CLARITY AI

Clarity AI

There is fun beyond the academia!

Data Science in Fundamental Physics and the bridge to industry & society
Santiago de Compostela, June 2024.
 Ignacio Tamarit – Lead Data Scientist

A bit about me...

- Education
  - BSc Music, Classical Guitar (2010, Musikene)
  - BSc+MSc Theoretical Physics (2013, UCM)
  - PhD Mathematical Engineering (2019, UC3M)

- Work experience:
  - Lead Data Scientist at Clarity:
  - Ironhack Lead Data Analytics teacher
  - Data consultant for a couple of small start-ups (Impact Tools and BraveUp)
  - BESAFE → (AfferentTechnologies) AI detection of surgical failures
  - IBSEN → large scale human behaviour experiments
  - DUNDIG → Understanding Dunbar´s circles
  - Music teacher, Academic Consultant, High-school teacher, Pizza delivery,...

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Add Clarity. Choose Sustainably™

CLARITY AI

We bring societal impact to markets

Add Clarity. Choose Sustainably™

Jan 2024

Tech	30%	97
Solutions	13%	42
Product Research & Innovation	11%	36
Data Strategy	11%	35
Product	10%	33
Data Science	7%	22
Finance & Operations	6%	18
Strategy	6%	18
People	3%	10
Marketing	3%	10
CEO Office	0.6%	2
Finance	0%	0
People & Operations	0%	0
Unspecified	0%	0
Total		**323**

Department

I joined on march 2020 with ~60 employees

2017	Nov' 2019	Jun' 2020	Jan' 2021	Nov 2021	Dec 2021	june 2024
Clarity AI Incorporated in US	First product launch	Elected Tech Pioneer by WEF	Funding round led by BlackRock	Live in Aladdin Explore	Softbank & BlackRock investment	
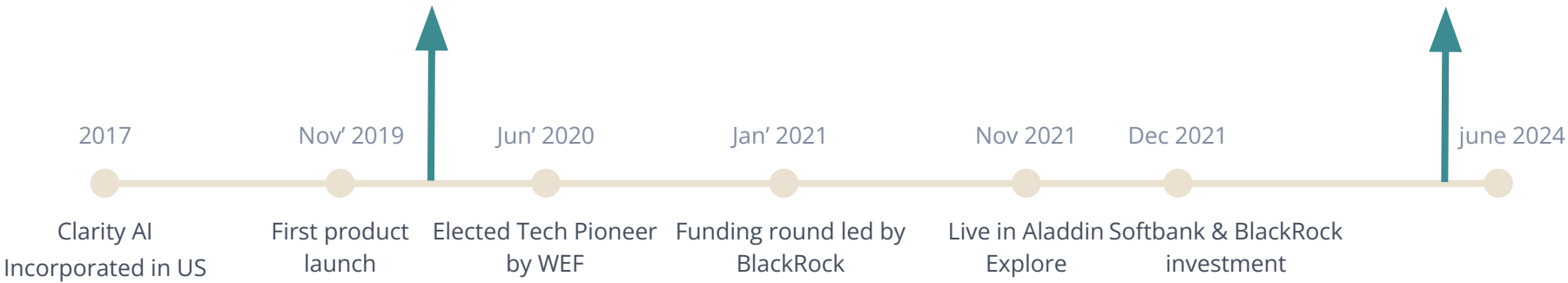
About Clarity AI

Add Clarity. Choose Sustainably™

CLARITY AI

We bring societal impact to markets.
Tracking and measuring progress for a more sustainable future is a complex, multi-dimensional, cross-border task. Our team of experts firmly believes harnessing the power of technology is the best way to scale to a viable solution and produce one that is unbiased, fully scientific and evidence-based.

Sustainability Tech Built-in
Market-leading Sustainability in Concert with the Power of AI

Powerful, scalable **AI** at the core of our tech platform processes >1M data points per week

Scientific- and evidence-based **methodologies**, built on the global team's research and data science expertise

Reliable, transparent, and unique **data** creates broad and deep coverage, more than any other player in the market

Tools and capabilities are easily integrated into existing workflows for assessment, analysis and reporting

Challenges Line the Path to a More Sustainable World

Investors have diverse needs and use cases, but common challenges

Banks

*I need **to report ESG risk exposure** to Regulators (e.g. Pillar 3)"*
*I want to avoid **reputational risks** and greenwashing"*

Assets Owners

*I need to **report sustainability** to Pensioners & Regulators"*

Assets Managers

*I want to make more money **alpha in impact** metrics / build **thematic funds**"*

*I need to **report** to Regulators"*

Wealth Managers

*My customers (wealthy individuals) want to **understand the sustainability of their investments**"*

Private Investors

*I want to **understand** the **sustainability** of my investments"*

Challenges

Tools
Lack of tools for analysis & reporting

Methodologies
No standard definition or ratings of societal impact

Data
Unavailable or unreliable, fragmented data

Clarity AI Offers Built-in Sustainability Technology

For all segments - investors, companies, consumers

With tech building blocks for every sustainability use case, Clarity AI covers any needs related to data, methodologies or tools.

With digitally-native capabilities and a fully modular infrastructure, users can take and use any – or every – piece of our sustainability tech kit.

Investors   Companies   Consumers

Apps & integration layer

Insights & analytics capabilities

Data Solutions

Technology & AI
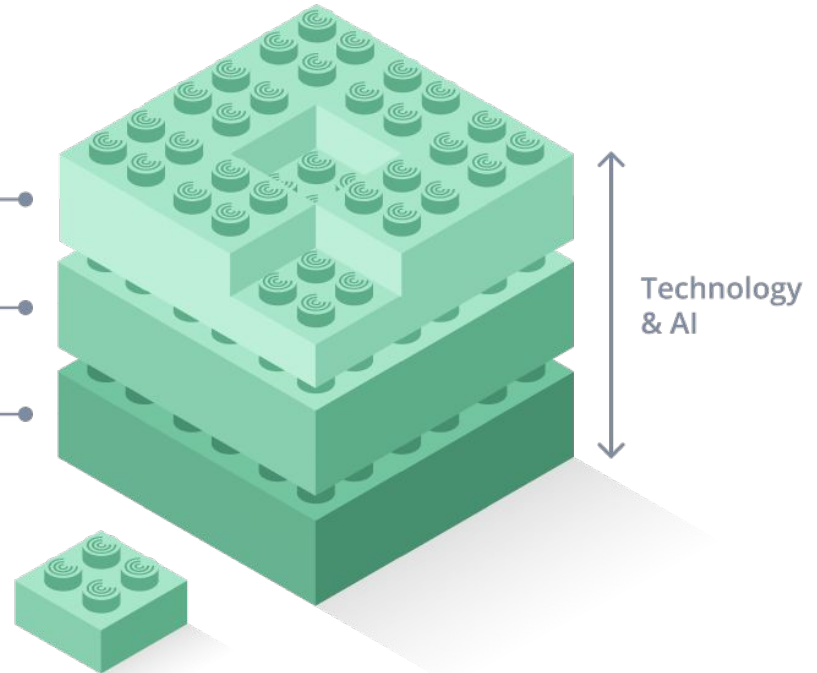
Solving Challenges Related to Data, Methodologies and Tools

A one-stop-shop for sustainability assessment, analysis and reporting for investors
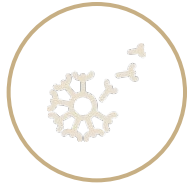
Impact

Measuring external Impact on people and the planet

- UN SDG Revenue Alignment
- Impact Highlights
- Nature & Biodiversity
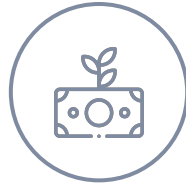
Risk

Measuring Risk and potential enterprise value creation linked to sustainability

- ESG Risk Assessment
- Corporate Controversies
- Exposure Screens
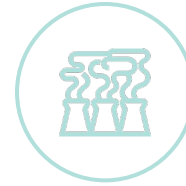
Climate

Clarifying climate implications based on international climate standards

- Carbon Emissions: Scores & Footprint
- Net Zero Alignment
- Climate Impact on Returns
- TCFD Reporting

Regulatory Compliance

Powering crystal clear, easy assessment, analysis and reporting

- SFDR
- EU Taxonomy
- MiFID II
- Other regulations

The role of DS at Clarity AI

CLARITY AI

Flow of Information/Data at Clarity AI

Data providers

Company reports

Clarity as Data Provider

Data Strategy

Ensure we have the highest/best coverage:
-buying data
-renegotiating conditions
-collecting data

Data Research

Manage data collection efforts

Product Research & Innovation

Create the methodology to present data as insightful information (eg. Impact, Regulation, Risk

Data Engineering

Normalise and ingest data into the system

Insightful information ready to show in product

Data Science

Cross sectional involvement

Data science projects

NLP

- Automatic detection of Controversies

- Retrieve data from documents

Machine Learning

- Estimation models for quantitative metrics

- Automated data reliability

Research and innovation

- Scope 3 methodology and value chain

- CO_2 emissions causal inference (with prof. Rigobon from MIT)

- Industrial PhD

We leverage the latest technology to help Clarity accomplish its mission

"Data science is the **science** of making data useful."

—Cassie Kozyrkov (Chief Decision Scientist @Google)

Case Study I: Data Reliability

Data reliability issues are prevalent

HOW PREVALENT ARE DATA DISCREPANCIES?

Clarity AI's research compared 30,000 data points from three leading data providers on direct CO2 emissions (Scope 1) reported by companies
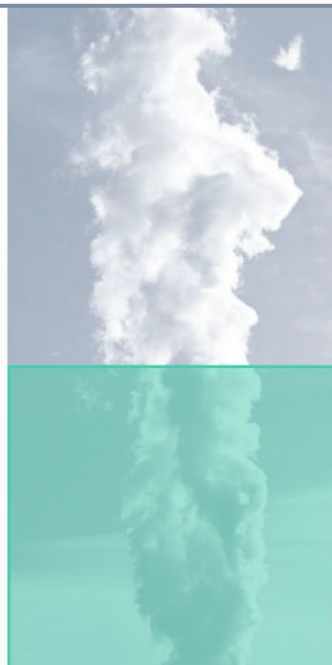
42%

data points showed reliability issues

Case Study II: Data Completion

Upcoming regulations will enforce reporting, but number of reporting companies is still low
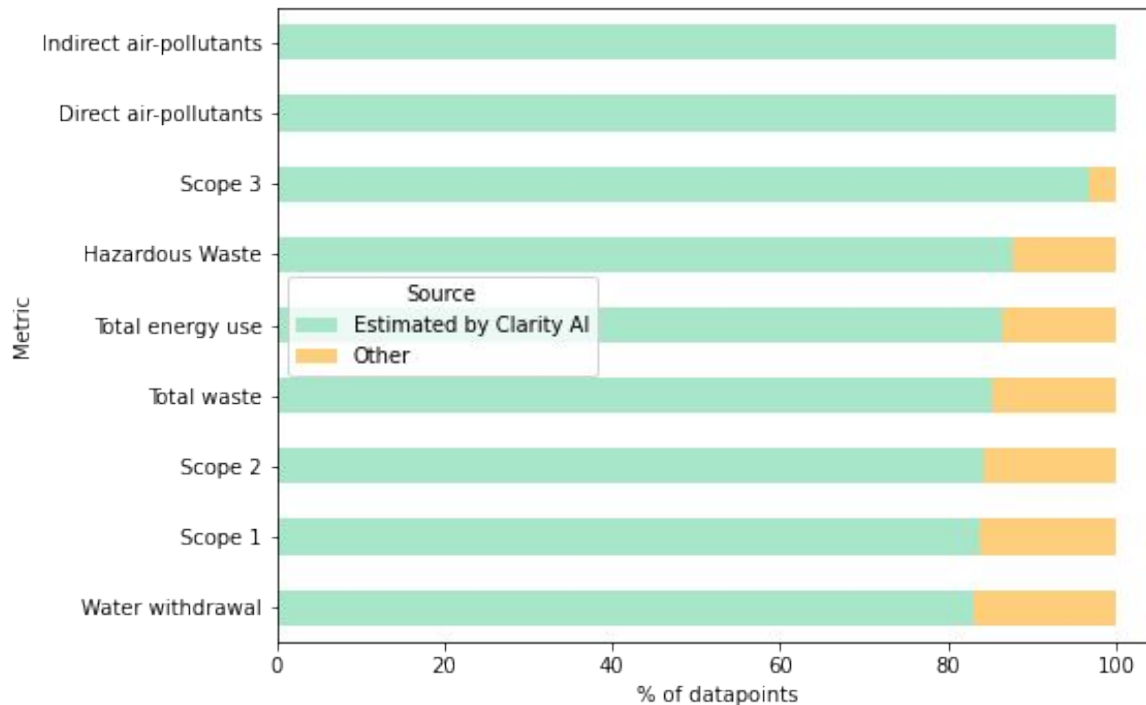
Case Study III: Data Extraction

Example of automated quant extraction: CSN Mineração's scope 3 GHG emissions for 2022 in tCO2e

Case Study IV: Detecting Controversial Activities

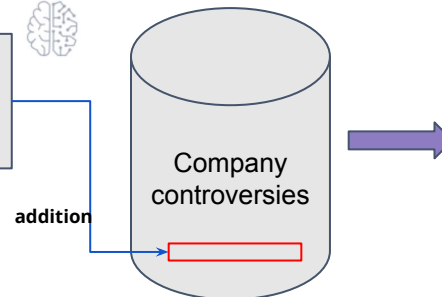| Quality	Best in Class	Scalability
Replace Analysts' Bias with Algorithms	**Partnership with FDJ for news**	**Other providers employ 100s of analysts to read the news**
o Our algorithm is proprietary and **consistent**, unlike replaceable analyst	o High Quality News sources	o Team of 5 to build algorithm
o New categories can be introduced, and then propagated backwards in time	o Ability to **show news directly correlated with controversies** (Controversies Premium)	o **Automatically reads +100k news every night**
		o Single source of data

Controversy engine flow
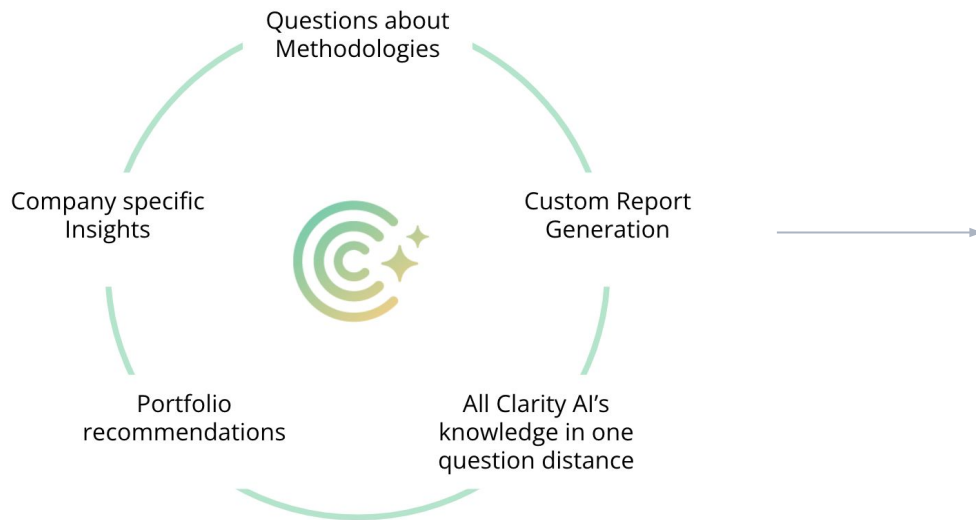
Detecting Controversies	Classifying Controversies	Assigning Severity
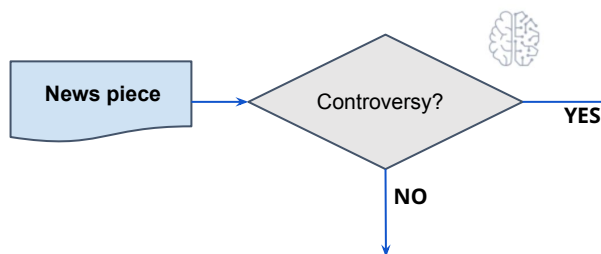
News piece → Controversy? — YES → Category assignment → Severity assignment → Company controversies

NO

addition

This is provided for informational purposes and does not constitute legal advice

15
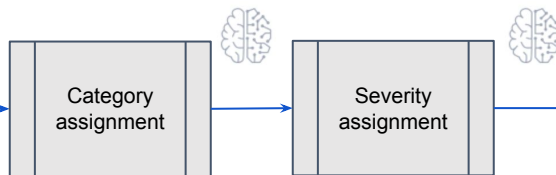
*Controversy: "A **conflict** between a company and any **stakeholder** (employees, inhabitants of a region, governmental authorities...) increasing ESG risks for the company."

Case Study V: Helping Transform Information Into Action

Clarity AI Assistant: Comprehensive Knowledge, One Simple Interface

Questions about
Methodologies

Company specific
Insights

Custom Report
Generation

Portfolio
recommendations

All Clarity AI's
knowledge in one
question distance

Analyst Assistant

How can I improve the score of my portfolio without changing my sector allocation?

Your portfolio could be improved by replacing:

- **ArcelorMittalSA,** with **Newmont Corporation.** Newmont Corporation is also in the steel sector, and its ESG Risk score is 75. Newmont performs particularly well in the Governance pillar, where it ranks in the 99th percentile of its peer group.

- **Tencent Holdings** with **Match Group Inc.** Match Group is also in the Interactive Media & Services, and its ESG Risk score is 68. Match Group performs particularly well in the Governance pillar, where it ranks in the 84th percentile of its peer group.

Suggested

Can you provide more alternatives? ↑

Show me more details about Newmont ↑

Ask the assistant

Collaboration with BBVA

We study the changes in consumption patterns in Mexico relative to variations in income, including changes in the items consumed and the payment channel (cash vs. electronic payment). In particular, we analyze how individuals allocate their card and cash purchases using a variety of econometric and Machine Learning Models.

* Read the full article here

CLARITY AI

Collaboration with MIT Sloan School of Management

"We find evidences of 3rd party verified CO2 emissions reports being higher, and their reduction targets being more effective."
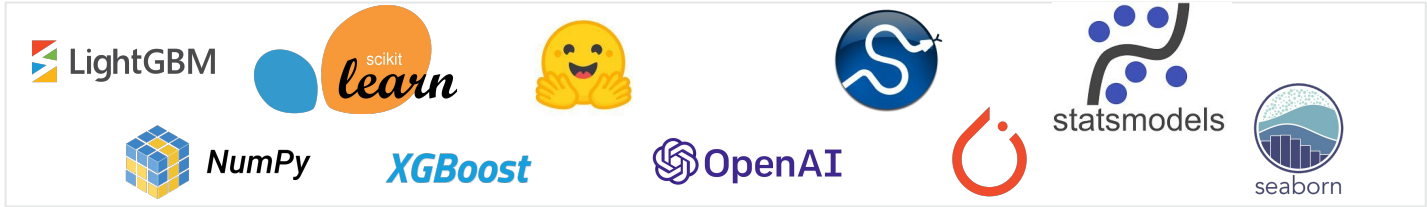

Roberto Rigobon PhD is a Professor of Applied Economics at the MIT Sloan School of Management. One of the main **thought leaders in the ESG community**, famously known for the paper *Aggregate Confusion: The Divergence of ESG Ratings**

* Florian Berg, Julian F Kölbel, Roberto Rigobon, Aggregate Confusion: The Divergence of ESG Ratings, Review of Finance, 2022;, rfac033, https://doi.org/10.1093/rof/rfac033
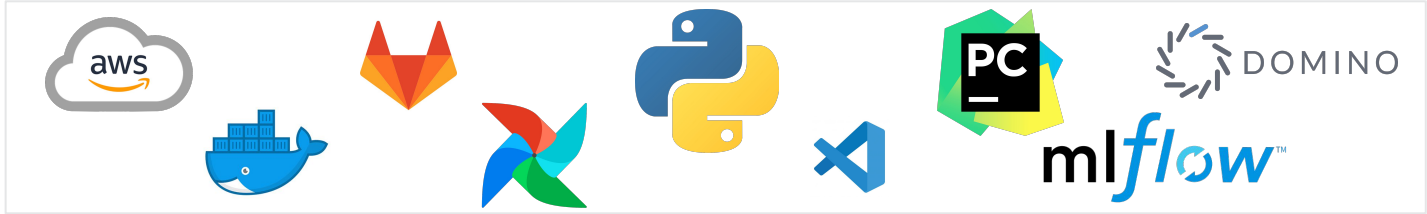
Tech Stack

Data science toolbox

Machine Learning	LightGBM, scikit learn, NumPy, XGBoost, OpenAI, statsmodels, seaborn
Data Pipelines	pandas, Apache Spark, amazon REDSHIFT, DASK, mongoDB, snowflake
Operations	aws, Docker, GitLab, Python, PyCharm, DOMINO, mlflow, VS Code
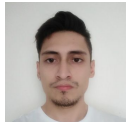
Team

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Greg
Barbour

Andrés
Ortiz

Carlos
Morales

Jaime
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Marsal Gavaldà

David Carricondo

Bruna
Correa

Phil
Redford

Cristina
Serrano

Felipe
Maciel

Luis Reyes

Ignacio Tamarit

Teresa
Cañas

Thom Lane

Almudena
Hellín

Jesus
Herrera

Jorge Pérez

Guillermo Perez

bamboo

Some (personal) remarks on Industry & Academia

- Industry is not necessarily boring!

- Transitioning into the industry you´d have:
  - Less "data": tooling, business logics and jargons, hands-on experience
  - More "science": **scientific and modeling mindset**, faster learning curves, "branding"

- There are things that are actually useful either path:
  - Git, Docker, Clean code practices, (good) Python, Unit Testing, Probability and Statistics, Machine Learning, Deep learning, Agile methodologies, SQL, Lean product development, …

The (real) scientific method.
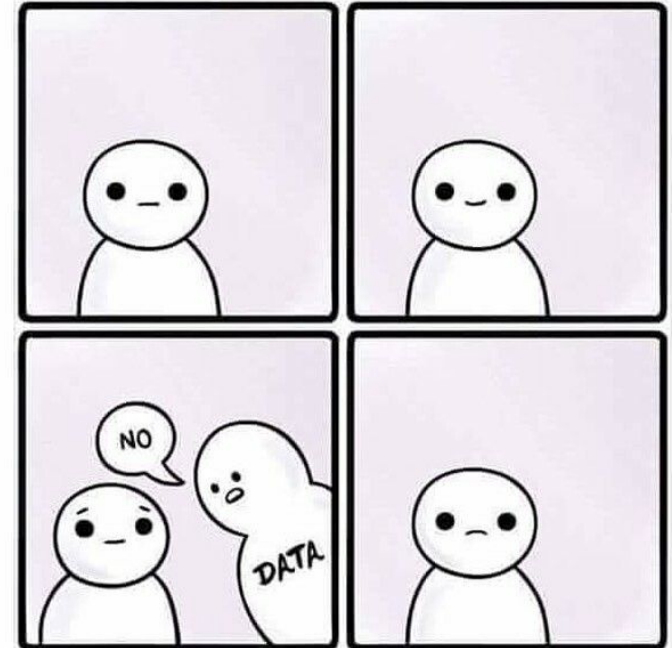
Q & A

(We are **hiring** and open to **academic collaborations**! → **linkedin.com/in/ignacio-tamarit**)

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