the right of the icon, the text "GREENHOUSE GAS PROTOCOL" is written in a sans-serif font.The IFRS logo features a red rectangular icon with a white geometric pattern. To the right of the icon, the text "IFRS®" is written in a sans-serif font.The ISO 14064 logo features a blue globe icon with the text "ISO" in a large, bold, blue font above it and "14064" in a smaller, blue font below it.The GRI logo features a blue circular icon with the letters "GRI" in white. To the right of the icon, the text "Global Reporting Initiative" is written in a sans-serif font.The ISO 27001 logo features a circular icon with a globe and the text "ISO 27001 INFORMATION SECURITY" around the perimeter. Below the icon, the text "27001" is written in a bold, sans-serif font.The SASB logo features a circular icon with a red and white bar chart. To the right of the icon, the text "SASB" is written in a bold, sans-serif font, with "SUSTAINABILITY ACCOUNTING STANDARDS BOARD" in a smaller font around the perimeter.The PCI DSS logo features a green and white checkmark icon. To the right of the icon, the text "PCI DSS COMPLIANT" is written in a sans-serif font.The BSI logo features a circular icon with a heart shape and the text "bsi" above it.

Pantas aligns seamlessly with global and regional regulatory standards, reporting frameworks, and has earned validation from numerous reputable enterprises



Trusted Worldwide Database



United States
Environmental Protection
Agency



UNFCCC
United Nations Climate Change
Global Climate Action



GREENHOUSE
GAS PROTOCOL



ecoinvent



and 20+ more...

Pantas database contains scientifically vetted emission factors data from reputable organisations and is continuously synced in real time



Certified & Endorsed by ISO Standards



Partnership with British Standards Institution (BSI)

Deliver efficient GHG assurance services through standardized digital reporting, allowing clients rapid climate report verification

Compliant with ISO 14064-1 standards

Received swift verification in just 2 days instead of estimated time of 2 months, underscoring Pantas seamless methodology





DATA DRIVE DECISIONS



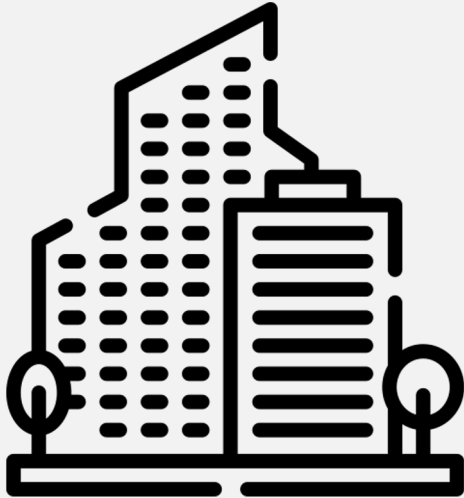
Paradigm Shift on Compliance



Carbon regulations compliance are moving from obligation and cost,
into real business opportunities



From Data to Opportunities



Businesses



Financial Institution



Opportunities for Businesses



Operational
Emissions



Supply Chain
Emissions



Product Differentiation

- Higher price of Green-products⁽¹⁾
- Significant gain of market share and revenue



Access to Cheaper Green-Capital

- Sustainability-linked financing offers reducing interest rates upon meeting sustainability KPIs⁽²⁾



Branding and Marketing

- Increasing environmental-consciousness among customers influence business support and purchasing decisions

(1) Capterra survey: Consumers are willing to pay more for sustainable products despite inflation

(2) <https://reglobal.org/green-finance-trends-and-opportunities-in-thailand/>



Opportunities for Financial Institutions



Operational
Emissions



Banking Client
Emissions



Data-driven Analysis

- Unlocks robust climate-risk management
- Enables proactive monitoring of client performance and granular analysis on the bank's portfolio



New Product Development

- Launch sustainability-linked financial products with relevant, credible and measurable KPIs
- Stimulate customer acquisition via market-leading green financing products



Industry Leadership

- Demonstrates commitment to sustainability, fostering a strong brand image as an industry leader - attracting environmentally responsible clients, investors and partners



Data Empowerment: Greening Value Chain (GVC) Programme



At COP-27's Finance Day,
Central Bank of Malaysia
launched the Greening Value
Chain Programme⁽¹⁾



COP27
SHARM EL-SHEIKH
EGYPT 2022



**Simplified Carbon
Accounting Software**



**Capacity Building &
Technical Advisories**



**Decarbonization
Solutions from GVC
Partners**



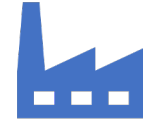
**Access to Financing
(LCTF, SLL)**



GVC Programme Structure

Phase 1

Pantas engages with the anchor company to participate in the GVC Programme



'Anchor' Company / Listco

Phase 2

Onboards the anchor's suppliers onto the programme. Provide capacity building and software for carbon emission reporting



Suppliers to the 'Anchor' Company

Phase 3

GVC Partners to provide value added services and training to interested suppliers

E.g. Assurance Services,
Financing and Decarbonization
Solutions



Partner
Service
Providers



Partner
Bank



Decarbonisation
Partners



The Way Forward



Localised Carbon Management Solution

- Engage with local businesses and consultants
- grasp Thailand's business norms and disclosure requirements,
- Customised solution that meets local requirements

Thailand GVC

- Engage with local enterprises interested in implementing sustainable practices throughout their entire value chain

Banking Partners

- Close collaboration with Kasikornbank to develop innovative banking solutions with a sustainability focus, catering for businesses in Thailand

Decarbonisation Solution Partners

- Partner with local decarbonisation technology providers to scale and deploy green-technology
- Support tech implementation with data-driven intelligent metrics





AI POWERED TRANSFORMATIONS



API - data collection & transformation solution



Easy storage

Invoices and bills are uploaded into the cloud without the need of physical storage



Fast extraction

Data is extracted using Optical Character Recognition (OCR) then sanitized and removed of all the empty value



Format ready

Data is transformed into the correct format ready to load into the machine



Data collection with API

Reducing our
carbon footprint:

**91.65 metric
tons**

of CO₂ have been avoided
from polluting our
environment through our
regenerative initiatives



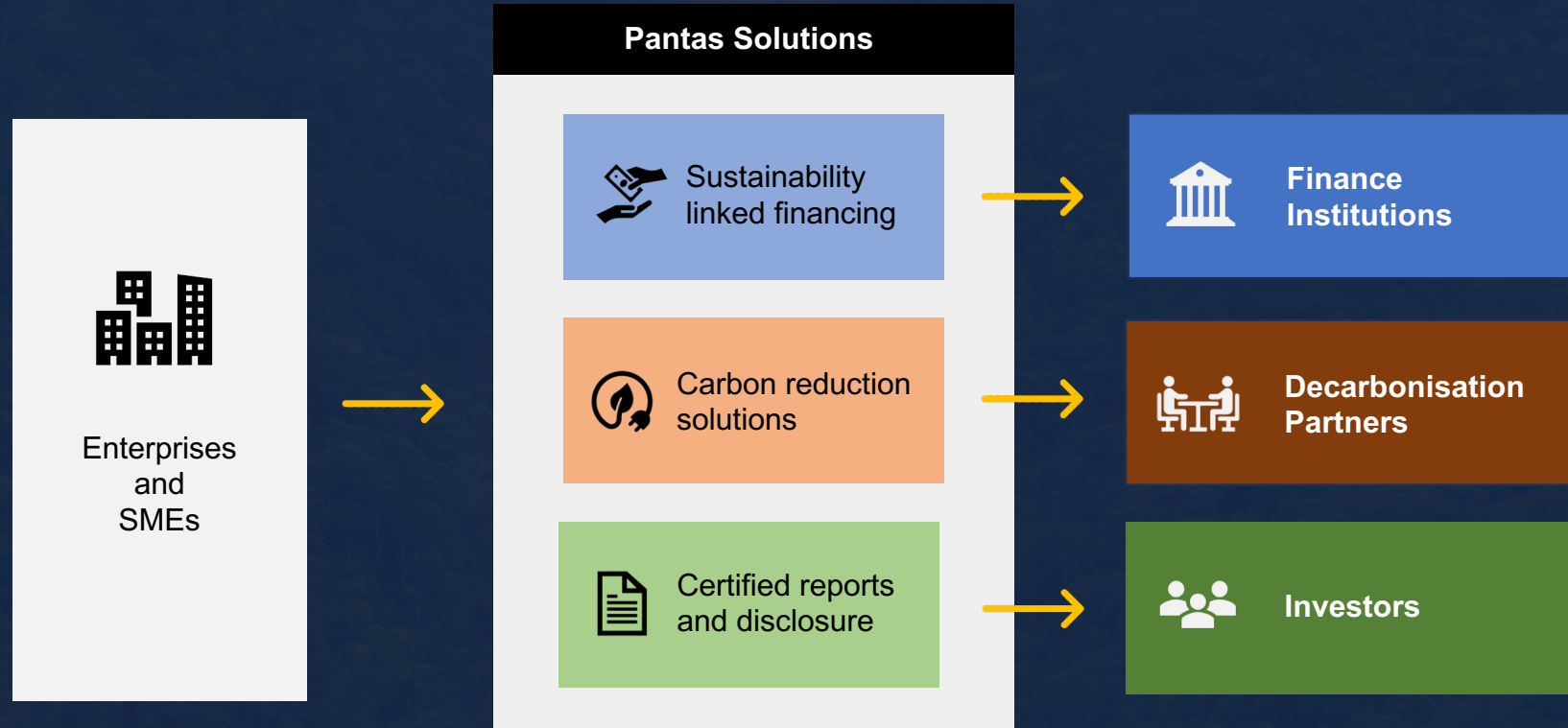
**carbon emission stated above was measured
by Pantas Climate Solutions*

©Regenerative Travel

Source: The Datai Pledge Impact Report 2022



Pantas as a connecting layer to all





The Datai Langkawi manage their carbon emission using Pantas software

Pantas visualised and track Datai's journey to carbon neutrality by **estimating their daily operation carbon emissions** and quantifying their efforts in **reducing carbon footprint**.

Results:

- Scales automatically to cover more facilities
- Data are secured on cloud
- Query result instantly for insights
- Process thousands of invoices



Challenges of carbon accounting

1

Data collection

Time consuming to collect, record and cross check every bills and receipts

2

Emission factor identification

Manually identify every emission factors based on GHG protocols

3

Data Quality

Data manually gathered are error prone



Many businesses are affected by conventional carbon accounting

>90%

companies do not measure their emissions comprehensively and accurately

~40%

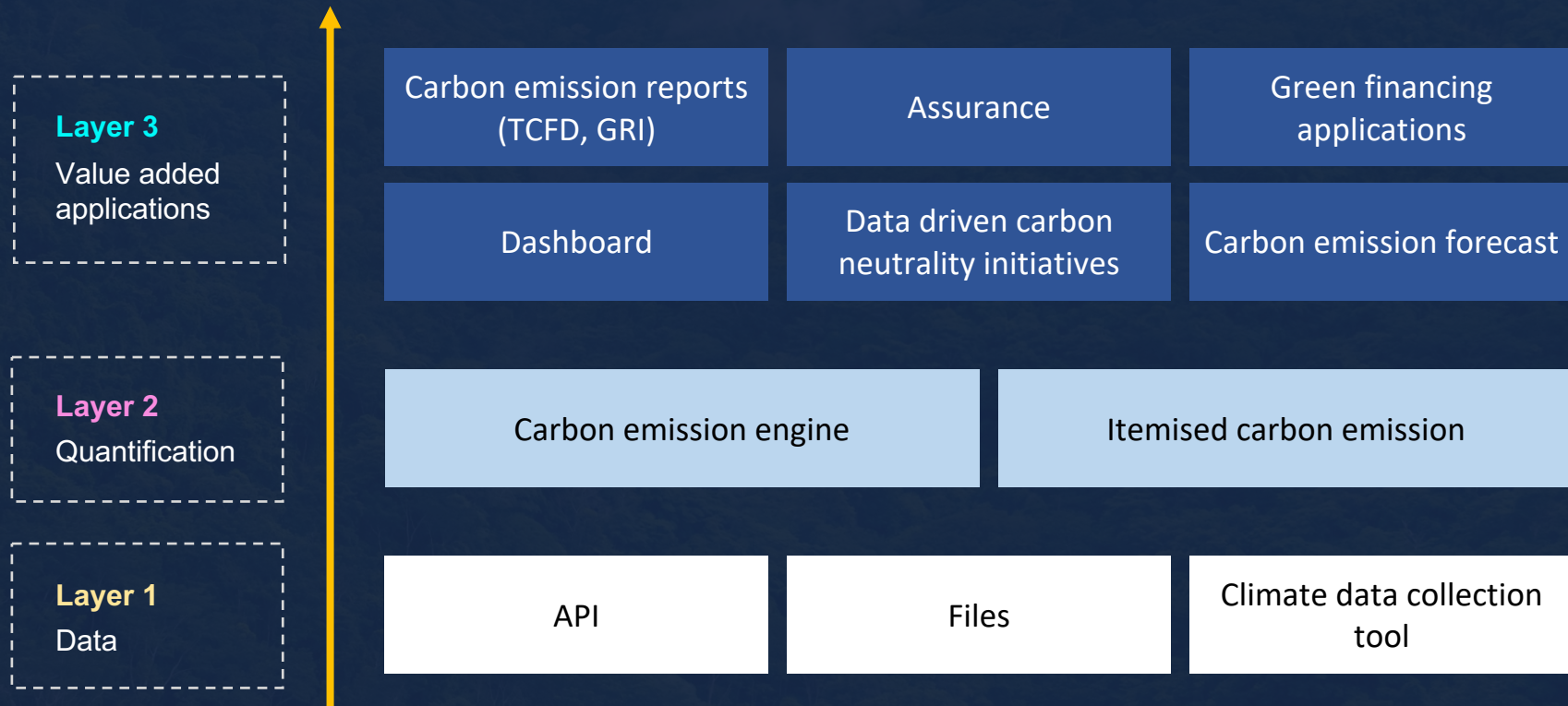
error rates causing most companies to face allegations of greenwashing and misrepresented disclosures

2-3x

companies are less likely to set efficient emission reduction targets and strategies



Pantas AI-powered solutions



AI applications in Climate Solutions through Pantas

ML services



Amazon
Comprehend



Amazon
Textract



Amazon
SageMaker



Amazon
CodeWhisperer

Compute



Amazon elastic
compute cloud



Amazon
Lightsail

Storage



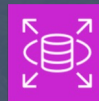
Amazon simple
storage service

Analytics



AWS glue

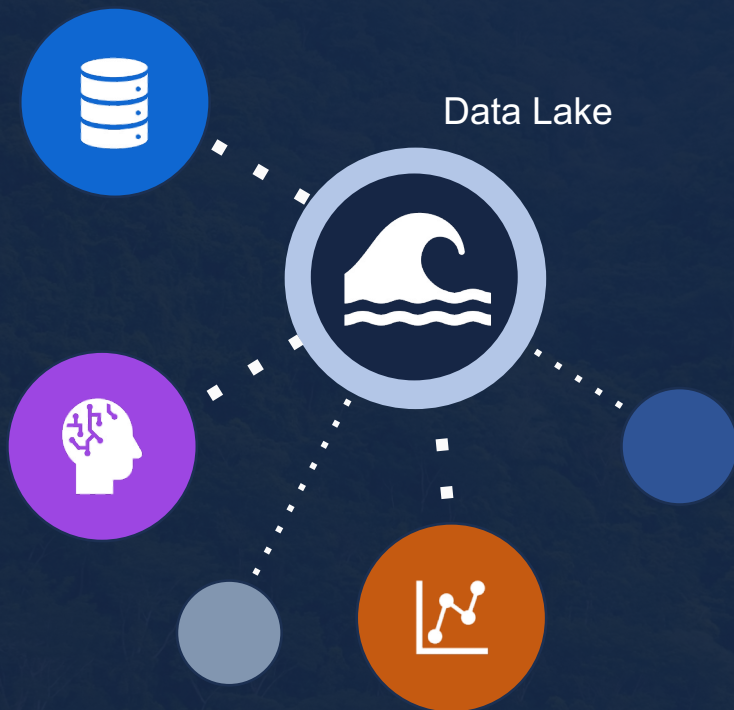
Database



Amazon relational
database service



Data Lake on Pantas



Data is massaged into the **right storage solution** for the application to **use optimally and efficiently**.



Where AI comes in Climate Solutions creating the next edge for financial institutions

Data Error Detection and Prevention

- Optical Character Recognition (OCR) cross check the data entered matches the attached documents
- Personalized anomaly detection by company based on historical data.

Predictive Analytics

- If companies deviate from industry benchmark
- Forecasts decarbonization whether companies will achieve or miss targets

Personalized Solutions Decarbonize

AI personalize decarbonization actions to take based on the low hanging fruits, considering costs, time and resources.

Financing Opportunities

Decarbonization efforts can cost a lot. AI comes to the rescue by suggesting the most suitable financing.



A little deep drive on the struggle of tech



Carbonated
can drinks



Wine bottle



Whiskey glass

Food and beverage industry has unique jargons for items complicating emission factor identification.



Bill to Company A

Description:

Item name	Qty/Ctn
Soft drink - BIG Soda (16.9oz)	100
Beverage - Coca cola (355ml)	450
...	...
Sprite bottle (0.5 litre))	300
Carbonated pepsi can	380

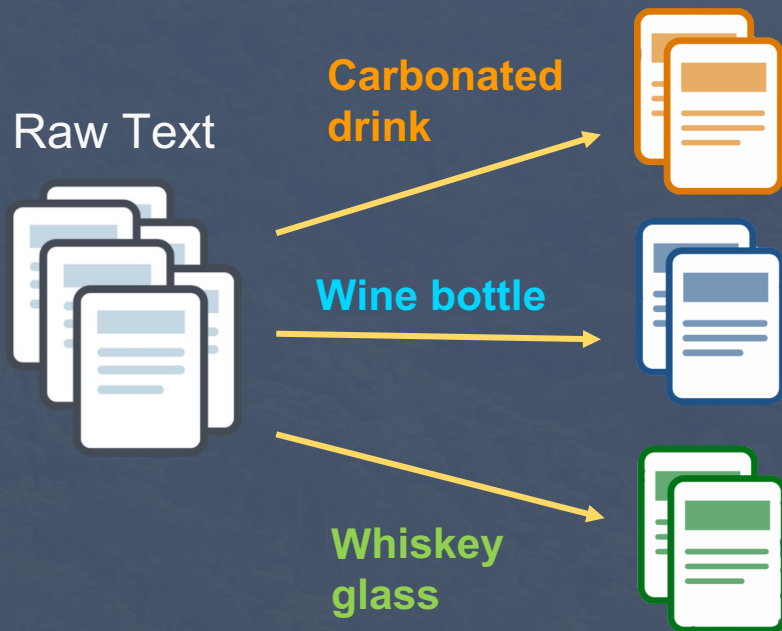
all of the above share the same
emission factor

It is hard to extrapolate emission factors to
activity data when activity data **namings are
not standardized**.

**If 1 item takes 5 minutes
100,000 items = roughly a year (500,000 min)**




Pantas's solution to the struggle



- Text classification
- Group similar text together based on semantics of words



Improve data quality with Optical Character Recognition (OCR)

BIL ELEKTRIK ANDA				
<div></div>			TERIMA KASIH kerana	
			Membayar Dalam Tempoh 30 hari TNB Careline 1-300-88-5454	
Jumlah Perlu Dibayar : RM 96.70			Tarikh Bil 02 Ogos 2022	
Amaun			Bayar Sebelum	
Tunggakan	RM	-0.75	Terima Kasih	
Caj Semasa	RM	97.44		
Penggenapan	RM	0.01		
Jumlah Bil	RM	96.70	01.09.2022	
Amaun			Tarikh	
Bil Terdahulu	RM	64.25	02.07.2022	
Bayaran Akhir	RM	64.00	31.07.2022	
Jenis Bacaan			Bacaan Sebenar	
Tempoh Bil : 02.07.2022 – 01.08.2022 (31 hari)			Faktor Prorata 1.00000	
Tarif : A: Kediaman				
Blok Tarif (kWh)	Blok Prorata (kWh)	Kadar (RM)	Amaun (RM)	
200	200 (200 x 1.00000)	0.2180	43.60	
100	100 (100 x 1.00000)	0.3340	33.40	
300	50	0.5160	25.80	
Jumlah			350 102.80	
Keterangan			Tidak Kena ST	Kena ST
Kegunaan kwn			350	0
Kegunaan	RM	102.80	0.00	102.80

Output

Total electricity used **RM 96.70**

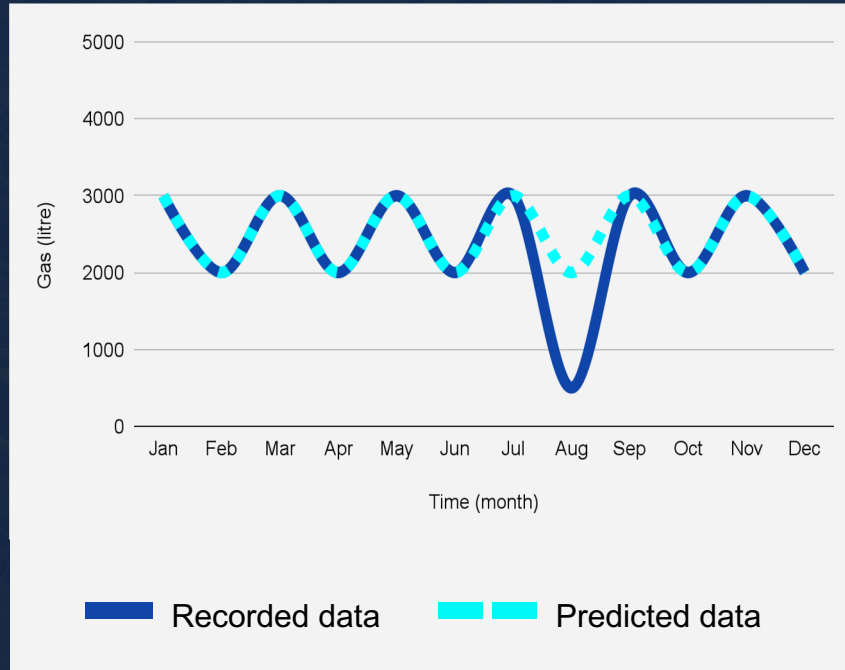
Total bill amount **350 kWh**

Enhance data quality by **automating data collection** bypassing manual entry

Reduce verification time by **cross checking the files and values** entered



Personalized anomaly



Based on past activity

Predict the error - incorrect units or seasonal trends

Predictive analysis when the data deviates from industry standards





Decarbonisation shows high potential but companies are not being proactive

Decarbonisation **creates business opportunities** and **revenue generation** but due to its challenge and complexity companies are still wary of it



AI-powered carbon reduction solution

Scope 2



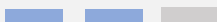
HIGH

Recommended solution according to your emissions:

Install solar panels on company rooftops

Sustainability linked financing available.

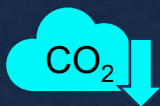
cost: 

time: 

Pantas AI recommends
decarbonisation solutions
based on companies carbon
emissions



Decarbonization fueling climate transition financing for financial institutions



Custom carbon reduction project



Climate transition financing linked to the carbon reduction project



Continuous tracking and monitoring of carbon reductions on the platform



Risk when Climate Data goes wrong

Goldman Sachs Is Being Investigated Over E.S.G. Funds

The Securities and Exchange Commission has stepped up scrutiny of sustainable investing, which has become popular but is said to lack accountability.

FINANCE - DEUTSCHE BANK

Deutsche Bank raided by authorities over ESG 'greenwashing' claims: 'We've found evidence that that could support allegations of prospectus fraud'

BY CHRISTIAN HETZNER
JUNE 15, 2022 12:21 AM GMT+8

The SEC War on Greenwashing Has Begun

The regulator's campaign against fund managers profiting from exaggerated ESG

Singapore listcos disclose fuller emissions data, but how useful are the numbers?

Indonesian Businesses Push for Uniform Global Sustainability Standard

BY : ANASTASIA
JUNE 23, 2022

Japan on Alert for Greenwashing as It Lends \$40 Billion for ESG

- DBJ plans 5.5 trillion yen in ESG lending and investment
- Lender sees risk that some loan plans will have 'sketchy' aims

Source: (1) The New York Times, June 12, 2022, "Goldman Sachs Is Being Investigated Over E.S.G. Funds"

(2) Fortune, June 1, 2022, "Deutsche Bank raided by authorities over ESG 'greenwashing' claims: 'We've found evidence that that could support allegations of prospectus fraud'"

(3) Bloomberg, June 15, 2022, "The SEC War on Greenwashing Has Begun"

(4) The Business Times, June 20, 2022, "Singapore listcos disclose fuller emissions data, but how useful are the numbers?"

(5) Jakarta Globe, June 23, 2022, "Indonesian Businesses Push for Uniform Global Sustainability Standard"

(6) Bloomberg, June 21, 2022, "Japan on Alert for Greenwashing as It Lends \$40 Billion for ESG"



Tech for good is good for business



Be part of a sustainable future

