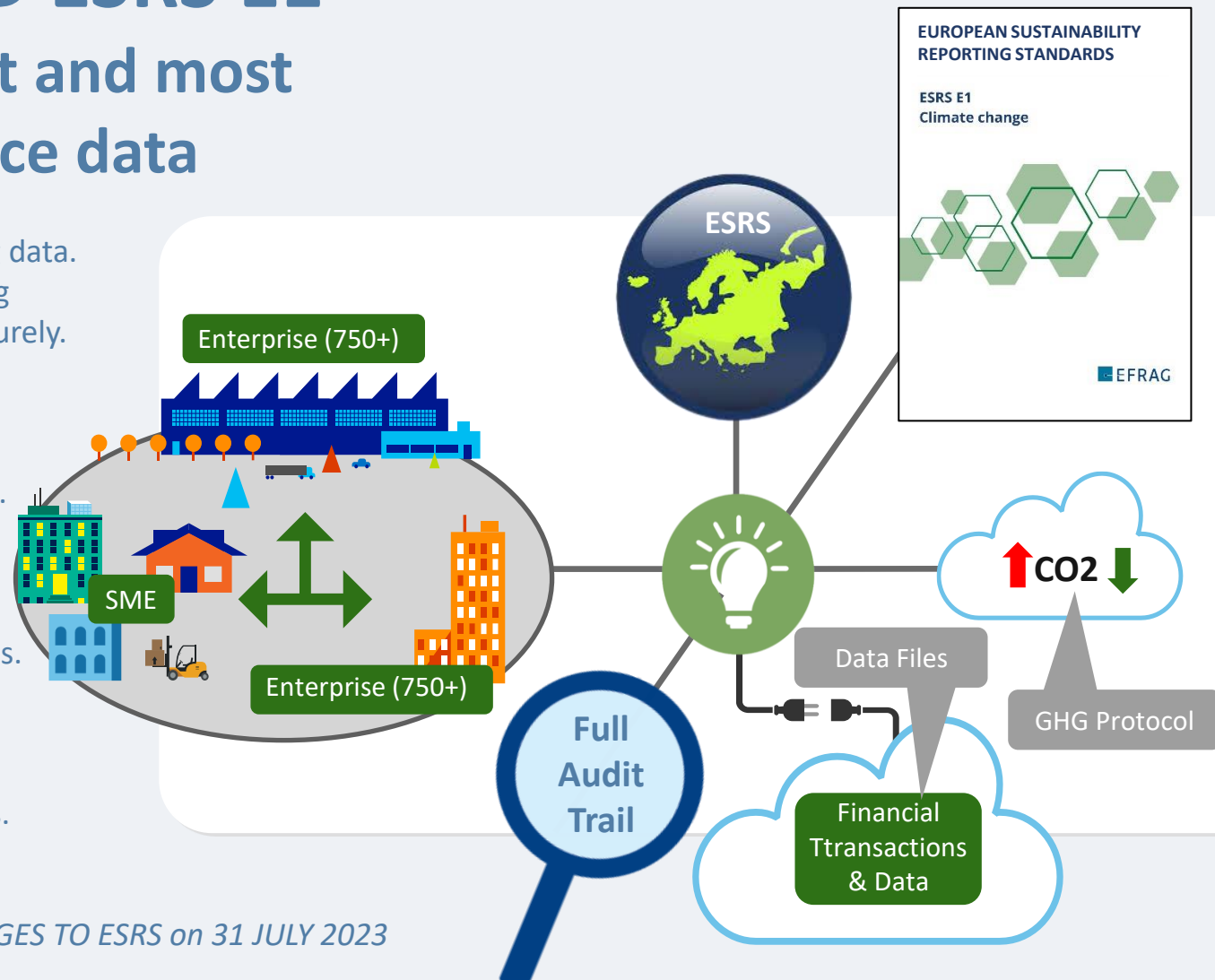# WHITEPAPER – AUTOMATED ESRS E1

The fastest, cheapest, easiest, safest and most transparent route to ESRS compliance data

Get your ESRS compliance data, as simple as accessing your bookkeeping data.
Just like you do to your accountant, when making your annual accounting
- all results, interpretations, data and references are provided to you securely.

Next Generation Automated CSRD/ESRS Scope 1, 2 & 3 + value chain.
Deployed and fully scalable. With massive business value for companies
directly or indirectly subject to ESRS, including for baseline use right now.

This is not a lengthy or expensive IT integration project – just an upload.
All data are handled and encrypted using Microsoft Azure ™ services.
No AI is used, allowing for full transparence regarding all system decisions.

API integration available for those who prefer using own BI for report.
Standard report incl. full value chain available for everyone else.
Integration underway with major ERP/bookkeeping systems and auditors.

Version 2.0, edition 230919-1 ENG - UPDATED AFTER SIGNIFICANT CHANGES TO ESRS on 31 JULY 2023

EUROPEAN SUSTAINABILITY REPORTING STANDARDS

ESRS E1
Climate change

EFRAG

ESRS

Enterprise (750+)

SME

Enterprise (750+)

Full Audit Trail

Data Files

CO_2

GHG Protocol

Financial Ttransactions & Data

Companies will have to start reporting under ESRS according to the following timetable:

- Companies previously subject to the Non-Financial Reporting Directive (NFRD) (large listed companies, large banks and large insurance undertakings – all if they have more than 500 employees), as well as large non-EU listed companies with more than 500 employees: financial year 2024, with first sustainability statement published in 2025.
- Other large companies, including other large non-EU listed companies: financial year 2025, with first sustainability statement published in 2026.
- Listed SMEs, including non-EU listed SMEs: financial year 2026, with first sustainability statements published in 2027. However, listed SMEs may decide to opt out of the reporting requirements for a further two years. The last possible date for a listed SME to start reporting is financial year 2028, with first sustainability statement published in 2029.

In addition, non-EU companies that generate over EUR 150 million per year in the EU and that have in the EU either a branch with a turnover exceeding EUR 40 million or a subsidiary that is a large company or a listed SME will have to report on the sustainability impacts at the group level of that non-EU company as from financial year 2028, with first sustainability statement published in 2029. Separate standards will be adopted specifically for this case.

Image source:
Official Q&A on the Adoption of ESRS, 31st July 2023

UPDATED AFTER SIGNIFICANT CHANGES TO ESRS on 31 JULY 2023

In 2025 Q1 the first many companies in EU will be required by law to report detailed ESG data for all their activities incl. value chain.

The Corporate Sustainability Reporting Directive (CSRD) / European Sustainability Reporting Standard (ESRS) reporting has been under way since 2010, was approved by EU in 2022 and we saw the final set in July 2023, with tightening and updates expected each coming year.

The ESRS rules have legal weight equal to economic period accounting. It consists of 292 pages and more than 1000 data points divided on 12 sections with some mandatory now for most companies and others phased in continuously through to 2030, with some voluntary. The mandatory data includes Scope 3 and other value chain related data.

This will impose significant challenges on EU companies and EU-importers/exporters in terms of compliance and communication, combined with significant administrative cost, which will be a burden on most companies with more than 750+ employees and their supply chains, as well as increasing pressure on their SME suppliers.

Most companies are challenged and short of the resources and/or competencies to cope with the detailed reporting, and at risk of making mistakes - thus endangering their access to the capital markets and customers who use the new rules just like economic reports.

This white paper showcases Genetix's Automated ESRS on, a data collection and compliance solution that enables companies of any size and complexity to comply with CSRD / ESRS in the full value chain.

Through our observations in EU's ESRS-creator EFRAG for more than a decade and practical work for customers since early 2022, it is now proven that Genetix can help companies automate their ESRS data, and save significant human resources and money, while at the same time strengthening the company's competitiveness and reducing risks.

Unlike other ESG-value-chain solutions, we do not need you to be part of a 'club' of companies sharing data. Instead, we use to securely read and interpret your accounting documents and all the meta data attached to them through Microsoft Azure™ services, using our own proprietary technology (GDI engine) to understand and weigh activities according to the built-in ESRS ruleset approved by EFRAG/EU.

All your data are 'your eyes only' encrypted, with no third parties and not even our employees having access to your important information.

NOTE: This paper focuses on ESRS E1, the only mandatory data-section.

CLIENT BUSINESS CASE: MANUAL VS AUTOMATED ESRS
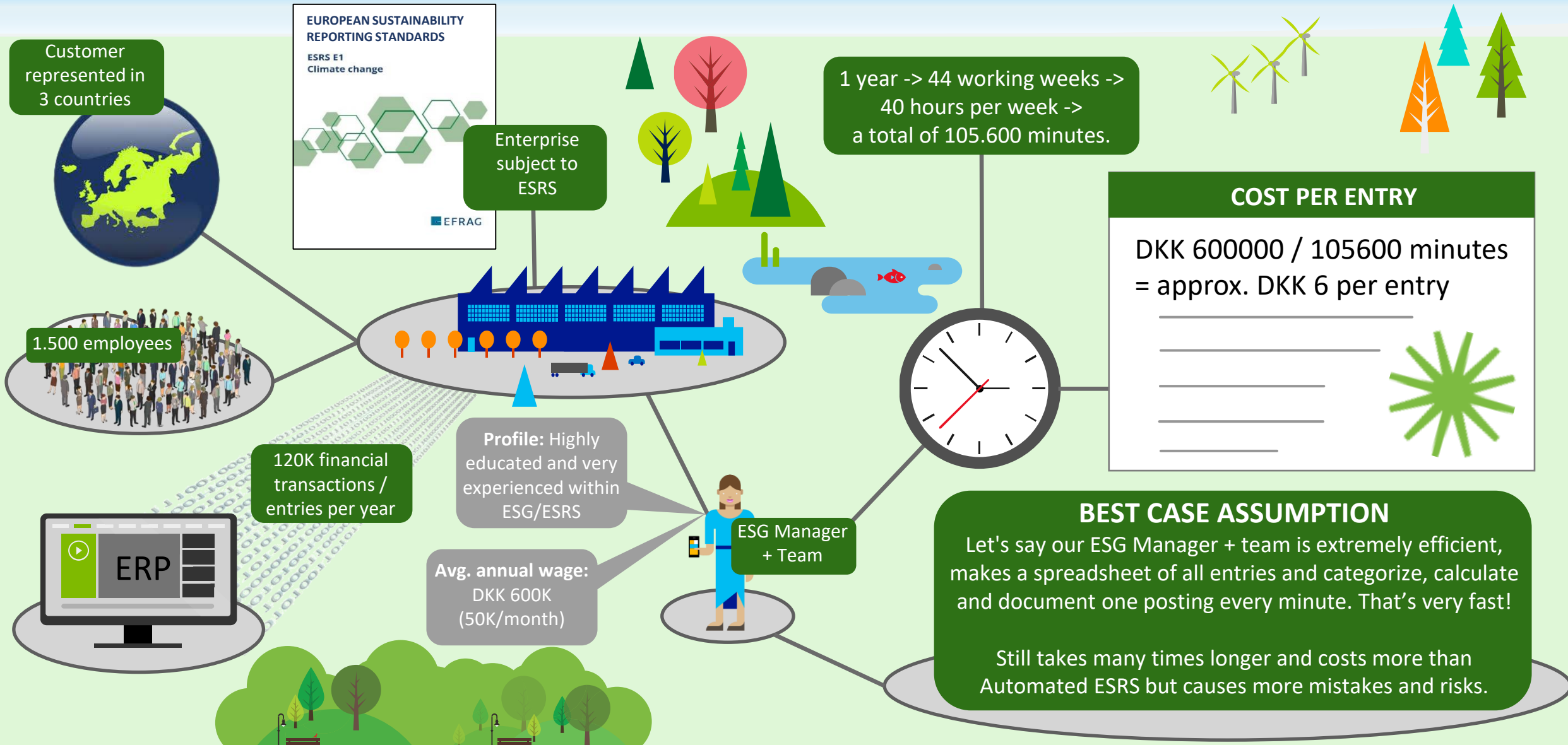
Customer represented in 3 countries

EUROPEAN SUSTAINABILITY REPORTING STANDARDS

ESRS E1
Climate change

EFRAG

Enterprise subject to ESRS

1 year -> 44 working weeks ->
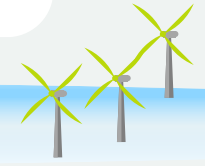40 hours per week ->
a total of 105.600 minutes.

COST PER ENTRY

DKK 600000 / 105600 minutes
= approx. DKK 6 per entry

1.500 employees

120K financial transactions / entries per year
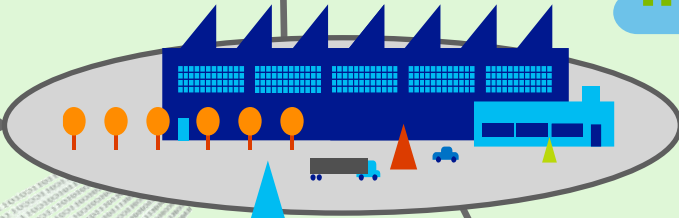
Profile: Highly educated and very experienced within ESG/ESRS

ERP

ESG Manager + Team

Avg. annual wage: DKK 600K (50K/month)

BEST CASE ASSUMPTION
Let's say our ESG Manager + team is extremely efficient, makes a spreadsheet of all entries and categorize, calculate and document one posting every minute. That's very fast!

Still takes many times longer and costs more than Automated ESRS but causes more mistakes and risks.
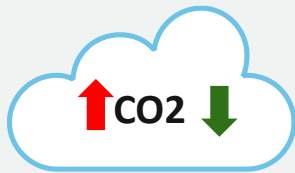
CO2

ESG

European Green Deal — Action plan for financing sustainable growth

VISION

PLAN

MECHANISM

CSRD
Corporate Sustainability Reporting Directive

ESRS
European Sustainability Reporting Standard

ESRS S1 Own workforce
ESRS S1 Governance, risk management and internal control
ESRS E2 Pollution

Suppliers

The ESRS rules have legal weight equal to economic period accounting.
It consists of 292 pages and more than 1000 data points divided on 12 sections with some mandatory now for most companies and others phased in continuously through to 2030, with some voluntary. The mandatory data includes Scope 3 and value chain.

ESRS E1
Climate change
April 2022

E1 Climate Change

FIRST FOCUS

E2 Pollution

E3 Water and marine resources

E4 Biodiversity and ecosystems

E5 Resource use and circular economy

S1 Own workforce

S2 Workers in the value chain

S3 Affected communities

S4 Consumers and end-users

G1 Business Conduct

ESRS 1 General requirements

ESRS 2 General disclosures

LCA EU

Legislation (EFRAG)

Local Authorities

EU

Compliance

Products

Domino effect increases ESG pressure everywhere

Despite being initially for listed companies and 750+ employee companies, the ESRS reporting includes the value chain, which is any company that delivers to or buys from a 750+ company, incl. importers – that is basically everybody!

Once you begin to study the 292 pages of ESRS rules and realize how much may be mandatory immediately, panic often sets in, as has been seen in the press much of 2022 and 2023 – this is a very different kind of ESG!

Many existing ESG and consulting companies have seen this as a golden opportunity, but such solutions often carry huge costs or really does not solve the one big problem: How do you get lots of good data fast?
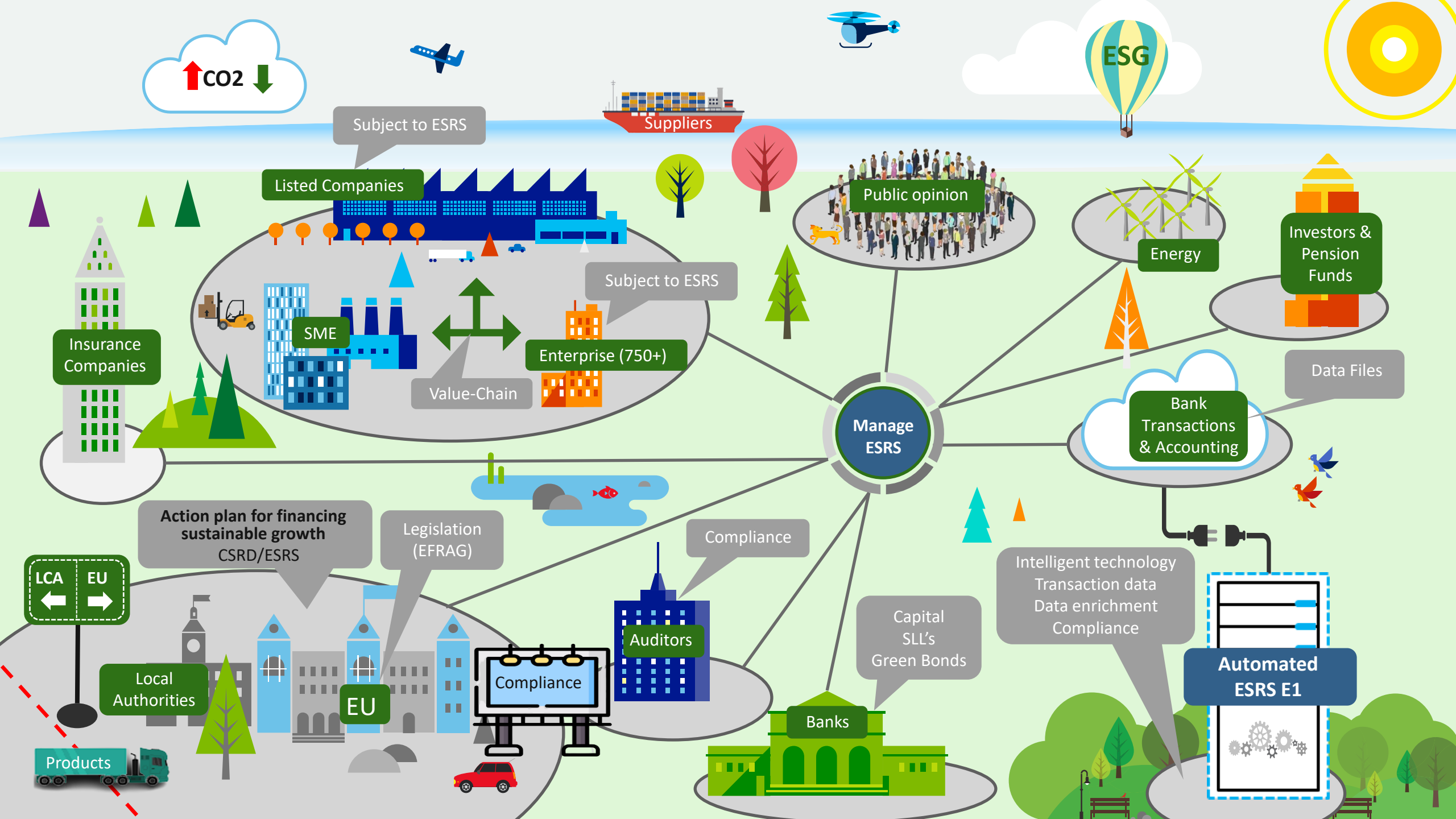
ESRS is law from 2025Q1 … the question is no longer

"Should we do something with the data we have?"

but

"How do we get the necessary data fast enough?"

BØRSEN

BÆREDYGTIG

Kæmperegning for ny rapportering venter: De største virksomheder skal af med 7 mia. kr.

"Det er lidt skræmmende, fordi vi ikke har systemer til at indsamle de d de Groot om den nye bæredygtighedsrapportering. Foto: Esther Kofoed Sør

JULIE RING-HANSEN HOLT
27. JAN. 2023 KL. 12.29

WSJ PRO SUSTAINABLE BUSINESS

Home   Newsletters   Events

• WSJ NEWS EXCLUSIVE . SUSTAINABLE BUSINESS

At Least 10,000 Foreign Companies to Be Hit by EU Sustainability Rules
A Refinitiv analysis has identified thousands of companies subject to the coming EU rules. About a third are American, 13% are Canadian and 11% are British.

The European requirements will likely be more demanding than rules being developed by the U.S. Securities and Exchange Commission.
PHOTO: JASPER JUINEN/BLOOMBERG NEWS

By *Dieter Holger*
April 5, 2023 4:46 am ET | WSJ PRO

New EU Sustainability Reporting Rules: How Impacted US Companies Can Prepare

New ESG reporting requirements for the EU apply to U.S.-based companies with significant operations there. Companies should take steps to understand the disclosure implications for their organization.

Answers to 5 Key Questions on Proposed Climate Disclosure Regulations

An analysis comparing proposed climate and sustainability reporting standards from the SEC, the EU, and global regulators can help companies prepare for a changing climate disclosure landscape.

At Wells Fargo, Client-Focused Sustainable Finance Innovation
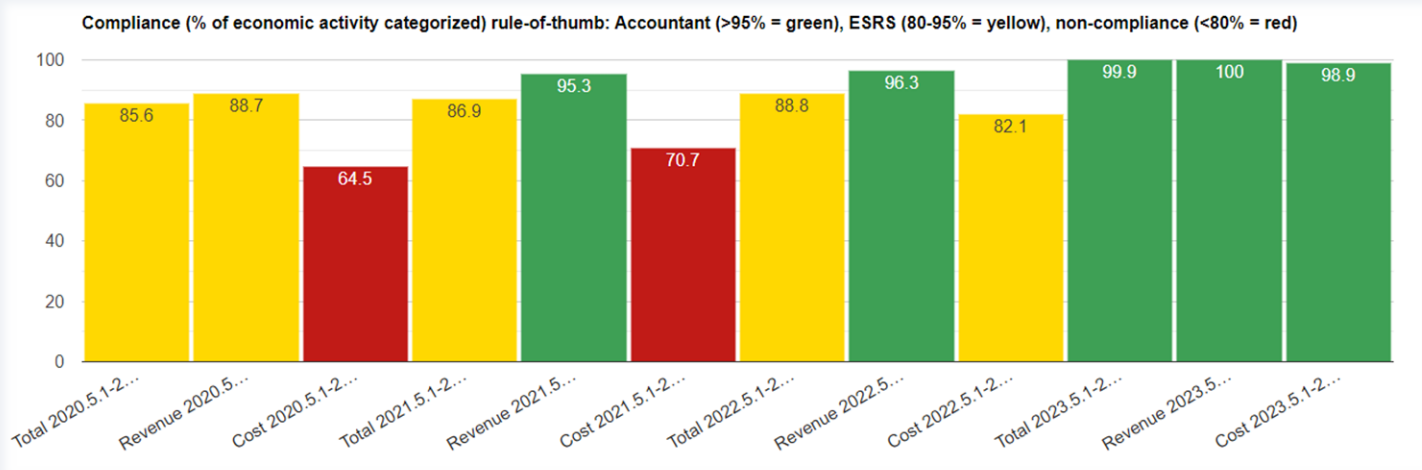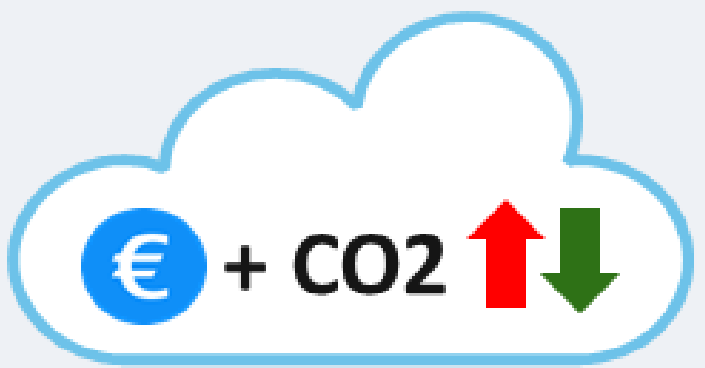
Guaranteed ESRS Compliance

Our commitment is to ensure full compliance from the outset. Frequently, we find that achieving this goal hinges on the quality of data, which is a critical enabling factor and of utmost significance.

What Is ESRS Compliance?

ESRS compliance means adhering to the principles and guidelines established by the ESRS compliance frameworks and regulatory bodies. ESRS compliance criteria aim to ensure companies operate responsibly and sustainably in policy and practice.
To further ensure a company's compliance with ESRS from a "financial methodology perspective, it is essential that no more than 20% of revenue or costs for one or more accounting periods remain unidentified due to the absence of attachments and traceability from transactions through to related notes or attachments.

This aligns with EFRAG's rule of thumb, which defines this as the minimum requirement for achieving ESRS compliance.

€ + CO2

Compliance (% of economic activity categorized) rule-of-thumb: Accountant (>95% = green), ESRS (80-95% = yellow), non-compliance (<80% = red)

Compliance graph generated by Automated ESRS, showing the ESRS compliance (no reds in period) and strict accountant compliance (no yellows in period, only 2023) and an often seen improvement over the years.
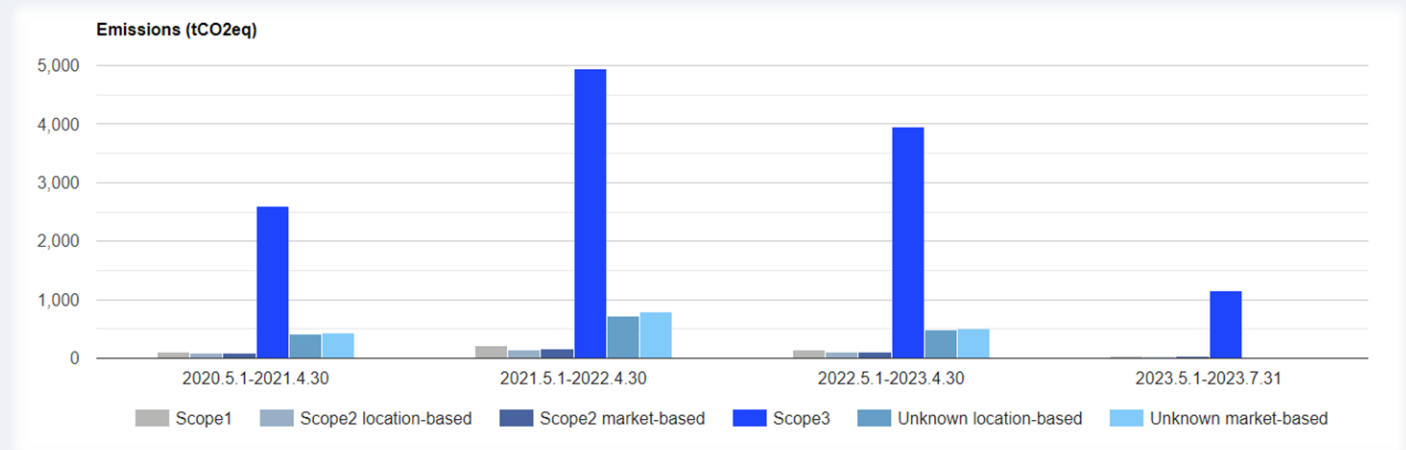
Non-financial reporting (ESRS) VS financial reporting

ESRS is the sustainability reporting standard that underpin the Corporate Sustainability Reporting Directive (CSRD). The primary goal of the CSRD, effective as of January 2023, is to elevate sustainability reporting to the same level as financial reporting. To achieve this objective, companies must provide relevant, comparable, and reliable information on their sustainability-related impacts, risks, and opportunities. Within the ESRS compliance framework, there are comprehensive and standardized disclosure criteria that companies must adhere to when reporting on environmental, social, and governance aspects, and these aspects must be declared in relation to the economic accounting, also where data is missing or unreliable.

What are the requirements for financial reporting?

Financial statements need to reflect certain basic features: fair presentation, going concern, accrual basis, materiality and aggregation, and no offsetting. Financial statements must be prepared at least annually, must include comparative information from the previous period, and must be consistent or at least with notes regarding any inconsistencies.

Emissions (tCO2eq)

| | Scope1 | Scope2 location-based | Scope2 market-based | Scope3 | Unknown location-based | Unknown market-based |

The adoption of the CSRD, along with the supporting ESRS, is intended to increase the breadth of nonfinancial information reported by companies and to ensure that the information reported is consistent, relevant, comparable, reliable, easy to access and standardized - just like financial accounting and reporting. As a result, it's fundamental to recognize that these two concepts (double-materiality), namely non-financial reporting (ESRS) and financial reporting, will be interconnected. ESRS compliance must encompass an additional dimension, going beyond merely reflecting adherence to regulatory ESRS compliance, it should also encompass a "financial methodology perspective". Sustainability information should align with the criteria of the financial perspective.

DEFINITIONS

1. **What is EFRAG:** The European Financial Reporting Advisory Group (EFRAG), formed in June 2001, is a private body created to provide the European Commission with expertise and advice related to accounting matters. EFRAG has outlined the new ESRS standards outline requirements for detailed corporate reporting on environmental, social, and governance (ESG) issues.

2. **Primary data (EFRAG definition)** are directly obtained from actors of the value chain, such as supplier-specific data meter readings, purchase records, utility bills, direct monitoring, mass balance.

3. **Secondary data (EFRAG definition)** are obtained by various sources, such as sector-average data, sample analyses, market and peer groups data, other proxies or spend-based data.

4. **Value chain (EFRAG definition):** "The full range of activities, resources and relationships related to the undertaking's business model and the external environment in which it operates in".

5. **Supply chain (EFRAG definition):** "The full range of activities or processes carried out by entities upstream from the undertaking, which provide products or services that are used in the development and production of the undertaking's own products or services"

6. **AI based solutions:** In order to articulate an AI solution, we'd like to cite - Dr. Fei-Fei Li (Director of Stanford University's Institute for Human-Centered Artificial Intelligence): *"AI algorithms are, by and large, black boxes – they're hard to interpret. They're not explainable. The robustness and the safety constraints are not well understood, and that erodes trust. That's the shaky foundation that we need to solidify. So, a lot of theorists and theoretical computer scientists, statisticians, and machine learning researchers are now working on that very problem."*

7. **What is context:** Context is the surroundings, circumstances, environment, background, or settings which determine, specify, or clarify the meaning of an event.

8. **Decision Intelligence:** Decision Intelligence integrates data science, social science, decision theory, management science and Decision Science. It combines scientific methods, algorithms, and systems for insights from diverse data, explores human societies and relationships, analyzes how choices are made, employs research principles, mathematical models, and statistics to enhance decision-making, and utilizes various quantitative techniques. In automated ESRS, we integrate all these disciplines.

9. **Context-based solution:** It's vital for us to set our solution (automated ESRS) apart from AI-driven ESG/ESRS solutions. Our unique approach is designed on the principles of Decision Intelligence, centered on context within and around data.

Our GDI (Genetix Decision Intelligence) technology harnesses the power of human-like cognitive thinking, infusing situational context into data. This addresses the limitations commonly found in current algorithmic techniques, which often face the challenge of their models becoming static leading to incorrect or insufficient results, and current AI which has a problem with 'hallucination' – basically inventing 'facts' based on incorrect understanding of the context (1).

In contrast, Automated ESRS empowers our model with context-based data and examples, ensuring more reliable and consistent outcomes - combined with full transparency and audit trail.

Our Decision Intelligence technology provides a distinct advantage - as it continually performs self-testing loops and raises questions about unusual data inputs or unexpected data behavior/results. This insistence on understanding context makes the automated ESRS solution highly efficient and human-like in its reasoning abilities. This does not mean it never makes mistakes, but that it is aware of them and honest about its doubts. Our language model is continually guided along a streamlined problem-solving path, allowing it to systematically explore multiple outcomes in an organized manner.

A paramount challenge is building trust among all involved parties concerning how data is managed and the outcomes it generates. In the absence of context described above, data loses its significance and can obstruct rather than facilitate progress. Consequently, any AI algorithm that relies on context-less data runs the risk of becoming inflexible and ill-suited for complex ESRS calculations.

The trust we have gained relies on a deep understanding of context, data management and its consequences. Our approach to decision intelligence has allowed us to foster this essential trust, notably absent in AI systems.

Through our commitment to decision intelligence, we've addressed this problem, providing not only valuable insights and outcomes but also transparency and context. Enabling our solution to provide activity-based calculations guaranteeing more accurate, faster, resource-efficient and reliable results in a challenging ESRS compliance environment.

8 years after we started using this technique, now even Microsoft acknowledges this as the best approach (2).

1) [Are AI models doomed to always hallucinate? | TechCrunch](#)

2) [Microsoft Infuses AI With Human-Like Reasoning Via an "Algorithm of Thoughts" - Decrypt](#)

SCOPE

Listed companies with more than 500 employees
~ 11,000 companies in the EU
In force since 2014

All listed companies + large companies that exceed 2/3 of the following:
• Balance sheet total: > EUR 20M
• Revenue ... EUR 40M
• > 50 average number of employees during the FY
~ 50,000 companies in the EU

Old info, > 750 FTEs + value chain

EU NFRD | **Corporate Sustainability Reporting Directive (CSRD)**

FY2020	FY2021	FY2022	FY2023	FY2024 (reports published in 2025) for listed companies with over 500 employees	FY25 (reports published in 2026) large non-listed (see thresholds above)	FY2026 (listed) SMEs are included through simplified reporting standards (reports published in 2027)

REPORTING REQUIREMENTS

- EU Non-Financial Disclosure Directive (EU NFRD)

- EU NFRD
- EU Taxonomy*: Disclosures on extent to which activities contribute to **climate change mitigation & adaptation**
- **Eligibility only**

- EU NFRD
- EU Taxonomy: **eligibility & alignment** disclosures over contribution to the first two objectives

- EU NFRD
- EU Taxonomy: **eligibility & alignment** disclosures over contribution to the first two objectives **plus eligibility and alignment** disclosures over contribution to the remaining four environmental objectives**:
  1. Protection of water & life in water
  2. Transition to a circular economy
  3. Pollution prevention
  4. Protection of biodiversity

- **Mandatory EU sustainability reporting standards** that will be developed by the European Financial Reporting Advisory Group (EFRAG), addressing the following with regards to ESG matters:
  - Alignment of the business **model & strategy** with the objective to achieve **climate neutrality by 2050** (including taking into account the entire value chain)
  - **(science based) Targets & progress**
  - Role of the **administrative, management & governance bodies**
  - **Policies**
  - Most significant **negative impacts,** degree of exposure to coal/oil/gas-related activities
  - **Principal risks,** including **dependencies** and **how risks are managed**
  - The way **information** reported on has been **identified**
- Qualitative, quantitative, forward-looking, retrospective information covering short, medium & long-term time horizons.
- Application of a **double materiality** lens in reporting on both how sustainability matters affect their business and the **external impacts** of the company's activities on people and the environment.
- Information about the company's **value chain**, including the company's own operations, products & services, business relationships & supply chain.
- EU Taxonomy related disclosures (as set out in FY2022).
- The first set of reporting standards are published on **30/04/2023 (sector-agnostic reporting standards)**
- The second set of reporting standards will be published by **1/1/2024 (sector specific reporting standards with high-risk sector standards to be published first).**

Format

- Annual Report (NL)
- Annual Report (NL)
- Annual Report (NL)
- Annual Report (NL)
- Published in a specific section of the Management Report or a separate Sustainability Report
- Mandatory digital reporting (no apparent penalties for non-EU companies for failure to report, other than notification)

Assuranc

- If required by law
- If required by law
- If required by law
- If required by law
- Mandatory (limited) assurance of reported information. The limited assurance requirement will shift to reasonable assurance after 6 years from adoption of CSRD

* All listed companies on EU regulated markets, except listed micro-enterprises
**The timeline for implementation and first year of reporting on contribution to the four remaining objectives is still to be officially confirmed

Image source:
deloitte-nl-sustainability-eu-tax-csrd-timeline-june-2022.pdf

© 2022 Deloitte The Netherlands

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Image source:
Official Q&A on the Adoption of ESRS, 31st July 2023

INTRODUCING GENETIX

Automated ESRS workshop with Sticks'n'Sushi ™, May 2023, on behalf of white-labeling partner Valified. Owner-partner Claus Jordan and lead developer Søren Ekelund in focus, left and right.

Since our humble beginnings as a spin-off more than a decade ago, we have been driven by our passion, energy and dedication to pursuing ambitious goals. Genetix was founded with the vision of using cutting-edge decision intelligence technology to solve the challenges of enterprise complexity and business optimization, with the goal of improving society at large.

Genetix Decision Intelligence represents a fundamental shift in mindset and behavior when confronting transformations, business optimization and organizational issues, driven by a **First Principles Approach** that allows true understanding of context.

We help companies build up their Capacity to Respond - which is considered the ability to take timely and effective action in varied and uncertain situations, and consists of understanding, insights, meaning, intuition, creativity and judgment, including anticipation of future outcomes. Our software does what AI was hyped to do, without the AI involved.

We started this journey back in 2011, when we set out with people from IBM, Danish University of Technology and University of Augsburg to develop the Genetix Decision Intelligence (GDI) software platform - GDI enables companies to map, simulate and optimize their decision chain across their organisation as a whole and determine the appropriate response to constantly changing needs, risks and opportunities on all business levels.

Automated ESRS is just the latest spin-off based on the GDI technology, enabling us to help companies report and act sustainably, for the benefit of the stakeholders and environment. We are at our core a development house, so primarily market Automated ESRS through white-labelling partners such as Valified, Reduktion, but for now also on our own ESRS.tools.

GENETIX DECISION INTELLIGENCE (GDI)

How do we leverage our core technology in an ESRS compliance context.

Two of the most important cornerstones in the Genetix Decision Intelligence (GDI) technology is the focus on detailed complex data and logical context understanding that provide transparent human-like choices - rather than causality-less big data and machine learning that often produces random results and have trouble when meeting previously unseen data.

Our focus on context in data analysis for more than a decade has enabled us to develop tailored and robust solutions that can handle cases where other technologies struggle to provide meaningful results, give up entirely or even worse fail without a clue. Such dependability and transparency serves sustainability reporting well, not least ESRS.

Our focus on context drives us towards seeking datasets that possess intricate structures and interdependencies, rare events, complex relationships, or characteristics that require advanced analytical techniques to extract meaningful insights.

While big data typically refers to massive volumes of information, complex data involves intricate patterns, dependencies and contextual nuances that require specialized approaches and massive processing.

What better method is there for ESRS, to ensure all ESG activities are explained than in business accounting, not least considering the double materiality nature of ESRS? As such we take our data from bank data, postings and accounting documents.

While machine learning is a powerful tool for learning patterns from data, it can sometimes be difficult to interpret how and why a specific decision is made. This lack of transparency can lead to AI models being effectively "black boxes," making it challenging or even impossible to understand their inner workings or explain their decisions. By focusing on logical context understanding and documentation, we prioritize the interpretability and explainability of the data and results, making our ESRS solution easy to approve and audit for third parties even on the model level alone. This saves everybody's resources and reduces risks.

The logical context understanding approach promotes full transparency of the ESRS calculations, allowing stakeholders to comprehend the reasoning behind the results – and when in serious doubt, GDI acts conservatively and makes the issue clear for the human recipients to act manually instead.

This enables our Automated ESRS solution to align with established rules and standards, continually updated with ESRS compliance regulations, providing a level of interpretability and control that can be crucial and sensitive in this regulated ESRS domain.

WORKING WITH GENETIX

GENETIX COMPUTING

100% Dedicated to Decision Intelligence for a better world
and have been since 2011, but fully respect those not yet onboard.

Innovative technology and practical solutions
State of the art Decision Intelligence Technology designed to find connections, optimizations and extra value in extremely complex data structures and logical context understanding – packaged to be useful for customers in a complex, very individual and often rushed reality.

Strong track record, happy clients and still learning every day
Genetix has a strong track record of documented savings for companies and organizations, both large and small, public and private. We listen.

Close Collaboration with authorities,
not least EFRAG (European Financial Reporting Advisory Group)
Since 2011 we have, through our anti-lobbyist-anti-bureaucracy stance for practical solutions, advocated for an ESRS standard that transcends narrow interests and reflects the needs of a wide range of stakeholders – a set of rules usable for all. We have participated in constructive dialogue with many policymakers, experts, and affected parties to understand their perspectives and ensure that laws and rules are developed with a full understanding of the implications of their use.

Client statements (GDI):

"The DSB First situation task force would never have come this far without your technology, help and great contributions." - Gert Frost, Managing Director, DSB First

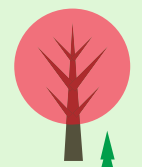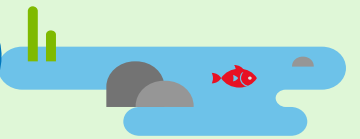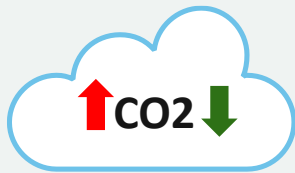*"[GDI] found we prioritized projects in two very different ways. This changes our decision-making for the better."*

Other client statements (ESRS):

"It's cool to see calculations done automatically…..and done exactly how I would have done them myself."

"We have both a desire for climate accounting and compliance. This project should not only be about compliance, but also show where we can improve and where we need to take some action – and I see this being possible with this new tool, if used right."

"It will save me 7 months of work [per year] , not to have to to collect and calculate data in the traditional way."

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Image source:
Official Q&A on the Adoption of ESRS, 31st July 2023

What you need to know

1. As part of the European Green Deal, the Corporate Sustainability Reporting Directive (CSRD) includes the mandate to report sustainability information under the reporting framework of the European Sustainability Reporting Standards (ESRS).

2. The affected companies amount to an estimate of over 50,000 compiled of both large and listed companies (except listed micro-companies) based in the EU, but also to third-country companies based outside the EU with undertaking within EU, i.e., subsidiaries or branches.

3. Under the European Commission's (EC) CSRD, the provisions apply to fiscal years starting on or after 1 January 2024 for large public-interest companies as well as banks and insurance companies, already subject to the Non-Financial Reporting Directive (NFRD); or 1 January 2025 for large companies that are not presently subject to the NFRD; or 1 January 2026 for listed small- or medium-sized entities (SMEs) and other undertakings (SMEs can opt out until 2028).

4. Sustainability information mandatorily to be reported in the management report must be verified by a third party with limited assurance.

5. Main components brought by CSRD and ESRS include double materiality, inclusion of prospective information, information about the upstream and downstream value chain, and the concept of sustainability due diligence. The latter is closely related to the upcoming Corporate Sustainability Due Diligence Directive (CS3D) that aims to foster sustainable and responsible corporate behavior through global value chains.

6. Sustainability information can influence stakeholder decisions. Two main groups of stakeholders are considered in the ESRS: affected stakeholders and users of sustainability reporting.

7. The last version of the first set of ESRS were approved by the EFRAG SRB on 15 November 2022 and have been subject to editorial review before issued by submission to the EC on 22 November 2022. The Commission is expected to adopt the first set of standards by June 2023.

8. The first set of ESRS encompass other international standards in emphasizing the utmost importance of tackling climate change, by requiring subject companies to disclose information on governance, strategy, management of impacts risks and opportunities, and specific targets related to climate change irrespective of the companies' judgment of their materiality.

9. The ESRS consider the existing European law and initiatives as well as European and international sustainability reporting initiatives, facilitating the interoperability with various standards, such as ISSB, TCFD and GRI, to avoid double disclosure efforts by companies.

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What you need to know

1. As part of the European Green Deal, the Corporate Sustainability Reporting Directive (CSRD) requires to report sustainability information under the reporting framework of the European Sustainability Reporting Standards (ESRS) as adopted in the European Union (EU).

2. The affected undertakings amount to an estimate of over 50,000 compiled of both large and listed undertakings (except listed micro-undertakings) based in the EU, but also to third-country undertakings based outside the EU with undertakings within the EU, i.e., subsidiaries or branches. Non-listed SME are not in scope of CSRD.

3. Under the European Commission's (EC) CSRD, the provisions apply to fiscal years starting on or after 1 January 2024 for large public-interest undertakings as well as banks and insurance undertakings, already subject to the Non-Financial Reporting Directive (NFRD); 1 January 2025 for large undertakings that are not presently subject to the NFRD; or 1 January 2026 for listed small- or medium-sized entities (SMEs). Listed SMEs can opt out until 2028.

4. On 31 July 2023 the EC adopted the first set of ESRS applicable to all undertakings subject to the CSRD. The standards are now available in 23 official languages. However, these final standards are not in force until the delegated regulation has passed the scrutiny of the European Parliament and Council and is published in the Official Journal.

5. Main components brought by CSRD and ESRS include the concept of double materiality, inclusion of prospective information, information about the upstream and downstream value chain, and the concept of sustainability due diligence. The latter is closely related to the upcoming Corporate Sustainability Due Diligence Directive (CS3D) that aims to foster sustainable and responsible corporate behavior throughout global value chains.

6. Sustainability information can influence stakeholder decisions. Two main groups of stakeholders are considered in the ESRS: affected stakeholders and users of sustainability reporting, which include investors, but also other users such as undertakings business partners, trade unions and social partners.

7. Sustainability information mandatorily to be reported in the management report must be verified by a third party with limited assurance (moving towards reasonable assurance, following an assessment by the EC to determine if reasonable assurance is feasible for auditors and undertakings) in accordance with an assurance standard adopted in the EU. Such a standard is currently in development.

8. The ESRS consider the existing European law and initiatives as well as European and international sustainability reporting initiatives, aiming to facilitate the interoperability with various standards, such as ISSB, TCFD and GRI, and to avoid double disclosure efforts by undertakings.

9. The EC is establishing an interpretation mechanism to provide formal interpretations of the standards. Additionally, the EC has requested EFRAG to publish supplementary guidance and educational materials that will cover topics such as the materiality assessment process and other related issues.

10. The EC and EFRAG maintain close collaboration especially with the ISSB and the Global Reporting Initiative to aim for a high level of interoperability between the mandatory disclosure requirements under ESRS in the EU and other sustainability reporting frameworks that might become mandatory in other jurisdictions. The International Sustainability Standards Board (ISSB) has recently issued its first two IFRS Sustainability Disclosure Standards which have been developed to bring global consistency to the way companies disclose sustainability-related risks and opportunities throughout their value chain, helping to improve trust and confidence in company disclosures and to inform investment decisions. The application of these standards is not mandatory in the EU.

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OLD INFORMATION! ESRS CHANGED SIGNIFICANTLY BY 31st JULY 2023, CATCHING MANY OFF-GUARD.

Image source:
ey-sustainability-development.pdf (Issue 1/May 2022)

Image source:
ESRS adopted by EC (11 Aug 2023)

The European Sustainability Reporting Standard (ESRS) will have a significant impact on the entire business ecosystem. ESRS provides regulations for businesses to report their environmental, social, and governance (ESG) performance. ESG is becoming increasingly important for investors, customers and other stakeholders – not least banks who begin to see bad ESG reporting as a major risk.

Compliance with ESRS can improve a company's reputation and attractiveness to investors who prioritize ESG considerations. This can help businesses access capital at lower costs and gain a competitive advantage and subsequently lead to increased investor confidence and higher stock prices – in essence, ESG key figures are becoming as important as financial key figures. And with ESRS this has become law.

The ESRS will also affect a company's relationship with suppliers and customers. Businesses will need to report on ESRS factors not only within their own operations but also across their value chain. This can lead to better management of ESG risks and opportunities throughout the supply chain, improving the sustainability of the entire ecosystem.

Consumers are increasingly interested in purchasing products and services that align with their values, and compliance with ESRS can help businesses meet these demands.

This can create a virtuous cycle where prioritizing sustainability is rewarded with greater market share.

But ESRS can also annoy both suppliers and customers if done wrong, blanketing them with requests for data from all sides, often data they may not have time nor competences to find – and then their only options are expensive consultants or business losses due to failure.

ESG employees have become central in many companies, referring to both marketing, human resources, board and CEO, creating reporting and projects to improve the company in many ways – but with the massive ESRS ruleset, ESRS employees risk becoming glorified bookkeepers and lawyers, buried in numbers and clauses without any practical impact.

In summary, if done right, compliance with the European sustainability reporting standards can benefit the entire business ecosystem, from attracting investors to improving supply chain sustainability, driving innovation, and influencing consumer behavior.
Done wrong it can be a company ending event.

The key to making the ESRS ecosystem flow and provide value, is to give all parties easy access to the right data with minimum resource use, so they can reap the benefits without risking the company's future.
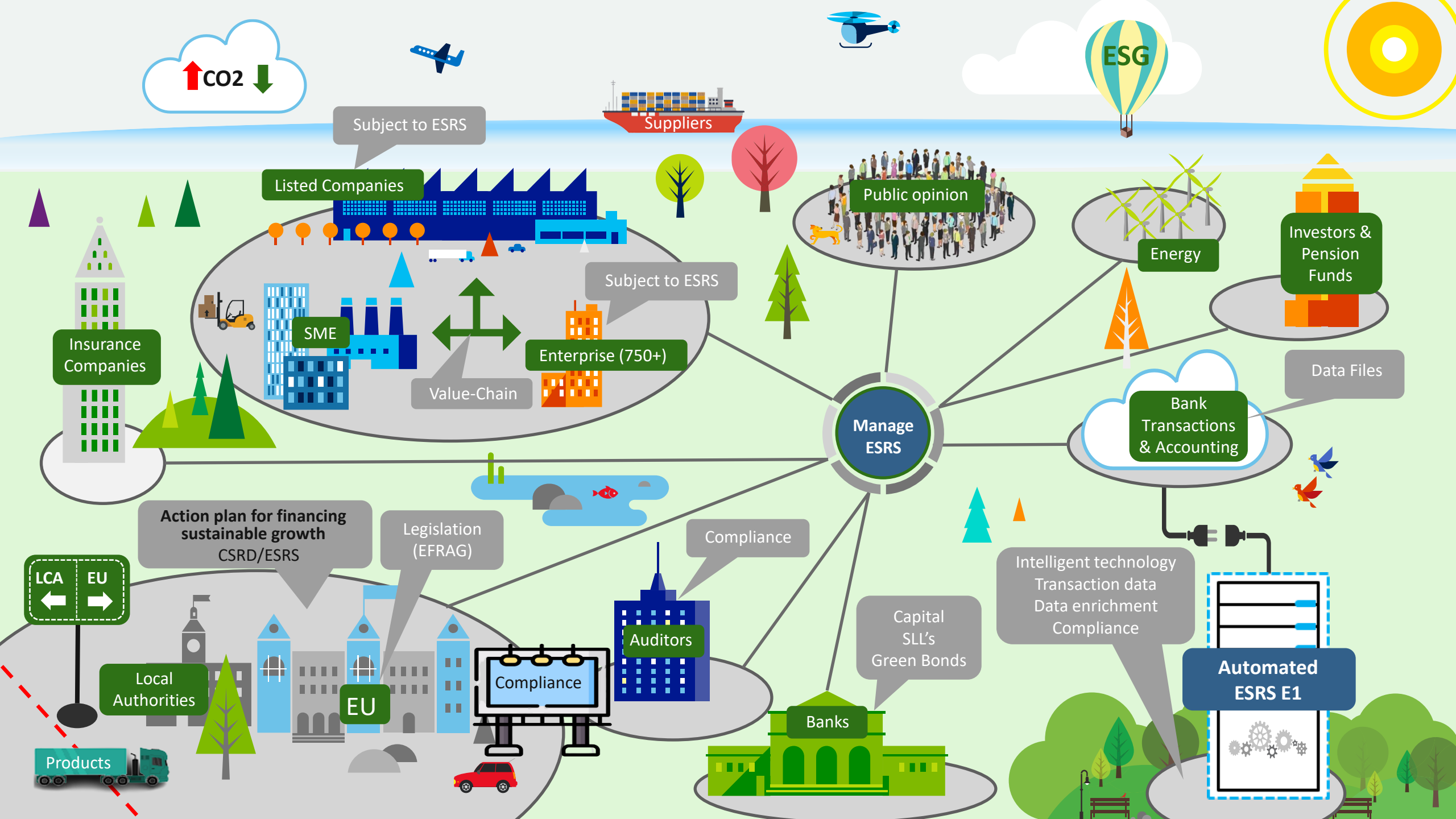
ESRS regulation is pushing for transparency

The EU commission adopted the EU Sustainable Finance Action Plan (1) in 2020. The purpose of the action plan is to finance sustainable growth in the EU by reorienting capital flows towards a more sustainable economy. A key element in the action plan is to strengthen the sustainability disclosure and accounting rule-making.

The Corporate Sustainability Reporting Directive (CSRD) (2) that followed in 2022 requires EU companies to report on ESG at a very detailed level, according to technical standards laid down by EFRAG in the European Sustainability Reporting Standards (ESRS) (3).

Large companies subject to ESRS are required to collect data from suppliers (Value chain)

A key element in the CSRD/ESRS is that companies are also required to report on the performance of their value chain. This implies that even small companies/SMEs will need to report ESG data according to CSRD/ESRS. It is or will become a requirement for all companies to report on ESRS in order to stay competitive in attracting customers.

Open Banking, PSD2 and new EU digital bookkeeping laws

The PSD2 EU directive (4) from 2018 opens up the EU banking market to third-party payment and transaction service providers. This includes account information services, which can give consumers and businesses access to consolidated information across the different accounts they may have with one or more payment service providers.

This in turn led to new EU laws requiring digital financial reporting, legislated 2022 in Denmark and in effect from 2024. This means all companies must use a digital bookkeeping system and be able to exchange bookkeeping data through standardized file formats (5).

EFRAG is the key decider regarding ESRS, and therefore the approval party we use for certifying our models in Automated ESRS Automated ESRS.

1) Overview of sustainable finance (europa.eu)

2) Corporate sustainability reporting (europa.eu)

3) First Set of draft ESRS – EFRAG

4) The revised Payment Services Directive (PSD2) (europa.eu)

5) Digital bogføring: Tidsplan for virksomheder og systemudbydere | erhvervsstyrelsen.dk

Companies will have to start reporting under ESRS according to the following timetable:

- Companies previously subject to the Non-Financial Reporting Directive (NFRD) (large listed companies, large banks and large insurance undertakings – all if they have more than 500 employees), as well as large non-EU listed companies with more than 500 employees: financial year 2024, with first sustainability statement published in 2025.
- Other large companies, including other large non-EU listed companies: financial year 2025, with first sustainability statement published in 2026.
- Listed SMEs, including non-EU listed SMEs: financial year 2026, with first sustainability statements published in 2027. However, listed SMEs may decide to opt out of the reporting requirements for a further two years. The last possible date for a listed SME to start reporting is financial year 2028, with first sustainability statement published in 2029.

In addition, non-EU companies that generate over EUR 150 million per year in the EU and that have in the EU either a branch with a turnover exceeding EUR 40 million or a subsidiary that is a large company or a listed SME will have to report on the sustainability impacts at the group level of that non-EU company as from financial year 2028, with first sustainability statement published in 2029. Separate standards will be adopted specifically for this case.

FOUR KEY CHALLENGES WITH CSRD/ESRS REPORTING

GENETIX COMPUTING

**50K EU enterprises
+20M EU SMEs
+10K non-EU enterprises
+4M non-EU SMEs
+5K financial institutions
are facing the biggest
regulatory and business
critical requirements ever -
that needs to be tackled
properly and through an
automated approach**

Business challenge #1:

Lack of ESG data for the entire value chain.

Business challenge #2:

Traditionally the process of collecting and calculating ESG data is manual.

Business challenge #3:

Expensive, time consuming, complex and often combined with low data quality

Business challenge #4:

Keeping up with changing compliance requirements

2025Q1 is where regulations meets business and creates dramatic change and needs for building sustainability into the core of the business.

But if you want to be prepared and ensure your data looks good to the public, you want to do baseline checks and supply line changes already from late 2023.

DRAFT EUROPEAN SUSTAINABILITY REPORTING STANDARDS

ESRS 1
General requirements

DRAFT EUROPEAN SUSTAINABILITY REPORTING STANDARDS

ESRS E1
Climate change

DRAFT EUROPEAN SUSTAINABILITY REPORTING STANDARDS

ESRS E3
Water and marine resources

DRAFT EUROPEAN SUSTAINABILITY REPORTING STANDARDS

ESRS E5
Resource use and circular economy

DRAFT EUROPEAN SUSTAINABILITY REPORTING STANDARDS

ESRS S2
Workers in the value chain

DRAFT EUROPEAN SUSTAINABILITY REPORTING STANDARDS

ESRS S4
Consumers and end-users

DRAFT EUROPEAN SUSTAINA
REPORTING STANDARDS

ESRS 2
General disclosures

DRAFT EUROPEAN SUSTAINA
REPORTING STANDARDS

ESRS E2
Pollution

DRAFT EUROPEAN SUSTAINA
REPORTING STANDARDS

ESRS E4
Biodiversity and ecosystems

DRAFT EUROPEAN SUSTAINA
REPORTING STANDARDS

ESRS S1
Own workforce

DRAFT EUROPEAN SUSTAINA
REPORTING STANDARDS

ESRS S3
Affected communities

DRAFT EUROPEAN SUSTAINABILITY
REPORTING STANDARDS

ESRS G1
Business conduct

CHALLENGE #1: LACK OF ESG DATA

The absence of comprehensive Environmental, Social, and Governance Reporting Standards (ESRS) compliance data across the entirety of a company's value chain can pose a profound obstacle for organizations required to conduct ESRS reporting. This problem emerges from the vast and complex nature of modern supply chains, where a myriad of partners, suppliers, and intermediaries intermingle to form an intricate network that can be challenging to trace comprehensively.

Achieving a complete understanding of a company's environmental, social, and governance (ESG) footprint is far from a trivial task. Businesses today rely on a labyrinthine web of suppliers, distributors, and service providers. This complexity is amplified by the globalization of trade, resulting in multi-tiered supply chains that can span numerous countries and regions, each with its own regulations and reporting standards. Hence, gathering accurate and complete data on sustainability performance indicators across such a vast, diverse, and multifaceted system requires significant effort and investment.

The implementation of robust sustainability management systems has been proposed as a solution to this challenging conundrum. Such systems can provide companies with the tools needed to meticulously track and report on their sustainability performance across all the facets of their operations. However, this strategy calls for an increased level of cooperation with every partner in the value chain.

A shift toward such cooperative practices requires the development of trusting relationships, clear communication channels, and aligned objectives. In particular, suppliers must understand the importance of sustainability initiatives and the necessity of accurate and transparent reporting. In some cases, this may necessitate a degree of education or training to ensure all stakeholders have the necessary skills and knowledge to participate effectively in the data collection process.

Companies can explore the implementation of advanced technological solutions to streamline and automate data collection, calculations, and reporting processes. The integration of cutting-edge technologies such as artificial intelligence, machine learning, and blockchain can enhance the efficiency, accuracy, and reliability of ESG data management.

Many of the tools on the market today are however both overhyped, cumbersome to implement and lack trustworthiness. While AI technologies provide promising solutions for automating data collection and analysis, they bring several challenges. Compliance with GDPR necessitates constant vigilance, especially as AI often uses extensive, potentially sensitive datasets. The opacity of AI's decision-making process, the so-called "black box" problem, raises issues around accountability and bias. Additionally, the accumulation of large datasets increases the risk of data breaches, necessitating robust cybersecurity. Moreover, AI errors can be very hard to detect.

CHALLENGE #2: MANUAL ESG INTERPRETATION

Traditionally, the methodology for amassing and analyzing Environmental, Social, and Governance (ESG) data has been a largely manual process.

It necessitates individuals meticulously gathering information from a variety of sources such as financial statements, environmental impact reports, social responsibility disclosures, Enterprise Resource Planning (ERP) systems, Internet of Things (IoT) sensors, and other relevant data repositories.

Following this collection phase, the data is then manually incorporated into a spreadsheet, BI program or similar analytical tool for further examination and subsequent reporting.

In many corporations, the ESG data capture procedure frequently exhibits the following characteristics:

• Scope 3 emissions, which are typically contingent on the honesty and ESG expertise of subcontractors. This dependency can potentially lead to significant data errors, misinterpretations.

• A strong IT-centric approach that can sometimes overshadow the need for a balanced perspective incorporating both technical and sustainability viewpoints.

• Data collection that is often restricted to static and isolated data silos. These silos may include a variety of domains, such as banks, suppliers, strategic policies, internal and external energy consumption, travel information, governmental authorities, offset-projects, sales figures, freight and transportation details, and more.

• Data capture processes are often constrained, incomplete, and fragmented, leading to the development of rigid and manual workarounds to address these limitations.

• The climate factors used often stem from one or more somewhat arbitrary standards chosen either by the company itself or its appointed auditor.

However, the evolution and increased accessibility of Genetix technology present a promising alternative to these traditional methods.

Automated ESRS offers the ability to streamline data collection, enhance process accuracy, and promote efficiency. This technology enables data gathering from bank accounts, subsequently aggregating and analyzing the data through an EFRAG approved model to yield outputs that adhere perfectly to the EU standards, thereby simplifying and improving the overall process while minimizing risk.

CHALLENGE #3: EXPENSIVE & TIME CONSUMING

With the forthcoming ESRS reporting many companies foresee the significant burden and challenges in terms of compliance combined with operational and administrative cost.

Here are some reasons why:

Expensive: Implementing the ESRS reporting can be costly as it requires resources such as personnel, technology, and infrastructure to understand ESRS then gather and document the necessary data.

Time-consuming: Manually gathering data and preparing reports can be a time-consuming process, especially for companies with complex supply chains and business models. And human errors will happen.

Complexity: The ESRS standards are extensive, and companies may find it challenging to understand and implement all the requirements. This complexity can lead to errors and inconsistencies in reporting.

Low data quality: Companies may face challenges in collecting high-quality data, especially if they do not have robust and automated data collection in place. This can lead to inaccuracies and inconsistencies in reporting.

While the final ESRS has not yet been published, it is likened to 20% of the total sum of all other compliance, an average cost of USD 5.5M (1) that puts ESRS costs in the neighborhood of EUR 1M on average.

The temptation to simply risk it by not complying, may become bigger when considering such high up-front costs. But since historically non-compliance has shown to be on average 2.7 times more expensive (1), non-compliance with ESRS can on average be expected to cost EUR 2.7M. This makes non-compliance a very un-sound business strategy, even before considering the reputation damage of non-compliance.

To overcome these challenges, many companies are considering investing and adopting automated data tools to ensure data accuracy and consistency.

Finally, companies are compelled to seek external support from ESRS experts to help them navigate the complexities of the ESRS compliance requirements.

1) Compliance Cost: What it is, How it Works (investopedia.com)

Even during the later stages (CSRD/ESRS development started in 2011) the framework has gone through major changes – and while the number of requirements seemingly fell, the reality is that most were integrated in other disclosure requirements and simply increased their size and complexity:

Fewer reporting requirements

The CSRD requires significant effort from the nearly **50,000 companies** that will eventually have to comply with it. To improve the balance of burdens and benefits, EFRAG (European Financial Reporting Advisory Group) has reduced the number of reporting requirements in the updated ESRSs. Some requirements have actually been removed, others have been merged or moved to future sector-specific standards. Because these are mostly borders, their impact on the total effort required is limited.

	Draft standards (april '22)	Draft standards (november '22)
Number of standards	13	12
Number of reporting requirements	136	82
Number of qualitative and quantitative data points	2161	1144

FEWER BUT MORE COMPLICATED REQUIREMENTS AFTER 31st JULY 2023

Image source:
New ESRSs published - Corporate Sustainability Reporting Directive - ESG - Thema's – PwC

New source:
Final European Sustainability Reporting Standards have been adopted (pwc.com)

Further continual changes are expected each year after first implementation in July 2023, especially these first years of the framework's lifetime.

This requires employees with ESG, reporting, data and regulation competences to read, understand and interpret the changing CSRD/ESRS requirements. In many individual cases dialogue with ESRS developer EFRAG, company accountants and local authorities are also needed.

It is already a significant administrative cost to identify and find relevant documentation, only worsened by the constant framework changes.

These changes to the framework also increases the risk of manual errors, since employee experience will recall earlier editions, especially if making the compliance under time pressure as is often the case.

Genetix's Automated ESRS provides monitoring of changes in the ESRS legislation and automatically adjust to all official changes from EFRAG and other authorities, allowing organizations to quickly identify areas for change and take action to address the challenges, rather than reducing the ESG department to an "ESG bookkeeper". Overall, using Automated ESRS can help organizations efficiently collect, analyze, and report on ESRS.

Companies will have to start reporting under ESRS according to the following timetable:

- Companies previously subject to the Non-Financial Reporting Directive (NFRD) (large listed companies, large banks and large insurance undertakings – all if they have more than 500 employees), as well as large non-EU listed companies with more than 500 employees: financial year 2024, with first sustainability statement published in 2025.
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OUR ESRS JOURNEY

GENETIX COMPUTING

Based on the previously mentioned key challenges, it was clear to us at Genetix Computing that a tool was lacking on the current market: While the biggest companies have big ESG departments they can double or triple to cope, and the smallest companies might at least temporarily get by with ignoring ESRS or guessing/faking data, the mid-sized approx. 100-2000 employee companies would get a very hard time with ESRS.

This led us to thinking that if our Genetix Decision Intelligence (GDI) could already handle massive national infrastructure of rail and energy grid, and the constant politics, union rules and compliance frameworks involved, why would it not be able to handle ESRS? Dialogues with many parties confirmed this for us, but also made it clear that the massively complex GDI implementation would be no help here. We identified the following needs:

- Full ESRS calculator
- Anti-Greenwashing
- Compliant with EU law
- Safe and secure for user
- Fast, easy and cost effective

✓ Automated collection and calculation of ESRS data

✓ Transparent calculation methods - no black box

✓ Data sources and methods verifiable and traceable

✓ 100% of bank transactions / accounting postings - full overview ensured

✓ 100% compliant with EU/ESRS requirements

✓ Any uncertainty in interpretations of ESRS is resolved via EFRAG

✓ Conservative calculation and prudent estimates to avoid underestimations

✓ Easy and fast for auditors to audit

✓ 100% safe - user has full control over data

✓ 100% digital - no need for interaction with experts and advisors

NEW REQUIREMENTS

GENETIX COMPUTING

With the new requirements just around the corner, companies will be pushed to provide more granular ESG-related data to improve transparency.

The Automated ESRS approach provides you with a way to work smarter in an automated and effective manner to capture, calculate, analyze, assemble and report on your ESRS compliance requirements:

Focus

- Centered around the fixed ESRS framework based on EU legislation finalized from July 2023

- One primary source that cannot be tampered with: Bank transactions or audited accounting postings and documents

- Scope 3 is calculated with high precision by identifying all subcontractors in bank transactions and requesting them to link to Automated ESRS so that the exact amount is included

- Climate factors are from the EU (ESRS)

- Perfectly comparable ESG results
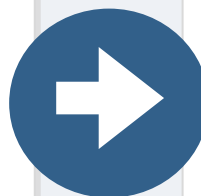
Result

- Compliance- and transaction centric

- Possible to audit fast and with high fidelity

- Eliminating risk of greenwashing

- Acceptable data for CO_2 taxation

- A comprehensive view based on exact value chain data support efficient management decisions on climate actions

- Empowers your full ESG process

- Combines various secure data sources

- Enhance utilization of dynamic transaction data

When we initially embarked on the journey to enhance our Environmental, Social, and Governance Reporting Standards (ESRS) software solution, we mirrored the path of countless other companies grappling with the intricacies of ESRS compliance. We posed ourselves a crucial question:

"Where can we source the highest quality data, how much of the process can we automate, and to what extent will manual intervention be necessary?"

To address the latter part of our query, we quickly realized that the ESRS journey necessitates forging partnerships with financial as well as non-financial stakeholders; almost every activity in a company results in a cost, and each cost in further activities in the value chain. Some of the stakeholders here might be entities with whom we've had limited prior engagement, thereby adding a layer of complexity to the collaboration.

Indeed, manual data collection, by nature, involves a considerable amount of human interaction to accumulate the necessary data. Such a method can be advantageous in situations where the data is intricate and tough to gather via automated means, or when the data necessitates specific contextual understanding or interpretation that a machine cannot provide.

This manual data collection process may necessitate the collaboration of a diverse range of teams, such as those from facilities, fleet management, and engineering or procurement.

These teams are often responsible for sourcing the environmental, or "E" components of the ESRS metrics. When it comes to collating social, or "S" data, you need to engage departments such as human resources, IT, legal, among others, each bringing their unique perspective and information. Lastly, to scrutinize metrics pertaining to governance, denoted as the "G" component, it is vital to coordinate with a cross-functional committee that comprises various leaders, members of the management team, and the board of directors.

However, it's crucial to remember that manual data collection is often a labor-intensive and costly process. This is especially true when dealing with large, intricate datasets, and when trying to align with detailed compliance regulations. Furthermore, as it relies heavily on human intervention, this process is inherently vulnerable to human error. These errors can introduce biases, inaccuracies, and inconsistencies into the data, presenting further challenges for effective and accurate ESRS reporting.

So where could we get data that circumvented this issue of heavy but often worthless dialogue up and down the value chain, while still providing compliance by being sure that we covered every activity covered by an ESRS disclosure requirement?

TO AUTOMATE OR NOT TO AUTOMATE?

The decision of whether to adopt automation for the ESRS process has rapidly become an obvious choice. The challenges that arise without it can be of significant magnitude.

With the sheer magnitude of data volumes and the complexities of ESRS calculations and data collection becoming increasingly evident, the decision has become a logical imperative.

Automation, offers the potential to revolutionize processes, increase efficiency, and drive productivity to new heights.

Our approach goes beyond simply adopting technology, it involves engaging ourselves in a paradigm where automated processes come together with automated ESRS data collection and ESRS compliance calculations. This convergence not only alters how data is collected, harnessed and calculated but also exemplifies our commitment to steering the course to empower enterprises with the tools and insights needed to not only meet ESRS compliance but to thrive within an ever-changing ESRS landscape.

New EU laws means all companies must use a digital bookkeeping system and be able to exchange bookkeeping data through standardized file formats. This allows companies to easily give Automated ESRS

access to the bookkeeping and related documents, allowing reporting with few clicks – this secured accuracy of source is also much preferred to manual data by the authorities such as EFRAG.

Automatic ESRS data collection and calculations, involves the use of technology to gather data without human intervention. This method is much more efficient and cost-effective, particularly when dealing with large datasets like with the ESRS.

Automatic data collection can also reduce the risk of human error, improving the accuracy and consistency of the data. However, it can be challenging to collect certain types of data automatically, particularly when dealing with unstructured or complex data.

With that in mind we initiated our journey towards empowering companies to accelerate a sustainable future using an ESRS data driven and digital solution - starting by identifying, where to collect the best data with the highest quality to enable ESRS compliance.

In essence, the question of whether to automate the ESRS process or not, is no longer a choice but rather a matter of necessity. Embracing automation is a foundational step in securing ESRS compliance in the present and future.

HOW TO GET YOUR FINANCIAL TRANSACTIONS? 2/2

For an Automated ESRS E1 process based on bookkeeping material, it's imperative that you as a client can provide one or more methods to access the data for the accounting periods you want ESRS for (not necessarily spanning 5 years and possibly as short as a quarter):

1. SAF-T: From 2024 all Danish bookkeeping systems are legally obligated to export a SAF-T file containing crucial posting data, and numerous European systems do so voluntarily. Additionally, attachments can be provided in one or more files or folder structures. Our system can then correlate entries and attachments.

2. Account Statements from Online Banking: These statements should include the date, amount, and any transaction text in one or more files. Attachments can also be included in one or more files. Our system can then correlate entries and attachments. This can be omitted if bookkeeping data is already audited.

3. Bookkeeping Data: This should consist of a posting overview with accounting codes and references (such as document numbering) to associated documents. Attachments should be organized to correspond with the references, including potentially using an attachment number written on the attachment itself or as a filename.

Attachments encompass invoices, receipts, and payment summaries in almost any file formats, including scans and photos with handwritten elements. Online banking advis/receipts are helpful but not mandatory.

Data delivery can happen in a format and folder structure of your preference. We can receive data in a manner you find suitable, ranging from email submissions over uploads on a secure Microsoft Azure drive provided by us, to us personally collecting the data at your premises on a forensically secured harddrive.

It's important to note that the delivered accounting material and resulting ESRS data always remain the exclusive property of the customer. Upon the customer's clear written request, these materials are permanently deleted (overwritten with random data to prevent potential re-creation where feasible) from all locations, including emails, within 72 hours.

By combining financial data with Automated ESRS, companies can automatically collect financial data and categorize it into the appropriate sustainability metrics. For example, transactions related to energy usage and carbon emissions can be automatically categorized in the correct scopes and converted into the appropriate ESRS metrics.

USING AI/LLM WITH CAUSION

We apply the use of large language models (LLMs), primarily OpenAI's GPT-4 (1), to the financial transaction data to translate between different languages and formulate documentation in a less technical manner.

OpenAI, now heavily invested in by Microsoft (2), is never given access to customer data, only abstracted and scrambled general examples or word bits for translation.

In terms of generating reports, GPT-4 can transform raw data into human-readable summaries or detailed reports, helping stakeholders understand the company's ESRS performance.

However, while GPT-4 and similar LLMs can offer powerful support in processing and interpreting language-based transaction data, they are essentially always just guessing based on their training material and as such the output must always be validated by context-understanding software such as Genetix Decision Intelligence (GDI), particularly when making critical decisions related to ESRS compliance.

1) GPT-4 (openai.com)

2) Microsoft and OpenAI extend partnership - The Official Microsoft Blog

We do NOT use OpenAI or other LLM to directly interpret or calculate on customer data, nor do we use it for finding sources or similar critical tasks – these are all handled solely by our proprietary Genetix Decision Intelligence (GDI).

The reasons for this are the many instances seen of OpenAI and other LLMs 'hallucinating'; basically making stuff up because of lack of understanding of the real data-context.

TRADITIONAL VS AUTOMATED APPROACH

1 Faster time to compliance by adopting a new and lean operating model to empower ESG line-of-business users to automated self-service

2 We partner with the business to ensure priorities and compliance investments are aligned and supporting the overall ESRS business goals

Traditional Approach

- Reactive, slow and expensive - many cumbersome and manual processes

- Limited to static and isolated data silos - low accuracy on results due to low data quality

- Incomplete and fragmented - limited visibility into your data and value chain

- Incomparable results that cannot be audited with substantial certainty

- Risk of intentional or unintentional greenwashing (or accusations thereof)

- Complicated and expensive audit process, not least when changing auditors

- Restricted sources and access

Automated Approach

- Deliver anywhere, anytime ESRS analytics

- Analysis of ALL your business activities

- Empower and free your ESG department

- Incorporate diverse sources and unifies relevant data types

- Optimize ESRS labor effort – accelerating compliance

- Provide a correct scope 3, everything included

- Map the entire value-chain to weigh suppliers

- Get a better less stressful dialogue with suppliers

GENETIX COMPUTING

Companies will have to start reporting under ESRS according to the following timetable:

- Companies previously subject to the Non-Financial Reporting Directive (NFRD) (large listed companies, large banks and large insurance undertakings – all if they have more than 500 employees), as well as large non-EU listed companies with more than 500 employees: financial year 2024, with first sustainability statement published in 2025.
- Other large companies, including other large non-EU listed companies: financial year 2025, with first sustainability statement published in 2026.
- Listed SMEs, including non-EU listed SMEs: financial year 2026, with first sustainability statements published in 2027. However, listed SMEs may decide to opt out of the reporting requirements for a further two years. The last possible date for a listed SME to start reporting is financial year 2028, with first sustainability statement published in 2029.

In addition, non-EU companies that generate over EUR 150 million per year in the EU and that have in the EU either a branch with a turnover exceeding EUR 40 million or a subsidiary that is a large company or a listed SME will have to report on the sustainability impacts at the group level of that non-EU company as from financial year 2028, with first sustainability statement published in 2029. Separate standards will be adopted specifically for this case.

Image source:
Official Q&A on the Adoption of ESRS, 31st July 2023

QUICK OVERVIEW OF HOW AUTOMATED ESRS WORK

GENETIX COMPUTING

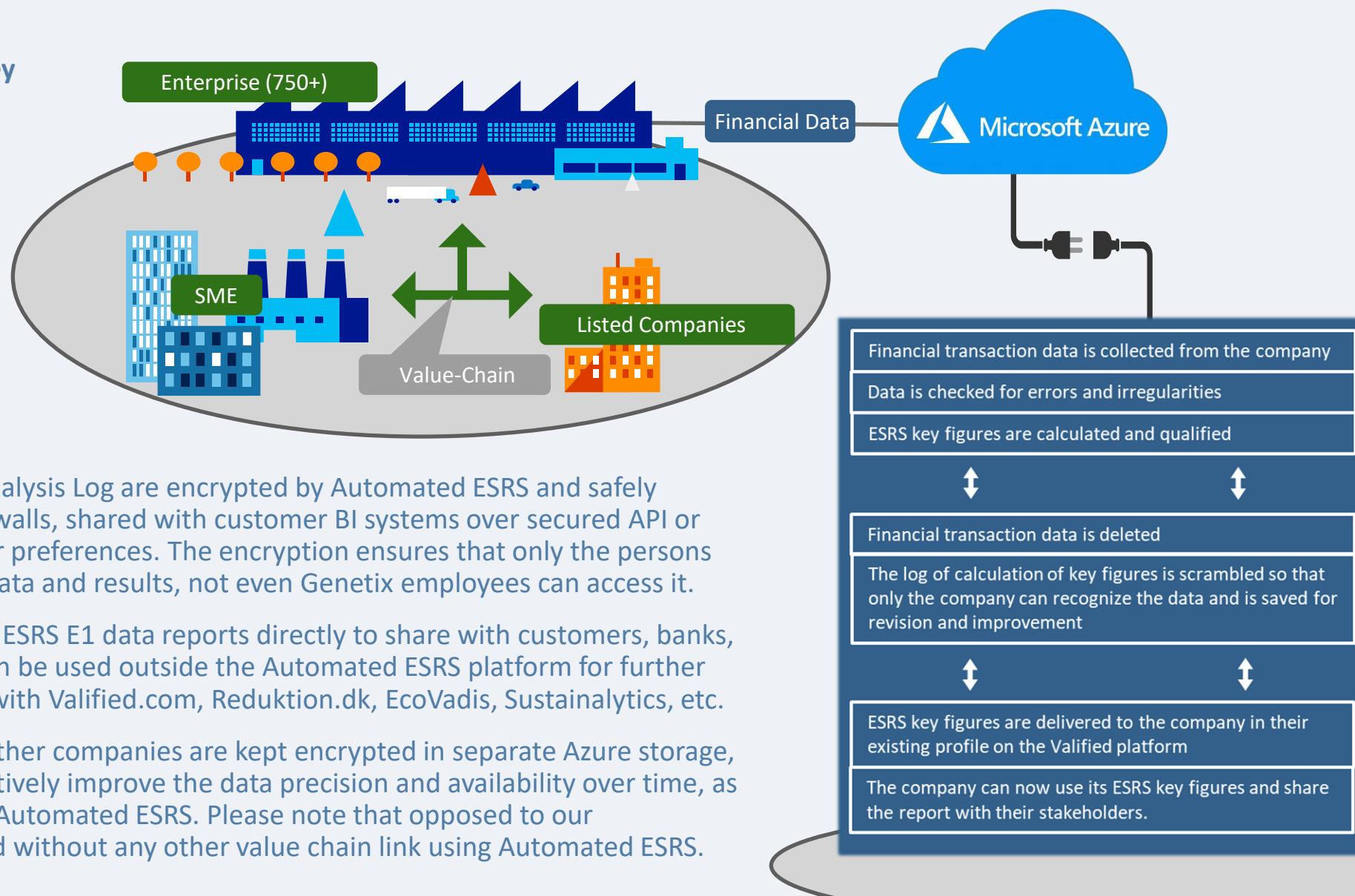**Automated ESRS goes through these key steps**

1. Automated ESRS imports financial transactions data from ERP accounting system and other sources.

2. Automated ESRS checks the data sources for missing data etc. and categorizes the transactions/postings to make them ready for the calculations. The ESG ratios are calculated and imported data are deleted.
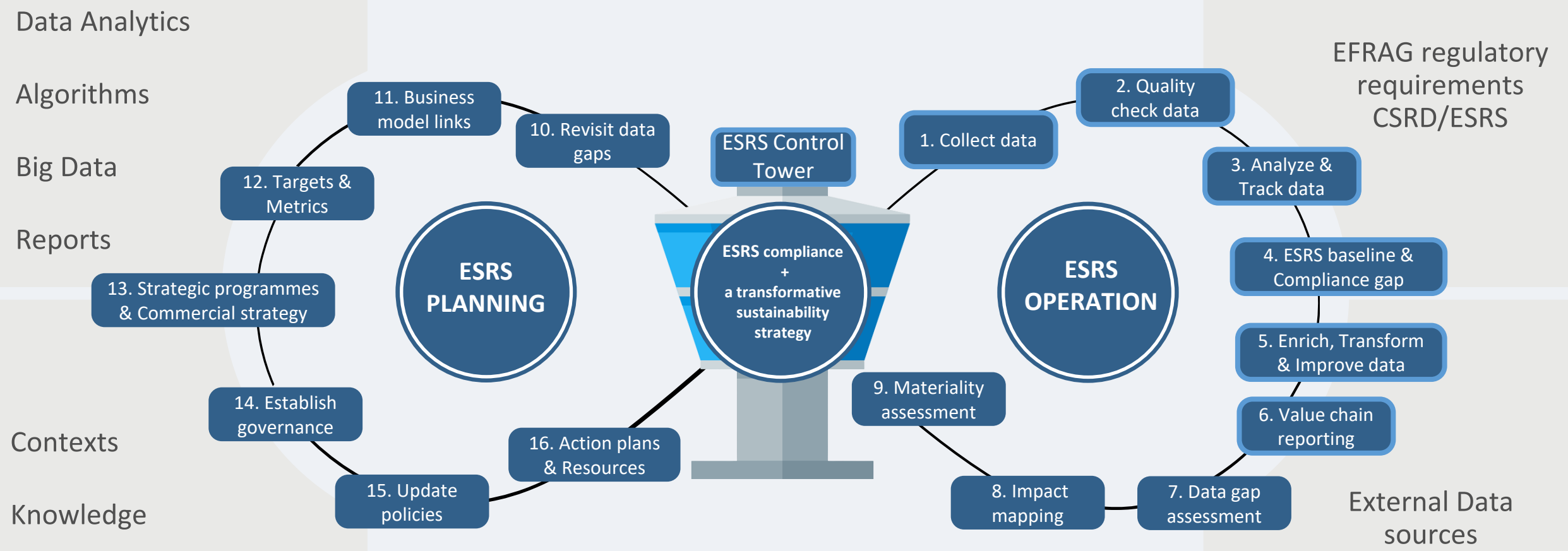
3. Results, Value Chain Overview and Analysis Log are encrypted by Automated ESRS and safely protected behind Microsoft Azure's firewalls, shared with customer BI systems over secured API or sent as PDF on email based on customer preferences. The encryption ensures that only the persons with the appropriate rights can access data and results, not even Genetix employees can access it.

4. The company can use the Automated ESRS E1 data reports directly to share with customers, banks, investors, authorities etc. or the data can be used outside the Automated ESRS platform for further refinement and improved data sharing with Valified.com, Reduktion.dk, EcoVadis, Sustainalytics, etc.

5. Scope 3 emissions data relevant for other companies are kept encrypted in separate Azure storage, allowing the entire value chain to collectively improve the data precision and availability over time, as more and more of the value chain uses Automated ESRS. Please note that opposed to our competitors, compliance can be reached without any other value chain link using Automated ESRS.

Enterprise (750+)

Financial Data

Microsoft Azure

SME

Listed Companies

Value-Chain

Financial transaction data is collected from the company

Data is checked for errors and irregularities

ESRS key figures are calculated and qualified

Financial transaction data is deleted

The log of calculation of key figures is scrambled so that only the company can recognize the data and is saved for revision and improvement

ESRS key figures are delivered to the company in their existing profile on the Valified platform

The company can now use its ESRS key figures and share the report with their stakeholders.

CONNECTING THE 'DOTS OF COMPLIANCE'

"Capacity to Respond is considered the ability to take effective action in varied and uncertain situations, and consists of understanding, insights, meaning, intuition, creativity and judgment, including anticipation of future outcomes."

Data Analytics

Algorithms

Big Data

Reports

Contexts

Knowledge

EFRAG regulatory requirements CSRD/ESRS

External Data sources

ESRS Control Tower

ESRS compliance + a transformative sustainability strategy

ESRS PLANNING

ESRS OPERATION

1. Collect data
2. Quality check data
3. Analyze & Track data
4. ESRS baseline & Compliance gap
5. Enrich, Transform & Improve data
6. Value chain reporting
7. Data gap assessment
8. Impact mapping
9. Materiality assessment
10. Revisit data gaps
11. Business model links
12. Targets & Metrics
13. Strategic programmes & Commercial strategy
14. Establish governance
15. Update policies
16. Action plans & Resources

ESRS DATA 6-STEP PROCESS

1. Collect data: To initiate the ESRS process, Automated ESRS imports financial transactions data from accounting system, ERP and other sources.
Secondly, we conduct an initial run to count the total number of transactions available up to 5 years back – giving us the first indications of data volume and complexity, as well as giving an indication of the span of the cost of processing the data.

2. Quality check data: A real compliance run is started, this time collecting all the transaction data and its meta data to perform an initial quality analysis – checking that all relevant information, details and meta data are available and free for inconsistencies, duplicates or missing values.

3. Analyze & Track data: Second part of the real run aims to identify patterns, trends and insights for each transaction across the total data volume, identifying the transactions' likely purpose and its connection to other transactions. This gives more information than any single transaction can, allows identification of transactions with only limited data and avoids double-counting of emissions that loop in the value chain.

4. ESRS baseline & Compliance gap: Third part of the true run calculates the ESRS compliance Baseline using all the financial transaction data now interpreted as activities. This involves understanding of the ESRS framework's reporting and calculation rules applying to each transaction and may involve doing partial averages for transactions not identified precisely enough but still few enough to make compliance possible. Alerts flag any deviations or potential compliance issues. We review and update the analysis approach every time the ESRS reporting requirements are changed.

5. Enrich, Transform & Improve data: Enriching, transforming, and improving financial ESRS compliance data is crucial for enhancing the data quality, accuracy, completeness, usefulness of the data, derive meaningful insights and finally to meet reporting requirements – through integration of the financial transaction data with other relevant datasets, such as sustainability or environmental data, if necessary.
This integration can provide a comprehensive view of the organization's performance across various ESRS dimensions. Identify areas of strength and areas that need improvement for enhanced sustainability performance across different time periods, business units, or peer organizations.

6. Value chain reporting: Up- and downstream Scope 3 data collected during the true run is saved with encryption so only the two parties involved in the transaction can access it. This Scope 3 data – and more importantly understanding of the activities behind – now improve future runs.

BRIDGING THE DATA GAP

By systematically capturing and analyzing financial transaction data, companies can gather valuable ESRS-related insights, not only at the end of the accounting period but month by month. This automation can significantly reduce manual effort, increase accuracy, and minimize risk by enabling timely and informed sustainability decisions, thus facilitating comprehensive and reliable ESRS reporting. Automated ESRS automatically bridges the data gap for ESRS reporting.

MANAGE RISK

Financial transaction data

ESRS Compliance

MIND THE GAP

Cost of compliance is rising

Manuel processes no longer stand the distance

The ESRS journey starts with DATA

DATA
DATA
DATA
DATA
DATA

ESRS DATA-GAP

Cut rising operational compliance costs

Improve and automate ESG processes (automated Scope 3)

Better use of data for insights and compliance is needed

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Image source:
Official Q&A on the Adoption of ESRS, 31st July 2023

HOW TO USE AUTOMATED ESRS – shown with ESRS.tools

GENETIX COMPUTING

The employee is presented with a short introduction about Automated ESRS.

Entering VAT-number/CVR and email is compulsory – access to data will be provided on the email.

The T&C must also be approved, and will already have been part of the agreement with the company in question – the T&C are on certain points even sometimes overruled by the agreement.

The Flow

- **Access by invitation only** - please contact us to participate.

- **Identify** with your VAT-number and provide your e-mail address.

- **Get your price and pay** for our service by credit card or invoice (in special cases price will be provided manually on email).

- **Give access** to your bookkeeping files and accounting documents (contact us, often an API is available that we can collect from).

- **Wait** while our MS Azure™ decision intelligence solution prepares your result.

- **Get an e-mail** when your ESRS compliant data is ready within a few hours.

- **See the result**. Calculation details for each transaction are explained in the analysis log (encryption ensures nobody without your consent can see your bookkeeping data nor result data).

- **Happily share** your new ESRS compliance data with your stakeholders as you please!

Function (collect data or get a price estimate):
Collect ESRS E1 data ▾

Language (general text and numbers format):
English/Engelsk ▾

Your company's VAT-number or business ID number (incl. country code, e.g. DK87651234):

E-mail address to receive your data notification and receipt (e.g. example@test.com):

☐ Accept Terms & Conditions

START

GET ESTIMATE OR PAY, CHOOSE BANK OR ACCOUNTING
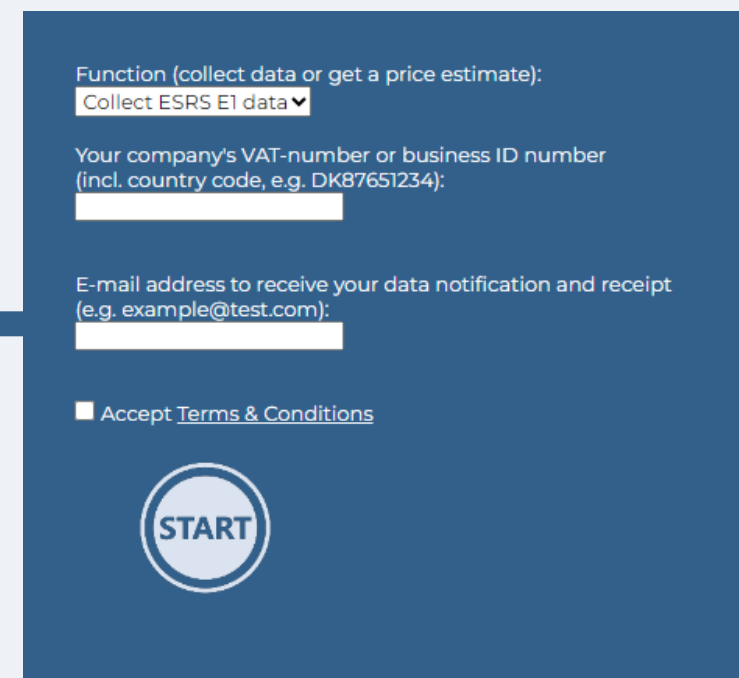
By changing the 'Function', it is possible to get a price estimate – due to Automated ESRS being processing heavy, the cost of using Automated ESRS depends mostly on number of transactions and their complexity. This estimate is quick and costless to use due to only counting transactions, not doing ESRS.

By changing the 'Data source' the employee can change between using bank or accounting data – for the time being we almost always recommend using accounting data due to this currently have the greatest chance of compliance by far in most cases, but this may change in the future so inquire if in doubt.

Clicking the 'Start' button, the employee is directed to the Automated ESRS flow - this may require an initial payment depending on the company's agreement in advance with Automated ESRS. Payment can be made directly through or by credit card or invoice.

The employee is given a temporary profile for the run, based on the VAT/CVR number and the employee's email – if contacting our support the employee refers to these.

Function (collect data or get a price estimate):
Collect ESRS E1 data

Your company's VAT-number or business ID number (incl. country code, e.g. DK87651234):

E-mail address to receive your data notification and receipt (e.g. example@test.com):

☐ Accept Terms & Conditions

START

BEGINNING THE FLOW – using accounting data

The accounting flow takes the employee through either

- choosing the company's bookkeeping system provider and logging in there to give consent to sharing the relevant accounting

or

- upload the accounting data and documents in almost any format, after first having exported it from the company's bookkeeping systems / ERP.

WAITING FOR THE RESULTS – for accounting

After giving access to the company's accounting data through login or upload, the employee is taken to a waiting page confirming that the collection of the company's ESRS data is now under way.

Depending on the size and complexity of the transactions it can take from a few minutes to several days for the system to go through the data.

ESRS.tools

Powered by Genetix Decision Intelligence

Waiting page for DK20400002 - we await your result and will send you an email when it is ready.

Please be patient while the system retrieves and interprets your transactions. This can take up to a 72 hours depending on the size of your accounts. You will receive an email when the result is ready.

Your data are encrypted securely at Microsoft Azure™, if you want your data deleted before the result is ready (where they are automatically deleted) please contact our support.

You can close this the page now.

Do you need help? Write to support@ESRS.tools or if an emergency call +45 7172 2909.

GETTING THE RESULTS

When the results are ready, the employee is advised by email and will receive the Result, Value Chain and Analysis Log as password-encrypted PDFs and a data-CSV.

If the company has decided on an API solution the results can be collected from our MS Azure™ containers or pushed directly to the company's BI systems, depending on the integration.

If desired by a company and the development paid for, individual data treatment and reporting can be provided. Such modifications are done case-by-case as custom orders.

Compliance (% of economic activity categorized) rule-of-thumb: Accountant (>95% = green), ESRS (80-95% = yellow), non-compliance (<80% = red)

Bar chart values:
- Total 2020.5.1-2…: 85.6
- Revenue 2020.5…: 88.7
- Cost 2020.5.1-2…: 64.5
- Total 2021.5.1-2…: 86.9
- Revenue 2021.5…: 95.3
- Cost 2021.5.1-2…: 70.7
- Total 2022.5.1-2…: 88.8
- Revenue 2022.5…: 96.3
- Cost 2022.5.1-2…: 82.1
- Total 2023.5.1-2…: 99.9
- Revenue 2023.5…: 100
- Cost 2023.5.1-2…: 98.9

Emissions (tCO2eq)

Grouped bar chart over periods 2020.5.1-2021.4.30, 2021.5.1-2022.4.30, 2022.5.1-2023.4.30, 2023.5.1-2023.7.31 with series: Scope1, Scope2 location-based, Scope2 market-based, Scope3, Unknown location-based, Unknown market-based.

Graphs are provided to give overview over all accounting periods.

Accounting Period: 2020.5.1-2021.4.30

ESRS Disclosure Requirement	Value	Unit
Compliance Percentage, Total (Note: Not official ESRS DR, but gives indication of how likely ESRS data-compliance is) *percentage of economic activity categorized (rule-of-thumb; ESRS demands 80%, accountants 95%), calculated as* *1 minus* *(E1-X1b : Unknown net revenue + E1-X2b : Unknown net cost)* *divided by* *(E1-X1 : Total net revenue + E1-X2 : Total net cost)*	85.6	%
Compliance Percentage, Revenue (Note: Not official ESRS DR, but gives indication of how likely ESRS data-compliance is) *percentage of economic activity categorized (rule-of-thumb; ESRS demands 80%, accountants 95%), calculated as* *1 minus* *E1-X1b : Unknown net revenue* *divided by* *E1-X1 : Total net revenue*	88.7	%
Compliance Percentage, Cost (Note: Not official ESRS DR, but gives indication of how likely ESRS data-compliance is) *percentage of economic activity categorized (rule-of-thumb; ESRS demands 80%, accountants 95%), calculated as* *1 minus* *E1-X2b : Unknown net cost* *divided by* *E1-X2 : Total net cost*	64.5	%
E1-X1 : Total net revenue (Note: Not official ESRS DR, needed for calculation) *calculated as* *E1-X1a : Known net revenue +* *E1-X1b : Unknown net revenue*	4,043,921.5	EUR
E1-X1a : Known net revenue (Note: Not official ESRS DR, needed for calculation)	248,603.4	EUR
E1-X1b : Unknown net revenue (Note: Not official ESRS DR, needed for calculation)	455,318.1	EUR
E1-X2 : Total net cost (Note: Not official ESRS DR, needed for calculation) *calculated as* *E1-X2a : Known net cost +* *E1-X2b : Unknown net cost*	601,633.5	EUR
E1-X2a : Known net cost (Note: Not official ESRS DR, needed for calculation)	87,755.8	EUR
E1-X2b : Unknown net cost (Note: Not official ESRS DR, needed for calculation)	213,877.6	EUR

Compliance scores are calculated for each accounting period.

Where good data is lacking, spend cases are made on the 'unknown' amounts, worsening the compliance score.

E1-6.44a.45a.48a : Gross Scope 1 GHG emissions		116.7	tCO2eq
E1-6.44a.45a.48b : The percentage of Scope 1 GHG emissions from regulated emission trading schemes		0.0	%
E1-6.44b.45b.49a : Gross location-based Scope 2 GHG emissions (Note: Based on grid average emissions, as per GHG Protocol guidar		86.4	tCO2eq
E1-6.44b.45b.49b : Gross market-based Scope 2 GHG emissions (Note: Based on actual contracted emissions, as per GHG Protocol gu		90.8	tCO2eq
E1-6.44c : Gross Scope 3 GHG emissions (These may be best explained by the World Economic Forum)		2,605.9	tCO2eq
E1-6.44c.51.X1 : Scope 3 upstream purchasing emissions (Note: No longer official ESRS DR, kept from ESRS E1 draft April 2022, point		18.6	tCO2eq
E1-6.44c.51.X2 : Scope 3 downstream sold products emissions (Note: No longer official ESRS DR, kept from ESRS E1 draft April 2022,		50.3	tCO2eq
E1-6.44c.51.X3 : Scope 3 goods transportation emissions (Note: No longer official ESRS DR, kept from ESRS E1 draft April 2022, point		0.01	tCO2eq
E1-6.44c.51.X4 : Scope 3 travel emissions (Note: No longer official ESRS DR, kept from ESRS E1 draft April 2022, point 46 for your convenience)		8.2	tCO2eq
E1-6.44c.51.X5 : Scope 3 financial investments emissions (Note: No longer official ESRS DR, kept from ESRS E1 draft April 2022, point 46 for your convenience)		0.0	tCO2eq
E1-6.44d.52a.X1 : Initial total location-based GHG emissions (Note: Not official ESRS DR, needed for calculation) _calculated as_ _E1-6.44a.45a.48a : Gross Scope 1 GHG emissions +_ _E1-6.44b.45b.49a : Gross location-based Scope 2 GHG emissions +_ _E1-6.44c : Gross Scope 3 GHG emissions_		32.7	tCO2eq
E1-6.44d.52b.X1 : Initial total market-based GHG emissions (Note: Not official ESRS DR, needed for calculation) _calculated as_ _E1-6.44a.45a.48a : Gross Scope 1 GHG emissions +_ _E1-6.44b.45b.49b : Gross market-based Scope 2 GHG emissions +_ _E1-6.44c : Gross Scope 3 GHG emissions_		32.7	tCO2eq
E1-6.53.54.49a : Location-based GHG intensity per net revenue _calculated as_ _E1-6.44d.52a.X1 : Initial total location-based GHG emissions_ _divided by_ _E1-X1a : Known net revenue_		0.00013	tCO2eq/EUR
E1-6.53.54.49b : Market-based GHG intensity per net revenue		0.00013	tCO2eq/EUR

All ESRS Disclosure Requirements are listed and their calculation as well as sources explained in details.

If wanted: Food, buildings or other categories can be shown in the results, together with the standard numbers.

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Image source:
Official Q&A on the Adoption of ESRS, 31st July 2023

HOW THE VALUE CHAIN IS UNDERSTOOD

According to ESRS the entire value chain must be considered, at least in brief - the undertaking shall include material impacts, risks and opportunities connected with its upstream and downstream value chain(s).

Automated ESRS's E1 module empowers your value chain (scope 3) with correct calculations and insights on suppliers (tier-1 to tier-n) GHG/carbon footprint and provides a baseline to comply with regulations.

Collecting carbon data down the supply chain accurately and reliably continues to be a complex challenge, but at the same time provide several benefits, including better data and improved calculation methods.

By analyzing each step of the value chain, companies can identify and prioritize areas where they can reduce their carbon footprint and implement more sustainable practices. This can result in a more accurate calculation of emissions, leading to EFRAG's acceptance of less conservative calculation methods, which can reduce the total emissions and the amount of CO_2 tax.
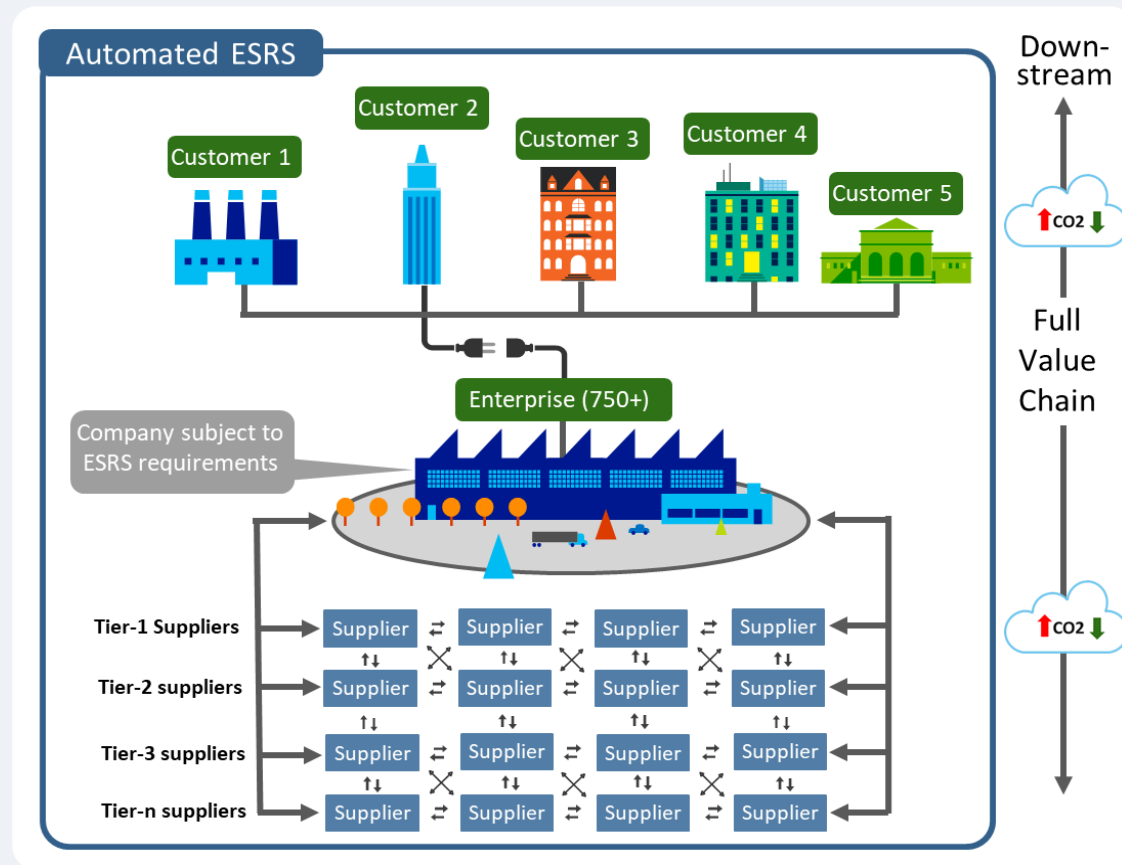
ESRS FACT

The information about the reporting undertaking provided in the sustainability statement shall be extended to include information on the material impacts, risks and opportunities connected with the undertaking through its direct and indirect business relationships in the upstream and/or downstream value chain ("value chain information"). In extending the information about the reporting undertaking, the undertaking shall include material impacts, risks and opportunities connected with its upstream and downstream value chain.

Source: https://ec.europa.eu/finance/docs/level-2-measures/csrd-delegated-act-2023-5303-annex-1_en.pdf#page=12

CREATING A TRANSPARENT VIEW OF THE VALUE CHAIN

Viewing the value chain hierarchically can be misleading as it can oversimplify the complex relationships and interactions between different actors in the ecosystem. A transparent value chain matrix that considers the entire ecosystem can provide a more accurate and comprehensive understanding of the value chain.

A value chain matrix can help identify the various inputs, outputs, (bottlenecks and loops) and stakeholders involved in the production and delivery of a product or service. By mapping out the value chain in this way, companies can gain a better understanding of the different actors involved and their respective contributions to the value chain. This can help identify areas where collaboration and partnerships can be established to improve sustainability and reduce environmental impacts.

A transparent value chain matrix can also help companies identify opportunities for innovation and new business models that support sustainable development. For example, by analyzing the entire ecosystem, companies can identify new markets and customer segments that are more environmentally conscious and willing to pay a premium for sustainable products and services.

Overall, a transparent value chain matrix can provide a more accurate and comprehensive understanding of the value chain, enabling companies to identify opportunities for sustainable development and build more effective partnerships and collaborations across the ecosystem.

MAKING SENSE OF ALL TRANSACTIONS
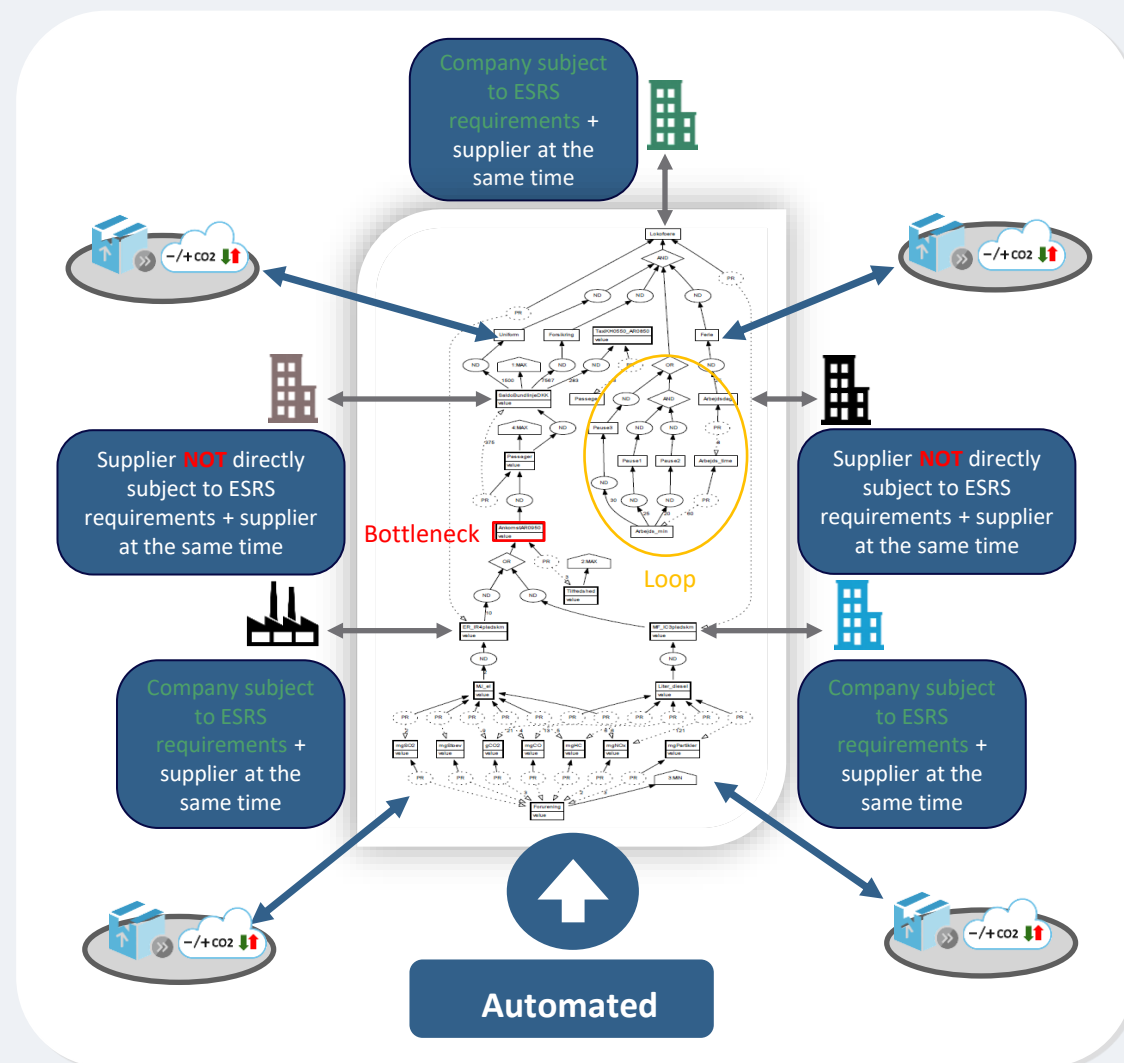
Automated ESRS offers a sophisticated solution that seamlessly enables automated data collection, insightful data interpretation, and comprehensive visualization of insights across the myriad tiers of an organization's value chain.

Intelligently mapping, storing, and sharing critical information, within the confines of legal parameters, bolsters the level of transparency permeating throughout the entire business ecosystem.

By placing your organization within the value-chain matrix, Automated ESRS unifies the enterprise and its broader ecosystem. This matrix becomes instrumental when Automated ESRS undertakes the allocation or adjustment of CO_2 equivalent emissions among the various parties involved.

The matrix is initially translated into a problem statement in line with ESRS disclosure requirements. Subsequently, this problem statement is amalgamated with the collected data to delineate the comprehensive outcome.

The matrix adopted in the process of calculating the result undergoes constant iteration. This iterative process continually evolves in tandem with the ESRS disclosure requirements and pertinent information extracted from the data, allowing access to additional context-based, value-adding information.

All transaction data up to 5 years back are considered in relation to each other, as well as in relation to anything already known in the system about any of the value chain links.

The datasets utilized within the Automated ESRS framework are generally so extensive that even the most advanced supercomputers of today would be tasked endlessly with their analysis, if not for the structured matrix setup.

With this matrix serving as its fundamental input, Automated ESRS conducts a visionary analysis of the entire matrix. It effectively identifies any bottlenecks that must be addressed to achieve, at minimum, the ESRS compliance requirements.

Furthermore, Automated ESRS pinpoints negative or positive feedback loops in the value chain. These are situations where a fluctuation in value, due to goods, products, or services moving within the chain and causing changes in CO_2 equivalent emissions, could trigger a series of events that exponentially increase the value. Such insights can be leveraged for further optimization of the value chain.

The Automated ESRS solution maintains a comprehensive repository of information about the entire process. This ensures that all transactions, calculations, and interpretations can be traced back to their original source, facilitating both transparency and accountability.

Value chain downstream

Here you see the emissions you need to inform your value chain links about, so they can integrate it in their Scope 3 emissions.

> If you are sending negative emissions downstream, the recipient is allowed to deduct them and you can possibly request extra payment for ypur products based on the price of equivalent som of carbon credits, although then you may of course not deduct them in your own total as well.

Accounting Period: 2020.5.1-2021.4.30

Scope 3 to this value chain link	Value chain link info, as taken from bank transaction
36.2 tCO2eq 0.000132 tCO2eq/EUR	INTEREST
0.00045 tCO2eq 0.000067 tCO2eq/EUR	RETURNS FROM SUPPLIERS
0.002243 tCO2eq 0.000015 tCO2eq/EUR	INSURANCE PAYOUT
14.06 tCO2eq 0.000057 tCO2eq/EUR	INVESTMENT
0.01 tCO2eq 0.000648 tCO2eq/EUR	Customer B
0.000187 tCO2eq 0.000185 tCO2eq/EUR	Customer A
0.03 tCO2eq 0.000255 tCO2eq/EUR	Customer C

What scope 3 CO2 you need to report to your downstream value chain (anybody you deliver to or who invests in you) is made clear here.

THE VALUE CHAIN RESULT OF AUTOMATED ESRS

The value chain result delivers an overview of all the tier 1 suppliers and tier-1 customers of the company for each of accounting periods, found through the transactions of Company.

A field provides an auto-generated draft email from the company that the employee can edit and send if desirable, just as they can change the email address used to send.

Using bookkeeping data we can map the value chain globally, where a value chain link is outside EU when not using bookkeeping, this will be noted, and the company will need to use whatever data the supply chain link can provide or rely on Automated ESRS Scope 3 estimation – this last option still results in compliance just with less precision. The value chain links within EU now begin onboarding Automated ESRS, in the same way as the company did.

After sending the messages, or if a value chain link has already provided data (due to being part of another value chain using Automated ESRS), the overview is every day updated with information about how many other value chain links are connected to the link in question, and how many of these have provided data. Each time new data is provided, the Scope 3 of the company and all connected value chain links in Automated ESRS can be updated.

To protect all companies involved, this overview does not contain information about the identity of value chain links beyond tier 1/-1, only the number of value chain links in the other tiers (until the EU border is hit) - but it does give a good understanding of the EU value chain's size and complexity.

This overview also allows the company to contact the tier 1/-1 value chain links that have not yet provided good data - or who have sub-tiers who have not provided data - and can as such 'poke' down and up through the value chain to ensure as many as possible provide data before the final deadline.

That some value chain links do never provide - or that the value chain hits the EU border and as such lacks data from there - is not a problem as these will be estimated by Automated ESRS based on the transactions of the entire remaining value chain. And as long as just the major links provide data, this will still be enough for a high data quality rating and as such acceptable for ESRS until 2029 (after which the entire EU value chain must always be mapped).

As such, with a few clicks, a login or export from your bookkeeping system, a few days waiting and perhaps some poking of sluggish tier 1/-1 value chain links, an almost complete Scope 3 for the value chain has been created - and the more often this is done, the easier it will be for all parties.

Below you find suggestions to different mail you send about this to your value chain links, as well as an overview over the value chain links and the information your bank transactions give about them.

Suggestion for email to value chain links - they pay themselves (danish / english):

EMNE: Lovpligtige data til ESRS ønskes fra jer snarest	SUBJECT: Statutory data for ESRS is requested from you shortly
Kære [virksomhedsnavn]	Dear [business name],
Vi bruger ESRS... samt emailen d...	We use ESRS.tools to collect data for our EU statutory ESRS declaration. We therefore ask you to go to esrs.tools and log in with your Business ID as well as the email this letter is sent to.
Analysen af jere...	The analysis of your transactions automatically improves the quality of our Scope 3 analysis and give you a lot of ESRS data at a low price.
Alle data behand...	All data is treated confidentially by the analysis system and cannot be seen by us or ESRS.tools staff.
På forhånd tusin...	Thank you very much in advance.
Med venlig hilsen... [Dit navn] [Firmanavn] E-mail: [Din e-mail] Tlf.: [Dit telefonnur...	Best regards, [Your name] [Company name] E-mail: [Your e-mail] Phone: [Your phone number]

Suggestion for ema...

EMNE: Lovpligtige d...	SUBJECT: Statutory data for ESRS is requested from you shortly
Kære [virksomhedsna...	Dear [business name],
Vi bruger ESRS.tools... CVR samt emailen de...	We use ESRS.tools to collect data for our EU statutory ESRS declaration. We therefore ask you to go to esrs.tools and log in with your Business ID as well as the email this letter is sent to.
Analysen af jeres trans...	The analysis of your transactions automatically improves the quality of our Scope 3 analysis and is free for you - we have paid in advance for you.
Alle data behandles for...	All data is treated confidentially by the analysis system and cannot be seen by us or ESRS.tools staff.
På forhånd tusind tak.	Thank you very much in advance.
Med venlig hilsen, [Dit navn] Test-virksomhed DK1234... E-mail: [Din e-mail] Tlf.: [Dit telefonnummer]	Best regards, [Your name] [Company name] E-mail: [Your e-mail] Phone: [Your phone number]

Premade email drafts in your language and English are ready to be sent to the company's value chain, both upstream and downstream, to request they also use Automated ESRS so the company's scope 3 data can be improved.

Table of value chain links for DK12345678
(those marked with broad blue font are significant for the Scope 3 calculation)

Accounting Period: 2020.5.1-2021.4.30

Scope 3 from this value chain link	Value chain link info, as taken from bank transaction
0.001023 tCO2eq 0.000066 tCO2eq/EUR	Supplier A
0.09 tCO2eq 0.000128 tCO2eq/EUR	Supplier C
0.02 tCO2eq 0.00043 tCO2eq/EUR	INTEREST
0.009473 tCO2eq 0.000013 tCO2eq/EUR	FOOD DELIVERY
1,053.0 tCO2eq **0.06 tCO2eq/EUR** **Important for an improved result!**	**Supplier B**
0.63 tCO2eq 0.000347 tCO2eq/EUR	CONSULTANTS
0.003236 tCO2eq 0.000015 tCO2eq/EUR	BANK FEES
0.54 tCO2eq **0.01 tCO2eq/EUR** **Important for an improved result!**	**ELECTRONICS PURCHASE**
0.01 tCO2eq 0.000069 tCO2eq/EUR	PUBLIC TRANSPORT
0.001023 tCO2eq 0.000066 tCO2eq/EUR	WASTE MANAGEMENT
0.18 tCO2eq 0.000189 tCO2eq/EUR	Supplier D
0.01 tCO2eq 0.000064 tCO2eq/EUR	ELECTRICITY
3.98 tCO2eq	CAR RENTAL COMPANY 1	No reaction yet.

Scope 3 upstream is specified on each supplier – the most telling are marked with **bold** blue and can preferably be given their own run of Automated ESRS.

CO2e/EUR makes each suppliers directly comparable on emissions, whereas a big tCO2eq may just mean you buy a lot from them.

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- Other large companies, including other large non-EU listed companies: financial year 2025, with first sustainability statement published in 2026.
- Listed SMEs, including non-EU listed SMEs: financial year 2026, with first sustainability statements published in 2027. However, listed SMEs may decide to opt out of the reporting requirements for a further two years. The last possible date for a listed SME to start reporting is financial year 2028, with first sustainability statement published in 2029.

In addition, non-EU companies that generate over EUR 150 million per year in the EU and that have in the EU either a branch with a turnover exceeding EUR 40 million or a subsidiary that is a large company or a listed SME will have to report on the sustainability impacts at the group level of that non-EU company as from financial year 2028, with first sustainability statement published in 2029. Separate standards will be adopted specifically for this case.

The Analysis Log provides complete transparency into the way Automated ESRS has collected, read, interpreted and calculated each transaction.

Each log entry contains key data to allow it to be found in net banking or similar account overview, allowing testing that all transactions have been collected. The assumed accounting period is also listed here.

Each entry also contains an overview of what was found in regular and meta data (called "details"), as well as what the bank's categorization system assumes the transaction to be.

The log entry continues with a description of the ESRS and possibly other rules covering the interpretation and calculation of the transactions impact.

Following this is the actual calculation, explained in detail and with reference to the sources used – and with these sources linked just below. In this way the calculation can always be checked.

After the calculation is a list of exactly which entries in the results table that the final calculations have modified.

The transparency and full details allow users to fully understand how Automated ESRS understood and used a transaction, and as well allows users to change the final result they use by removing the modifications

listed for the transaction and instead make their own. Since this is a deviation from the approved method of ESRS reporting that Automated ESRS get approved by EFRAG, each such change should be noted in the published period report.

This information is on Microsoft Azure's servers as well as in the PDFs and require the company's password to decrypt. If you want to show these data to anybody else you can print the PDF files, take a screenshot, share your screen on Teams or similar – in any case our support cannot see this information without your help.

Note that some of these interpretations and calculations may look weird or wrong, such as the system being in doubt whatever a purchase on a gas station is food or fuel and then just takes the emission-wise worst option - this however is fully in compliance with ESRS when better information is lacking, where the calculation is still in compliance as long as the most conservative values are used, cf. ESRS point 89 (1).

In total this allows full EU accountant audit of all Automated ESRS results.

The methods and logic behind the choices of Automated ESRS are explained in the next chapter.

1) ESRS, 31st July 2023, page 14

Transaction of DKK -246,04 at date 2023.08.01 with transfer text "OK Fangel".

(Note that the date above can be off by several days +/- from date shown in net banking interface)

Financial period of validity: 2023.01.01-2023.12.31

Brief result:

Scope 1 emissions: 0,059419 tCO2eq
Energy: 0,234596 MWh
Nuclear Energy percentage: 0%
Renewable Energy percentage: 0%
Cost: 33,03 EUR
Scope 1 emissions/Cost: 0,001799 tCO2eq/EUR

Explanation of interpretation:

From amount: -246,04 (-246,04)
From 'currency': DKK (0,13 EUR)
From 'date': 2023.08.01
From destination:
'text': OK Fangel
From details: OK Fangel

The system interprets this as diesel fuel for medium carfor interpretation.
Without further indications this may also be e.g. food or EV charging bought at a gas station, but according to EFRAG (developer of CSRD/ESRS) when lacking certainty the worst case is to be assumed.
For payments to a fuel company (the bank data do not always tell if it is an EV charging station or similar), the worst case is 100% mineral diesel.

Having the seller also use our system, so we can use the actual seller's data, may significantly reduce this emission result.

According to EFRAG (developer of CSRD/ESRS), both energy and CO2e of vehicles owned or fueled directly by the organization belongs to Scope 1 emissions.

Looking up prices per liter 'Diesel' at source ^2 = 11,18 DKK/liter on 2023/8/1,
liters can be found by dividing the amount with the price above, getting 22,01 liters.
Using source ^ 2 table 'Fuels', the worst case Diesel equals 'Diesel (100% mineral diesel)' of 2,7 kgCO2e / liter,
22,01 liter * 2,7 kgCO2e / liter = 59,41932 kg CO2e = 0,059419 tCO2e.
Using source ^ 2 table 'Fuel properties', 'Diesel (100% mineral diesel)' has 10,66 kWh / liter,
22,01 liter * 10,66 kWh / liter = 234,596279 kWh = 0,234596 MWh.
Cost = 246,04 DKK = 33,03 EUR.

'Diesel (100% mineral diesel)' has no renewable component, so renewable energy is 0 MWh = 0 %.

Source ^1: Drivkraft Danmark, Diesel
Source ^2: Greenhouse gas reporting: conversion factors

The following have been added to the total ESRS result:

0,059419 tCO2eq has been added to E1-6.44a.45a.48a : Gross Scope 1 GHG emissions.
0,234596 MWh has been added to E1-5.37a.38b : Fuel consumption from crude oil and petroleum products.
33,03 EUR has been added to E1-X2a : Known net cost.

Transactions from fuel stations often provide a lot of meta data, but even when they do not the name of the supplier and the date are often enough to make a conservative average estimation that results in ESRS compliance.

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- Other large companies, including other large non-EU listed companies: financial year 2025, with first sustainability statement published in 2026.
- Listed SMEs, including non-EU listed SMEs: financial year 2026, with first sustainability statements published in 2027. However, listed SMEs may decide to opt out of the reporting requirements for a further two years. The last possible date for a listed SME to start reporting is financial year 2028, with first sustainability statement published in 2029.

In addition, non-EU companies that generate over EUR 150 million per year in the EU and that have in the EU either a branch with a turnover exceeding EUR 40 million or a subsidiary that is a large company or a listed SME will have to report on the sustainability impacts at the group level of that non-EU company as from financial year 2028, with first sustainability statement published in 2029. Separate standards will be adopted specifically for this case.

Image source:
Official Q&A on the Adoption of ESRS, 31st July 2023

Many companies are looking to leverage advanced technology to automate some of the forthcoming compliance challenges they face.

Applying intelligent technologies at scale appears to be a promising answer to the struggles companies face today - and yet chances are that they still aren't adequately supporting the organization's needs for insight and automation to ensure ESRS compliance.

Organizations have turned to well-known methodologies and technologies, but often these technologies alone are usually not enough and only delivering half solutions. Either they are automated OR they are compliant. With Automated ESRS companies get access to a solution that is automated AND compliant.

Decision intelligence is originally an engineering discipline that augments data science with theory from social science, decision theory and managerial science.

The basic idea is that decisions are based on our understanding of how actions lead to outcomes. Decision intelligence is a discipline for analyzing this chain of cause and effect, and decision modelling is a visual language for representing these chains.

Reporting (possible also through partners, own BI, etc.)

GENETIX COMPUTING

PDF/CSV email results + online option + data interface (API)

ESRS E1	Auto Auditor

Point solutions

Data Service Directory
- Transaction data
- GHG Protocol
- CVR.dk
- Bookkeeping data
- dst.dk
- And many more...

GDI Context Server

Communication Module	Source Adapters
Context mapping Module & editor (Matrix)	Simulation and Testing
Optimization Module	Language Translation AI – OpenAI or other LLM

Azure Infrastructure Services

Company activity

Activity → **Cost** → **Bank Transaction (PSD2)** →

GDI data engine

Data + **ESRS Calculations** + **Additional value-adding and context-based Information**

Full audit log / analysis log

→ **ESRS** ↔

Data collection for:
- Company compliance
- Company reporting
- Banks and Companies own system
- Rating- and procurement systems eg
- APIs for SMV, Corporates and Banks

EFRAG

The advanced Genetix Decision Intelligence (GDI) technology behind Automated ESRS is based on state-of-the-art decision intelligence software, a proprietary value chain mapping, simulation and optimization software developed by engineers and computer scientists from Danish University of Technology (DTU) and Niels Brock Business School since 2007 in cooperation with major infrastructure companies, experts from IBM and German universities.

The solution leverages and enhances transaction data from ERP systems or bookkeeping systems, interfacing them with GDI through Microsoft Azure™ to simulate extremely complex situations and derive answers from the results – in this case analyzing the likely ESRS-relevant relations between transactions in value chains.

Since GDI does not use machine learning or similar convoluted technologies, every single step and source can be provided for audit – a feature the ESRS law-designing EU entity EFRAG appreciates, since the combination of bank transactions/bookkeeping as data and full transparency reduces greenwashing (willfully or by accident) greatly.

The only downside to using GDI for this purpose, is the high processing cost, which is still however often lower than competing alternatives.

CONNECTING THE DOTS

Highly advanced technology using natural language processing and probability where data is uncertain

- The combination of high quantities of transaction details and bookkeeping data (incl. accounting documents) and GDI's capability of finding order in extreme complexity makes Automated ESRS unique.

- The solution leverages the capabilities of natural language processing (NLP) and text analytics to translate between languages in the data and the texts. Effectively, the role of NLP is only to help GDI (which only understands English) read the data, nothing more.

- Automated ESRS is looking not only at the single transaction itself, but also its relation to other transactions (incl. repeated dates, frequency) providing an overview of the entire value chain and ecosystem allowing each transaction to be related to data in other accounts, as well as the ability to look up data on the internet and in databases. Automated ESRS's ability to understand transactions and relations - and look up data on the internet is the optimal technological solution to support the ESRS requirements.

- This same information-relating feature allows the solution to use probability tracing to key different transactions to each other and quite accurately attribute revenue, energy and emissions through

- the value chain by determining the likelihood of what costs relates to what sales, and what invoices (even with no other determining features than an invoice number) are likely to cover based on the sum, date and involved companies alone.

- The solution works with advanced compositions and calculations of different types of data - depending on the nature of the ESRS requirement - numerical calculations using various external references for verification and validation - to further improve the categorization of the data.

Compliant and easy to audit

- ESG data of high quality (transaction/activity based)

- All calculation models have been developed in close collaboration and dialogue with EFRAG (EU's developer behind the ESRS framework) and the Automated ESRS solution has been pre-loaded with the compliance instructions - both those written, publicly agreed upon and discussed behind the scenes - governing ESG reporting in general and ESRS in particular.

- Auto-generated audit trail on interpretation and all numerical calculations - the Automated ESRS solution stores information about the process, making all transactions/calculations/interpretations traceable to their origins.

NO BLACK BOXES

GENETIX COMPUTING

Despite how far Artificial Intelligence-based technologies have come, most AI platforms are rules-based. They work by relying on the user to limit or filter out criteria and options as a means of managing otherwise-overwhelming data and choices. Too often, AI platforms merely generate statistics or links to research with no context. And in the case of ChatGPT and similar Large Language Models (LLMs) there is actually nothing else than context; the model is just repeating things it has seen before in similar context and acts accordingly.

Genetix Decision Intelligence (GDI) instead recommends concrete actions on tough decisions, that are relevant to each unique situation. This requires guidance, counsel, situational awareness and context, in this ever-changing world of ours. LLM is used only for translation to English, where the risk it can pose is very limited and GDI can watch for its mistakes and ask the user if not trusting the LLM.

A primary challenge in all decision systems is to give everybody involved trust in the data, how it was handled, and how the results have appeared. Without that context, any kind of data is more a distraction than a value-addition – and any algorithm based on such data becomes static, sooner or later failing in a dynamic world.

"Our algorithms are, by and large, black boxes – they're hard to interpret. They're not explainable. The robustness and the safety constraints are not well understood, and that erodes trust. That's the shaky foundation that we need to solidify. So, a lot of theorists and theoretical computer scientists, statisticians, and machine learning researchers are now working on that very problem."

- Dr. Fei-Fei Li
(Director of Stanford University's Institute for Human-Centered Artificial Intelligence)

While using LLMs to interpret whatever a word could have a different meaning, such as "Premium 98" being gasoline with added biofuel, the understanding of how transactions act on each other is GDI's own force, stemming from its original use in optimizing infrastructure.

As such Automated ESRS take transactions and place them in a matrix of NEEDs, PROVIDEs, REQUIREs and ASSETs, bound together through VALUE relations that contain both the economic factor of currency and the environmental factors.

This allows Automated ESRS to not only understand which transactions likely follow each other, and as such reconstruct the flow of emissions through the scope 3 value chain, through several companies, but also allows identification of emission loops where the same emissions might get counted many times; just as an example imagine a steel works producing raw steel, which in turn is made into bolts, which the steel works the use for maintenance – should this then increase the emissions of the steel, and in turn the bolts in an infinite loop? No, these should only be counted once, and Automated ESRS ensure that.

All entities have **REQIREMENTS** for meeting its NEEDs and allowing it ASSETs, and once all NEEDs are met the entity releases its PROVIDEs to the entities.

NEEDs are anything consumed by an entity, be it fuel, raw material, time, wages.

GDI ENTITY

PROVIDEs are anything created or secured by an entity, be it a product from a machine, working time bought with wages.

ASSETs can meet a REQUIRE, but is not consumed by it, but rather it is just not in the availability pool during the timespan the REQUIRE is met. Good examples are people, vehicles, machinery and ongoing contracts.

Normal Optimization

GDI Optimization

Most optimization programs work by finding the most optimal value of a certain scenario, and several different scenarios can then be run and compared – often the combination options run in the thousands or millions, meaning most options are usually not tried (simplified models) because it would literally take hundreds of years.

Instead, such optimizations are usually run by simplifying the factors involved and making 'ideal' scenarios with less noise, giving results quicker but also with much less precision and with the risk of the results simply being wrong when compared to the actual complexity of reality.
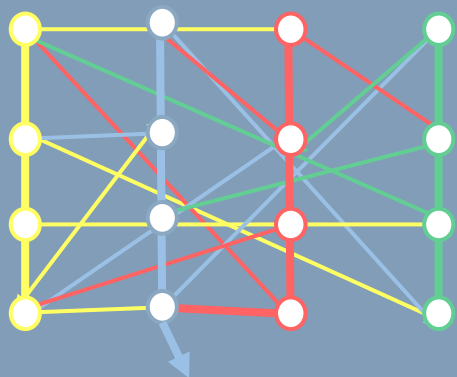
GDI rather incorporates ALL options in parallel in ONE BIG SCENARIO, allowing all possibilities in each scenario to be combined, so more optimal options can be chosen.

This is possible due to the matrix form of GDI data, all sorted into the NEED, PROVIDE, REQUIRE and ASSET categories with known interactions. This allows short-cuts such as bottlenecks and feedback loops to be detected, reducing the computational load (1).

Therefore, in GDI, rather than making a new scenario when a new requirement needs to be added, it is simply added to the matrix as a new option to be compared and mixed with everything else – this enables GDI to reach the right result.

1) Genetix Decision Intelligence Whitepaper, Version 1.1, edition 220421-1

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In addition, non-EU companies that generate over EUR 150 million per year in the EU and that have in the EU either a branch with a turnover exceeding EUR 40 million or a subsidiary that is a large company or a listed SME will have to report on the sustainability impacts at the group level of that non-EU company as from financial year 2028, with first sustainability statement published in 2029. Separate standards will be adopted specifically for this case.

Image source:
Official Q&A on the Adoption of ESRS, 31st July 2023

There are many sources that relevant data for a company's calculation of e.g ESRS E1 (Scope 3) can originate from. The brief overview in this chapter highlights the most frequent and most common data sources but is not exhaustive.

All sources and standards used are based on EFRAG approved recommendations. Where interpretation, assumptions or informed guesses must be done, this is done in accordance with ESRS point 89 and as such within EU legislation.

Automated ESRS has been pre-loaded with the compliance/rules instructions - both those written, publicly agreed upon and discussed behind the scenes - governing ESG reporting in general and ESRS in particular.

Besides bank transactions, Automated ESRS also uses external data sources such as UK government GHG conversion factors (2) (for the appropriate year according to the accounting period), national databases and price data bases (gasoline, electricity etc.) with each linked to under the calculation.

Sources are preferably drawn from open depositories, such as UK government GHG conversion factors, or at least databases widely available to accountants. This makes the entire result auditable within each value chain link involved.

In addition, Automated ESRS leverages OpenAI's language model and utilizes it for a wide range of natural language processing tasks, including text interpretation and generation – to help analyze and understand text inputs, generate responses, and provide information based on the context given to it.

In total this allows Automated ESRS to calculate auditable Scope 3 data, including estimating Scope 3 emissions where data for whole companies are lacking. All with a high data quality as long as more than 80% of the supply chain links provide data. Using data from directly within the supply chain minimizes the risk of greenwashing or cherry-picking and at the same time is far more accurate than using sector or national averages.

1) ESRS, 31st July 2023, page 14

2) Greenhouse gas reporting: conversion factors 2023 - GOV.UK (www.gov.uk)

DECISION TREE BASED ON DATA QUALITY

Transaction/bookkeeping data is of useful quality

YES   NO

Transaction data is recognized

Transaction data is not recognized

The transaction can be categorized based on a conservative probability calculation

The transaction cannot be categorized based on a conservative probability calculation

Transaction is categorized

The transaction will be categorized on a worst-case scenario

The CO_2 emission and energy is calculated based on the specific content and value chain, GHG Protocol databases, GHG Protocol conversion factors or statistics (in that order) (in accordance with ESRS and EFRAG)

The CO_2 emission and energy is calculated based on an average of similar or total transactions, either cost or turnover

The CO_2 emission from the transaction is placed in scope 1, 2 or 3 based on category

EXAMPLES OF CONSERVATISM IN CALCULATIONS

We often get questions about how specific transactions are prudently translated into CO_2 emissions by Automated ESRS, especially where there can be doubts when ESRS point 89 come into use. We have included a few such examples below, more are found in the FAQ chapter.

1) ESRS, 31st July 2023, page 14

Gasoline and food

All transactions from gasoline stations are treated as gasoline - even if the money was spent on e.g. food.

Electricity and natural gas

Consumption of electricity and natural gas look the same in the transaction. Automated ESRS use the highest level of CO_2 emissions of electricity and natural gas in the calculation to stay conservative.

Flights and hotels on the same transaction

Flights often cannot be separated from hotels on transactions. Automated ESRS assumes everything has been spent on flights.

Electric taxis

Driving with electric taxi cannot be identified if the taxi company has not included the information on the transaction data. Here it is assumed that the CO_2 emissions are the same as for an average taxi.

EXAMPLE OF FULL CALCULATION

Question: How do you calculate CO2 emissions from petrol?

The bank has already guessed that this is "Fuel". By searching in the message text etc. our system confirms this by "UNLEADED 95" - we now also know what kind of fuel it is.

The "message" shows the real consumption date (November 6, 2022), as well as two numbers that can both be liters and DKK/litre. The daily price is looked up whereby 17.58 is identified as litres CO2e per liter is looked up in the GHG protocol, and it is all calculated together.

Automated ESRS look up the daily price via Drivkraft Danmark (1) on the date of the transaction, after which it knows the other number must be the amount: 22.9 litres.

CO2e is looked up in (2) under the tab "Fuels" where UNLEADED 95 (which includes E10) is known to correspond to "Petrol (average biofuel blend)" and thus having 2.16 kg CO2e / liter. The 21.9 liters thus gives 49.464 kg CO2e = 0.049464 ton CO2e.

Both CO2 and energy from fuel tanked on the company's cars must be included in the company's Scope 1.

Same source as above under the "Fuel properties" tab gives 9.52 kWh/liter. The 22.9 liters thus give 218.008 kWh = 0.218008 MWh.

1) Drivkraft Danmark, Benzin 95 Oktan

2) Greenhouse gas reporting: conversion factors 2023 - GOV.UK (www.gov.uk)

Log# 1024_120532_DK12345678My_account

Transaction of DKK -278,37 at date 2023.04.21 with transfer text "OK Fangel".
(Note that the date above can be off by several days +/- from date shown in net banking interface)

Financial period of validity: 2023.04.01-2023.06.30

Brief result:

Emissions Scope 1: 0.049464 tCO2e
Energy: 0.218008 MWh
Renewable Energy: 0.00 MWh
Renewable Energy percentage: 0 %
Revenue: -33.25 EUR
Emissions/Cost: -0.001488 tCO2e/EUR

Explanation of interpretation:

From amount: -278,37 (-278.37)
From 'currency': DKK (-37.37 EUR)
From 'date': 4/21/2023 12:00:00 AM
From destination:
'text': OK Fangel
From 'message':
'BLYFRI 95' ('UNLEADED 95')
286,03 (286.03)
'22,9 x 12,49' ('22.9 * 12.49')
'Rabat' = 7,66 ('Discount' = 7.66)
'AT BETALE' = 278,37 ('TO PAY' = 278.37)
'Heraf udgør moms' = 30,62 ('Of this, VAT = 30.62)

The Bank algorithm's suggestion is "Fuel".

The system interprets this as fuel, making it Scope 1.

According to EFRAG (developer of CSRD/ESRS), both energy and CO2e of vehicles owned or fueled directly by the organization belongs to Scope 1.

DKK 286.03 - DKK 7.66 ('Discount') = DKK 278.37, so DKK 286.03 is price without discount.
22.9 * 12.49 = DKK 278.37 (so either 22.9 or 12.49 must be price DKK per liter).
Looking up prices for 'BLYFRI 95' at source ^2 = DKK 12.49 on 2023/4/21,
so 22.9 therefore must be liters.
Using source ^2 table 'Fuels', BLYFRI 95 equals 'Petrol (average biofuel blend)' of 2.16 kgCO2e / liter,
22.9 liter * 2.16 kgCO2e / liter = 49.464 kg CO2e = 0.049464 tCO2e.
Using source ^2 table 'Fuel properties', 'Petrol (average biofuel blend)' has 9.52 kWh / liter,
22.9 liter * 9.52 kWh / liter = 218.008 kWh = 0.218008 MWh.
Price with discount DKK 278.37 - VAT DKK 30.62 = DKK 247.75.
Revenue (if negative amount, of seller so cost) = DKK -308.99 = -33.25 EUR.
'Petrol (average biofuel blend)' has no renewable component, so renewable energy is 0 MWh = 0 %.

Source ^1: Drivkraft Danmark, Benzin 95 Oktan
Source ^2: Greenhouse gas reporting: conversion factors

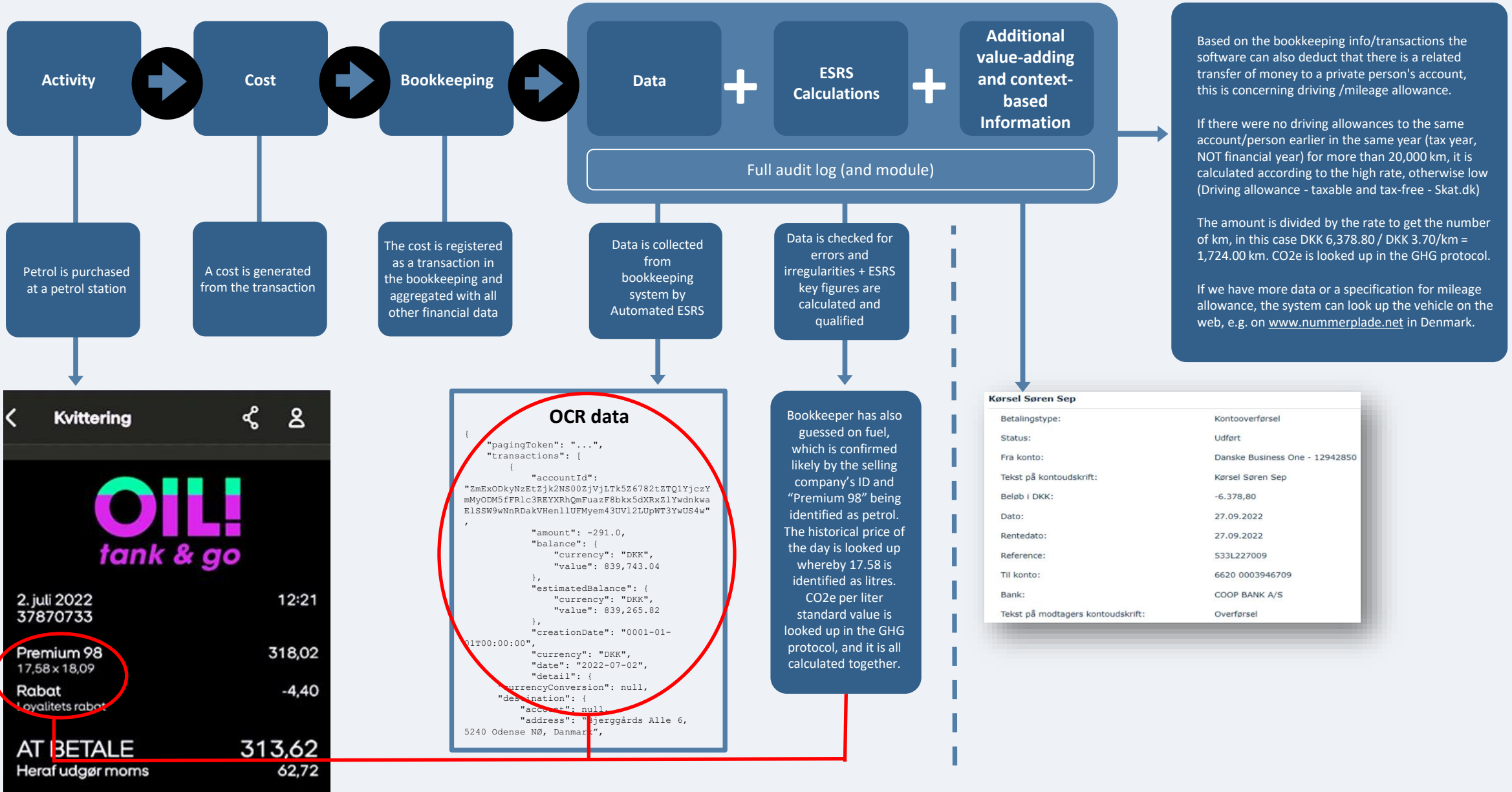The following have been added to the total ESRS result:
0.218008 MWh has been added to E1-5a.ii - Fuel consumption from crude oil and petroleum products.
0.049464 tCO2e has been added to E1-6aa - Gross Scope 1 GHG emissions.
33.25 EUR has been added to E1-6d03 - Known net cost.

Company activity

GDI data engine

Activity → **Cost** → **Bookkeeping** →

Data + **ESRS Calculations** + **Additional value-adding and context-based Information**

Full audit log (and module)

Petrol is purchased at a petrol station

A cost is generated from the transaction

The cost is registered as a transaction in the bookkeeping and aggregated with all other financial data

Data is collected from bookkeeping system by Automated ESRS

Data is checked for errors and irregularities + ESRS key figures are calculated and qualified

Based on the bookkeeping info/transactions the software can also deduct that there is a related transfer of money to a private person's account, this is concerning driving /mileage allowance.

If there were no driving allowances to the same account/person earlier in the same year (tax year, NOT financial year) for more than 20,000 km, it is calculated according to the high rate, otherwise low (Driving allowance - taxable and tax-free - Skat.dk)

The amount is divided by the rate to get the number of km, in this case DKK 6,378.80 / DKK 3.70/km = 1,724.00 km. CO2e is looked up in the GHG protocol.

If we have more data or a specification for mileage allowance, the system can look up the vehicle on the web, e.g. on www.nummerplade.net in Denmark.

Bookkeeper has also guessed on fuel, which is confirmed likely by the selling company's ID and "Premium 98" being identified as petrol. The historical price of the day is looked up whereby 17.58 is identified as litres. CO2e per liter standard value is looked up in the GHG protocol, and it is all calculated together.

Kvittering

OIL! tank & go

2. juli 2022   12:21
37870733

Premium 98   318,02
17,58 x 18,09

Rabat   -4,40
Loyalitets rabat

AT BETALE   313,62
Heraf udgør moms   62,72

OCR data

{
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            "date": "2022-07-02",
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5240 Odense NØ, Danmar ",

Kørsel Søren Sep

Betalingstype:	Kontooverførsel
Status:	Udført
Fra konto:	Danske Business One - 12942850
Tekst på kontoudskrift:	Kørsel Søren Sep
Beløb i DKK:	-6.378,80
Dato:	27.09.2022
Rentedato:	27.09.2022
Reference:	533L227009
Til konto:	6620 0003946709
Bank:	COOP BANK A/S
Tekst på modtagers kontoudskrift:	Overførsel

Automated ESRS operates with a robust self-testing mechanism that persistently compares its results with the totality of data accumulated throughout its operational lifetime. It performs ongoing reality checks to flag results that appear statistically unlikely, such as instances of identical energy payments, or implausible scenarios like refueling beyond the capacity at a gas station. These flagged cases are scrutinized by human experts for validation. However, it's important to note that in this process, significant company data remains encrypted and scrambled, safeguarding confidentiality.

Transactional data varies significantly from one bank to another and even between companies. Automated ESRS, while dynamic, acknowledges its limitations in managing certain scenarios, such as instances where banks provide only minimal character data. In such cases, the system promptly signals the discrepancy to both the user and our support team.

Automated ESRS' interpretation rules, materiality judgments, calculations, and actual results are in a state of constant testing, improvement, and refinement. Moreover, our processes and outcomes are routinely reviewed by EFRAG, ensuring their relevance in light of any changes or debates surrounding ESRS interpretations. This assures that Automated ESRS is always compliant and up-to-date with the latest ESRS requirements.

The quality of transactional data, irrespective of the bank, is best sourced from Betalingsservice (1), a product offered by Mastercard currently only available in Denmark and Norway. We remain hopeful that this service will soon see a wider usage, allowing more accurate and valuable data collection and interpretation.

1) Erhverv (betalingsservice.dk)

Companies will have to start reporting under ESRS according to the following timetable:

- Companies previously subject to the Non-Financial Reporting Directive (NFRD) (large listed companies, large banks and large insurance undertakings – all if they have more than 500 employees), as well as large non-EU listed companies with more than 500 employees: financial year 2024, with first sustainability statement published in 2025.
- Other large companies, including other large non-EU listed companies: financial year 2025, with first sustainability statement published in 2026.
- Listed SMEs, including non-EU listed SMEs: financial year 2026, with first sustainability statements published in 2027. However, listed SMEs may decide to opt out of the reporting requirements for a further two years. The last possible date for a listed SME to start reporting is financial year 2028, with first sustainability statement published in 2029.

In addition, non-EU companies that generate over EUR 150 million per year in the EU and that have in the EU either a branch with a turnover exceeding EUR 40 million or a subsidiary that is a large company or a listed SME will have to report on the sustainability impacts at the group level of that non-EU company as from financial year 2028, with first sustainability statement published in 2029. Separate standards will be adopted specifically for this case.

A. How does Automated ESRS work?

Automated ESRS has a data engine that collects data, interprets them based on smart algorithms and look-ups in GHG data and on the internet, and makes all calculations automatically, so you don't have to input any data nor do the calculations manually.

By letting Automated ESRS do the work for you quickly and securely, you can spend your time translating data into business decisions that immediately create business value.

The calculator uses these steps:

- The data engine uses and collects your financial transaction data retrieved via your ERP/bookkeeping system.

-
  Automated ESRS then checks the data sources for errors and deficiencies and categorizes the data so that they can be used for calculation. The ESRS key figures are calculated, and the source data is deleted immediately.

- The ESRS results are saved in the Microsoft Azure cloud, but behind an encryption. Encryption in this way ensures that others cannot read data, not even supporters or developers at Automated ESRS.

- The results are saved together with information about the data source and calculation for each transaction, so that an auditor can revise the figures afterwards.

- The company and its auditor have access to a log for the ESRS calculations, where they can see how e.g. liters of petrol per purchase is found from advice details, see the prerequisites for the calculation and sources of factors, as well as the sample calculations. You can also see which transactions, e.g. CO2 Scope 1, 2 and 3 are summed up.

- Your company can now use Automated ESRS's calculated ESRS key figures for reporting or sharing with your stake holders.

B. How and what data does Automated ESRS retrieve?

For an Automated ESRS E1 process based on accounting material, you must provide relevant accounting periods and accounts.

Data can be delivered in your preferred format and folder structure, via email or secure Microsoft Azure drive including account statements with dates, amounts, and transaction text. Attachments (invoices, receipts, and payment summaries, including scans and photos with handwriting, are accepted). Our system matches entries and attachments.

The data should also include a posting overview and references (like document numbers) to associated documents. Attachments should correspond with references, possibly using an attachment number or filename.

The transaction data contains a comprehensive set of details which is the foundation of the activity-based calculations. Automated ESRS calculate ESRS data in a "locked data room". The company's transactions and advice are encrypted and locked away and cannot be seen by Automated ESRS' employees.

The data is stored on the servers for calculation purposes and will be deleted upon the customer's request. When support is requested, our employees can only see scrambled data: Full view of the transactions can only be accessed by the company itself.

With Genetix Automated ESRS software, financial data can be combined

to automatically sort into sustainability metrics. Energy or carbon-related transactions can be categorized into ESRS metrics. This automation saves time and reduces reporting errors.

C. How does ESRS.tools ensure high data quality?

Automated ESRS ensures high data quality by using data sources and calculation methods that meet EU legal requirements (ESRS):

- The company's ESRS data is always calculated according to EU legal requirements and the applicable standards. The data becomes comparable over time, which enables you to effectively create and follow up on action plans to improve your sustainability.

- The risk of greenwashing is eliminated, as you avoid errors in manual entries and data cannot be manipulated.

- ESRS data are calculated using the company's bank transactions (activity based), which - unlike data entered by yourself - cannot be entered incorrectly or manipulated. This largely eliminates the risk of greenwashing.

- Automated ESRS also makes it easy for auditors to check the calculations afterwards. Automated ESRS saves a log describing the calculation with precise reference to recognizable transaction data visible on your bank statement. The auditor can therefore check the statement using the log and access to the company's bank transaction data.

D. Which data sources does ESRS.tools use?

Besides the company's transactions, ESRS.tools uses data a long list of sources approved for use with ESRS, ranging from the EU recommend GHG factors for each year (here linked for 2022) to publicly available fuel prices, local power plant and airplane emissions, goods transport emission databases, etc., all recommended under the GHG Protocol.

All sources are listed in the Analysis Log for each transaction and calculation where they are used, making the Automated ESRS result fully auditable for the company (due to the encryption key tied to the company, nobody else can access the analysis data).

E. How do I create business value using Automated ESRS?

By letting Automated ESRS collect and calculate your ESRS data quickly and securely, you can spend your time translating data into business decisions that immediately create business value.

With Automated ESRS you ensure that:

- The company's ESRS data is at all times of high-quality, auditable and comparable over time.

- You can quickly and with peace of mind use data for customer offers, dialogue with investors, etc. or for internal strategy work.

- You have data to calculate CO2 taxes correctly.

- You can easily and efficiently create and follow up on action plans based on Automated ESRS data.

- You no longer have to worry about greenwashing and errors in the statements.

- Your accountant can easily and with high security audit the calculation afterwards. You also significantly reduce the audit price.

F. Which legal requirements and standards are calculations based on?

Automated ESRS's calculator follows the legal requirements set out by EFRAG (CSRD/ESRS). It is continuously updated with new legal requirements.

Automated ESRS helps you ensure that the statement is complete (all data is taken from bank accounts and no transactions are forgotten) and correct.

Automated ESRS is built on a technology that can recognize the content of bank transactions and translate them into CO2 and energy consumption. The precision of Automated ESRS calculation meets the EU's (ESRS) requirements for data quality.

Automated ESRS automatically calculates data with 5 years of history (provided that 5 years of transactions are available from your transaction data).

G. It sounds too good to be true - what's not included?

Automated ESRS can handle all types of CO_2 scope 1, 2 and 3 emissions as well as related energy and revenue.

If there is an area where the calculator does not have sufficient information to be able to categorize the transaction correctly, a conservative assumption or average calculation will be made, so that the CO_2 calculation is cautious, as well as still in compliance with ESRS even if not precise.

If in doubt, Automated ESRS will use the most emitting scenario and note in the Analysis Log that it is unsure.

The following apply, for example:

- Transactions from filling stations count as fuel, if not specifically recognized as something else. This also applies even if you have only bought food or fueled an electric vehicle.

- If consumption of natural gas and electricity cannot be separated, then the highest CO_2 emission of the two is used in the calculation.

- If flight and hotel cannot be separated, then the entire amount is assumed to be used for flight.

- Driving with an electric taxi cannot be identified, if the taxi company does not itself note it in the payment data. In these cases, the CO_2 emissions from an average taxi are used.

H. Security - Who can see my data with Automated ESRS?

Only the holder of the company´s encryption key can see the company's data in Automated ESRS.

Automated ESRS is a locked solution where confidential data is machine reviewed after the company's approval. Therefore, no people outside the company can gain insight into the data. Nor can the Automated ESRS support staff.

Collected transaction/bookkeeping data is deleted as soon as the calculations are done.

Afterwards, only the calculated ESRS data and a log of the analysis are saved. This makes it possible for an auditor to revise the calculation afterwards if he or she has access to the company's bank transactions at the same time.

For troubleshooting and support on Automated ESRS, scrambled data is used, which does only reveal 3 ciphers of numbers and the first letter of words, allowing the user to refer to them and ask questions but supporters will need a screenshot or similar sent by email from the company user to be able to understand the data.

I. How is CO2 calculated for suppliers, customers, etc. (scope 3)?

Automated ESRS can calculate Scope 3 (CO2 from/for the supply chain and customers) using either current data from the suppliers' financial transactions or theoretical estimates, as dictated by the details of the transaction data. Theoretical (but still ESRS compliant) estimates are used for those suppliers who does **not** give Automated ESRS access to their financial transactions, or who are outside the EU toll boundary.

Automated ESRS can follow the value chain all the way from top to bottom (and through the loops, such as from farm over supermarket and back to the farmer's table – without counting any emission or energy use more than once) and obtain data from suppliers, sub-suppliers, etc. In this way, a very precise figure can be made for Scope 3. This requires that the suppliers give Automated ESRS access to calculate on their financial transactions.

If some suppliers do not grant access to their transactions, Automated ESRS uses a classic (but still compliant) calculation based on LCA models (life cycle models) and procurement categories.

It is far more accurate to use financial transactions (activity based) as in Automated ESRS, than LCA models and models based on expenses (spend-cases).

This is due to several factors:

- LCA models and spend-cases are based on average considerations for the given industry and thus do not take into account the actual actions of the actual company. This ignores, for example, different emissions as a result of changing seasons, the specific technology and inputs used by the company and the dynamics of the markets

- LCA models and spend cases can be based on many different best practices and assumptions. As a result, output is not comparable with other companies' calculations - just as output becomes difficult to compare over time if approaches and assumptions change.

With the introduction of ESRS, the requirements for CO2 calculations become more concrete, detailed, and restrictive. The company must be able to document significant impacts for the entire value chain in detail.

Automated ESRS gives the company's value chain (Scope 3) the opportunity for ESRS-compliant calculations and insights for all value chain links (tier-1 to tier-n) - and thus the opportunity to effectively comply with the ESRS legislation as well as prioritize, engage, and drive emission reductions to achieve the company's goals.

J. Is Automated ESRS an AI/LLM solution? No, happily not.?

It's vital for us to set our solution (automated ESRS) apart from AI-driven ESG/ESRS solutions – Automated ESRS is a Context-based solution. Our unique approach is designed on the principles of Decision Intelligence, centered on context within and around data.

We do NOT use OpenAI to directly interpret or calculate on customer data, nor do we use it for finding sources or similar critical tasks – these are all handled solely by our proprietary Genetix Decision Intelligence (GDI).

We only apply the use of large language models (LLMs), primarily OpenAI's GPT-4 (1), to the financial transaction data to translate between different languages and formulate documentation in a less technical manner.

OpenAI, now heavily invested in by Microsoft (2), is never given access to customer data, only abstracted and scrambled general examples or word bits for translation.

In terms of generating reports, GPT-4 can transform raw data into human-readable summaries or detailed reports, helping stakeholders understand the company's ESRS performance.

Our GDI (Genetix Decision Intelligence) technology harnesses the power of human-like cognitive thinking, infusing situational context into data. This addresses the limitations commonly found in current algorithmic techniques, which often face the challenge of their models becoming static leading to incorrect or insufficient results, and current AI which has a problem with 'hallucination' – basically inventing 'facts' based on incorrect understanding of the context (3).

In contrast, Automated ESRS empowers our model with context-based data and examples, ensuring more reliable and consistent outcomes - combined with full transparency and audit trail.

Our Decision Intelligence technology provides a distinct advantage - as it continually performs self-testing loops and raises questions about unusual data inputs or unexpected data behavior/results. This insistence on understanding context makes the automated ESRS solution highly efficient and human-like in its reasoning abilities. This does not mean it never makes mistakes, but that it is aware of them and honest about its doubts. Our language model is continually guided along a streamlined problem-solving path, allowing it to systematically explore multiple outcomes in an organized manner.

Through our commitment to decision intelligence, we've addressed this problem, providing not only valuable insights and outcomes but also transparency and context. Enabling our solution to provide activity-based calculations guaranteeing more accurate, faster, resource-efficient and reliable results in a challenging ESRS compliance environment.

1) GPT-4 (openai.com)

2) Microsoft and OpenAI extend partnership - The Official Microsoft Blog

3) Are AI models doomed to always hallucinate? | TechCrunch

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In addition, non-EU companies that generate over EUR 150 million per year in the EU and that have in the EU either a branch with a turnover exceeding EUR 40 million or a subsidiary that is a large company or a listed SME will have to report on the sustainability impacts at the group level of that non-EU company as from financial year 2028, with first sustainability statement published in 2029. Separate standards will be adopted specifically for this case.
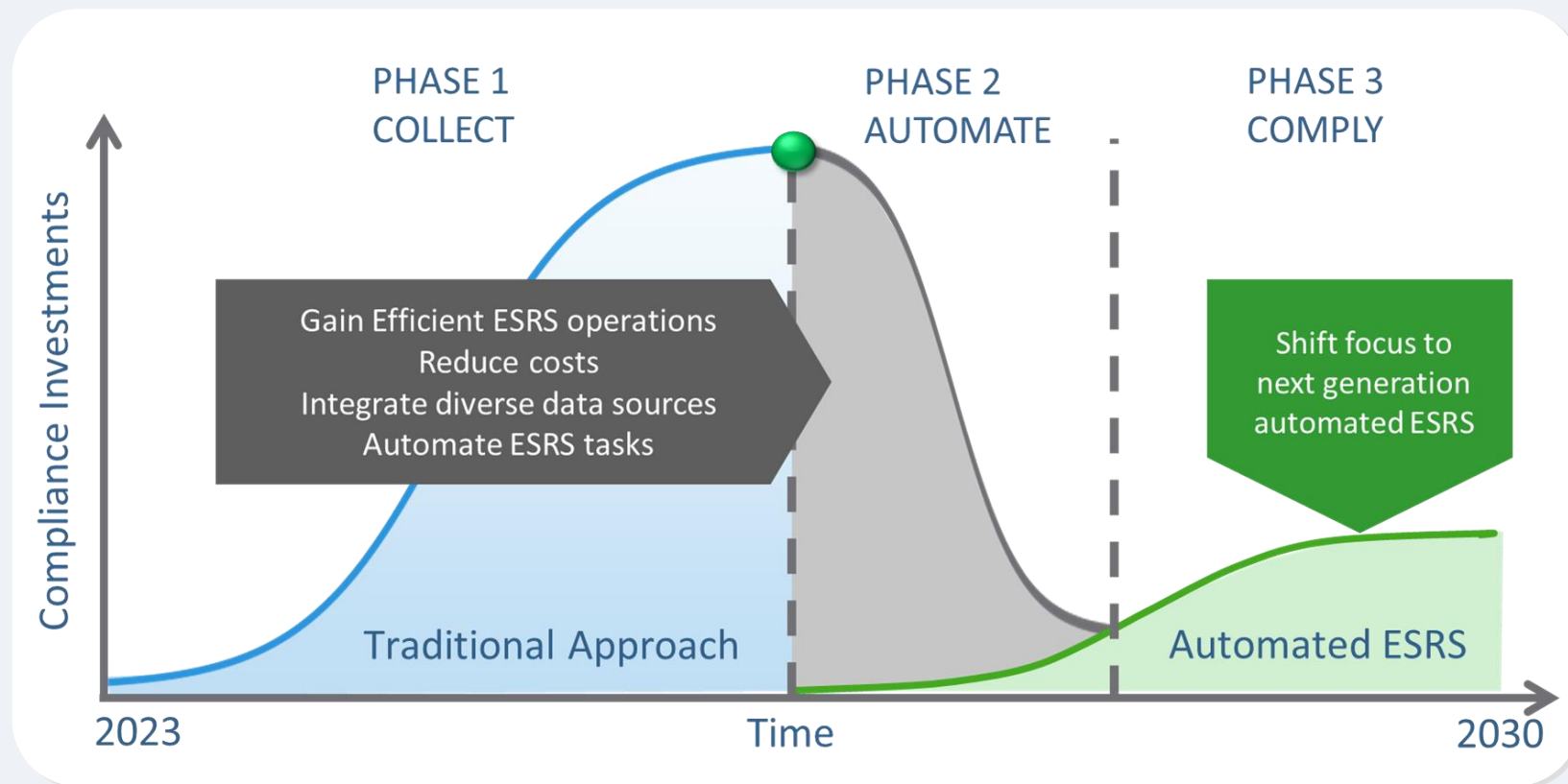
VALUE CREATION BY AUTOMATED ESRS

Automated ESRS is specifically designed to create value for enterprise customers and key partners in the ecosystem. With Automated ESRS, the impact of cost reduction is of considerable magnitude, as we leverage automation to streamline and simplify ESRS processes. This empowers our customers to focus their resources on value-adding activities while ensuring compliance with ESRS regulations and achieving their sustainability goals efficiently.

The traditional manual approach to ESRS operations involves manually gathering, processing, and reporting ESRS data. However, adopting an automated approach to ESRS operations offers significant benefits over the traditional manual approach. Automation enables organizations to gain operational efficiency, reduce costs, integrate diverse data sources, automate tasks, and prepare for the next generation of automated ESRS. By embracing automation, organizations also improve the accuracy and timeliness of their ESRS reporting while freeing up resources to focus on data analysis, strategic decision-making, and driving sustainability improvement efforts.

Furthermore, to ensure compliance with the latest regulatory requirements, the development of Automated ESRS has been closely aligned with the guidelines and standards set forth by EFRAG. This collaborative approach guarantees that the methods employed in Automated ESRS adhere to the CSRD and ESRS requirements. Consequently, this allows auditors to conduct their assessments efficiently and effectively, ensuring the accuracy and integrity of their audit reports.

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POSITION IN THE MARKET

In tandem with the EU's forthcoming ESRS requirements, there has been an increasing rise in focus on vendors in the market for ESG automation software – that helps companies mitigate and document that they have investigated risks of human rights violations as well as negative impacts on the environment and climate at their suppliers.

Automated ESRS is an ESRS automation software solution based on transformational and advanced technology focused on helping organizations deliver a high automation degree of the ESG processes. The purpose is making compliance and business value go hand in hand through automation.

The Automated ESRS solution is a solution that enables organizations to automate key aspects of the ESRS compliance process (60-90%) including data management and disclosures accessed through an interactive, secure self-service experience. This reduces business and compliance risks.

The key difference between Automated ESRS solution to other vendors within ESRS automation is that:

- Optimal user experience - fast, easy and secure

- 100% ESRS compliance

- Lowest possible risk of green-washing and

- Real data from EU suppliers rather than industry-wide-estimates

- Methods, sources and assumptions aligned with EFRAG

This makes Automated ESRS solutions stand-out as the next generation ESRS technology.

With the solution offered by Automated ESRS – companies can look forward to making a significant reduction in the companies' costs for development and administration of data capture and reporting. In this way, companies continue to ensure access to the capital markets and customers in the same way as today.

We bring together intelligent software, application development, and automation to collect, calculate, analyze and report on ESRS data, which in turn enables our customers to meet and exceed all ESRS requirements, and more importantly, tap fully into the opportunities of open banking.
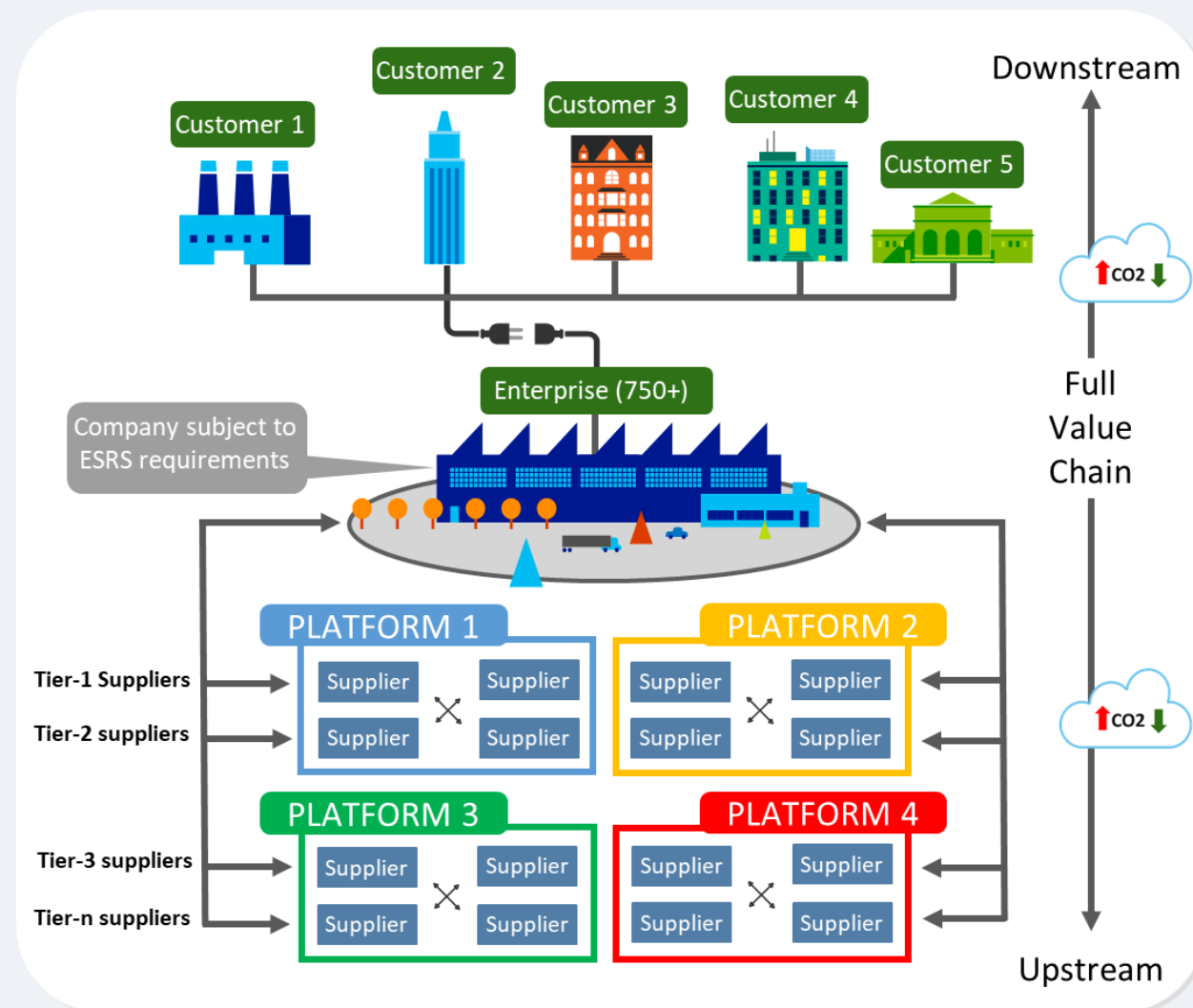
ESG/ESRS DATA SHARING

As the ESRS E1 requirements necessitate data collection from your supply chain, one of the key focus areas should be on optimizing data sharing efficiency. In the evolving ESG solutions landscape for data sharing, the decision lies between two options: Subscribing to multiple networks/platforms to gather comprehensive supply chain data or adopting a single unified solution like Automated ESRS for streamlined and efficient data access and transparency from your supply chain.

Numerous efforts have been made to foster transparency among companies for the purpose of sharing ESG/ESRS data. However, a significant portion of these initiatives has faced many obstacles, and none are without significant risks.

Many of these efforts demand companies to subscribe to exclusive networks/platforms. This not only raises the entry barrier but also often involves significant manual data input efforts as part of their processes, unintentionally creating obstacles to smooth data engagement. As a result, data capture processes are frequently encumbered by constraints, incompleteness, and fragmentation, prompting the creation of inflexible and manual solutions to counter these challenges.

Additionally, the complexity escalates as not all suppliers are interconnected within the same network/platform. This results in the need for companies to subscribe to multiple networks/platforms for effective data sharing, engagement, and collaboration - inhibiting the fluid exchange of ESG/ESRS data.

Companies may find themselves entangled in a web of distinct platforms, each requiring its own set of efforts and resources.

ESG/ESRS DATA SHARING

On the flipside, a single unified solution (Automated ESRS) presents a consolidated approach for transparency and data sharing. By providing a singular point of access for data sharing for your full supply chain (value chain) - this approach streamlines processes. It eliminates the need for juggling multiple subscriptions, simplifying interactions, and promoting a more efficient and unified data-sharing ecosystem/matrix.

Experience the next generation of automated CSRD/ESRS compliance for Scope 1, 2 & 3 emissions. Our solution is deployed and infinitely scalable, offering substantial business benefits for companies both directly and indirectly affected by ESRS regulations.

Simplify your ESRS compliance data retrieval by effortlessly uploading your financial information, just as you would with your accountant during your yearly financial assessment. All outcomes, explanations, data, and references are readily accessible.

With Automated ESRS, companies can adopt smoother collaborations, optimize resource allocation, and enhance the overall efficiency of ESRS data exchange.

It's worth noting ESRS, being a set of statutory and undisputed regulations, simplifies adopting a unified solution compared to ESG in general, mitigating the risk of incompatible methods in your value chain.
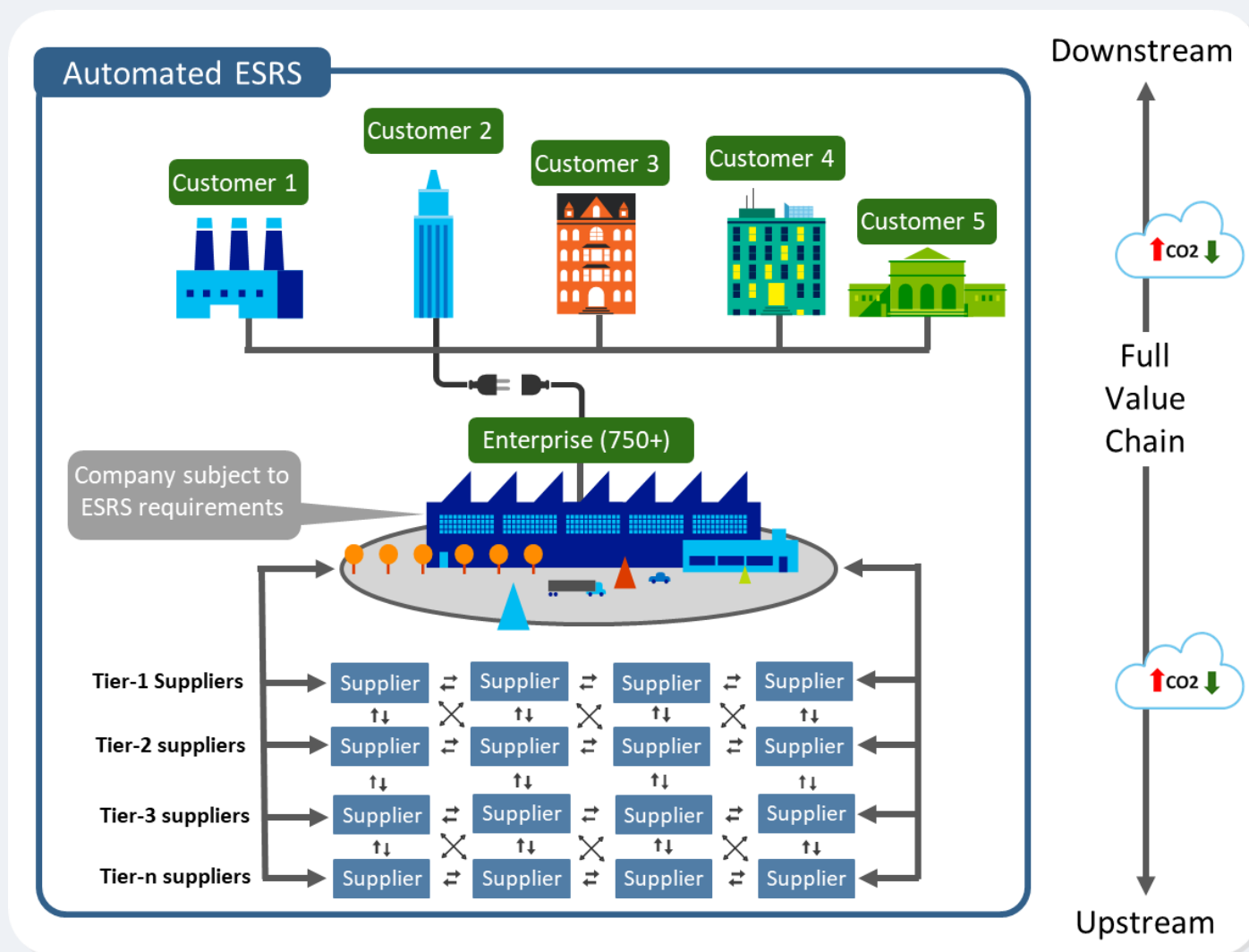
When it comes to ESRS E1 calculations, choosing the appropriate calculation method is pivotal. The two main methods are spend-based calculations (LCA – life cycle analysis) and activity-based calculations giving two different approaches to carbon accounting.

The spend-based method calculates carbon emissions by considering the financial value of a purchased good or service and multiplying it by an industry average emission factor - providing a simplified, generalized perspective.

Spend-case based method leveraging secondary data (averages value)

€ + CO2
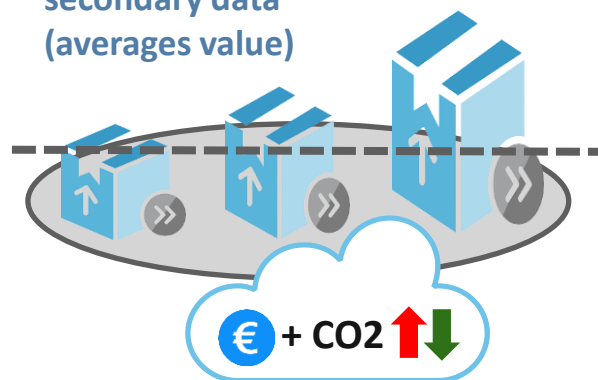
On the other hand, the activity-based method of carbon accounting focuses on collecting specific and detailed data from across a company's entire value chain - offering a much more precise calculation tailored to specific attributes.

Activity-based method leveraging primary data (specific value)

€ + CO2
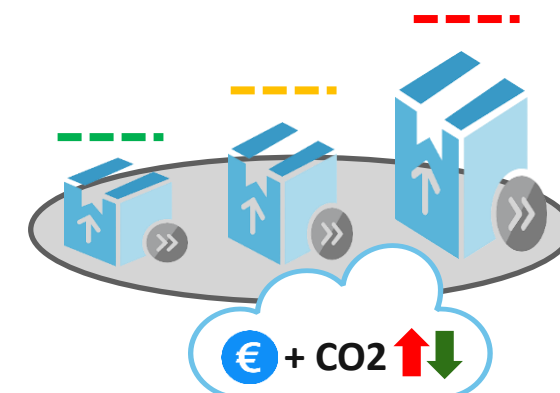
But in between the two there are several other different methods. Before our focus turns to examining the diverse methodologies available for calculating carbon emissions, we need to understand an important concept. When determining which method to use, the GHG Protocol states that preference should be given to methods that are more specific and accurate, particularly for more material purchases.

Consequently, it's crucial to emphasize the importance of elevating data quality within this context. In addition, also embracing the pivotal differentiation between accuracy and specificity, looking on their distinct roles in the context of calculations.

By dissecting these crucial facets, we aim to provide a holistic understanding of the details involved in achieving precise and meaningful ESRS E1 calculations.

ESRS CALCULATION METHODS

Distinguishing Accuracy from Specificity

Understanding the difference between accuracy and specificity is of paramount importance. Specificity addresses how tailored your calculations are to the unique attributes of your operations. More specific data empower you to pinpoint, implement, and monitor emissions reduction strategies that are finely tuned to your operations and supply chain.

On the other hand, enhanced accuracy ensures that your emissions data is error-free and reliable, bolstering your ability to closely monitor the impact of your emissions reduction initiatives. This distinction holds significant implications as you decide which calculation method aligns best with your needs and feasibility.

Degrees of Accuracy

Striking a balance between these factors is crucial for meaningful calculations. Ensuring data accuracy in your calculations is a continuous journey. Over time, you can enhance accuracy through diligent data collection, validation processes, and regular updates. Incorporating feedback loops and refining methodologies based on real-world observations can also contribute to better accuracy in your calculations.

Factor	Activity-based Method	Spend-based Method
Definition	Calculates emissions based on operational activities or processes within an organisation	Calculates emissions based on financial expenditure, such as spending on goods and services
Emission Data Source	Collects data from various sources including third-party suppliers	Relies on industry averages emissions factors from various sources
Complexity	More complex approach due to the need for granular data	Tied to emissions factors of specific databases/networks
Accuracy	More accurate as it directly measures emissions from specific activities	Less accurate as expenditure data may not directly correlate with emissions
Specificity	Providing a highly precise calculation tailored to specific attributes and characteristics	Offers a simplified, generalized perspective that lacks specificity

Scope 3 emissions calculations, the GHG Protocol outlines four different methods (plus Automated ESRS). These methods include:

1. Spend-based method
2. Average data (physical unit) method
3. Hybrid method
4. Supplier-specific method
5. Automated ESRS – a hybrid method of all of the above, always choosing the most ESRS complaint option based on the data available.

1. Spend-based method - a combination of primary activity data on the amount spent on purchased products and secondary emission factors for purchased products per monetary value.

Advantages

• Spend-based emission factors are typically very high level, representing the average emissions per monetary unit spent on products from a certain industry. The majority of companies that have calculated Scope 3 emissions have been using the spend-based method.

• It's popular because the data is relatively easy to source. It also provides calculations that are complete and consistent - though not highly accurate or specific – but you can scale this approach without too much difficulty across your operations and supply chain and begin identifying carbon hotspots.

Disadvantages

• The ability to identify, analyze, and monitor emissions reduction efforts related to purchased products is reduced when the spend-based method is employed. Because the main way to reduce emissions when a spend-based method is used is to reduce spending ("buy less"); an option that is often simply not viable or not aligned with wider business goals – and less emitting options are often more expensive, hampering them in comparison even if they would really solve a problem.

2. Average data (physical unit) method - a combination of primary activity data on the mass or quantity of purchased products and secondary emission factors for purchased products per unit.

Advantages

• The average data method seeks to close some of the gaps in the spend approach. For example, with the spend-based approach, a laptop is just a laptop. It reflects the emissions of the electrical manufacturing industry overall. But the average data method allows us to measure the difference between a MacBook and a Chromebook, for example.

• This is particularly important when you want to account for more sustainable options. If you buy a laptop that has been refurbished with secondhand parts instead of a brand-new laptop, of course the associated emissions should be lower. Spend-based wouldn't reflect this, but the average data method would because it calculates emissions at a product level.

• Emissions factors are also more accurate with physical units because we can use data from lifecycle assessment studies. With these more accurate inputs, you get more accurate outputs.

Disadvantages

• The issue with the average data method is that many companies don't store information on the physical quantity of the goods that they buy. This means there often needs to be an overhaul in the way they track this information before they can even get started with this approach.

• While this approach allows for more accurate emission factors, it doesn't really matter if the company can only tell you they purchased 1000 metal rods, for example. If you don't know what those rods are made of, you get none of the benefits in accuracy. This is one downside compared to the spend-based approach: The majority of companies don't have the descriptive information available to scale this methodology across their operations.

3. Hybrid method - a combination of supplier-specific activity and emissions data and secondary data to fill gaps.

Advantages

• This approach goes a step further than the previous two and incorporates emissions data from suppliers and allocates it to their products. This is typically limited to their Scope 1 and 2 emissions data at this stage because they're the easiest to calculate and collect from external bodies.

• The main advantage of the hybrid approach is that it is generally very specific although not necessarily more accurate. By incorporating primary data from your suppliers, you can see results that are more reflective of your real carbon footprint than other methods. The hybrid approach is most useful when the supplier produces only one or very few products that are all quite similar, or where the intention for using the emission factor is to replace a generalized spend-based emission factor.

Disadvantages

• The downside of this approach is that it can result in misleading, inaccurate results. For example, let's say a company produces two equally weighted plastic products, one made with 100% recycled granulate and one with 100% virgin granulate. We have this company's Scope 1 and 2 data so we allocate that to all of their products.

The company sells two times as much recycled product than virgin product, so 66% of the company's total emissions are allocated to the recycled product. The resulting "hybrid method" emission factor shows that the recycled product is two times worse performing than the virgin product.

Logically, this is nonsense: the recycled product should have significantly lower emissions than the virgin product, based on the embodied emissions of the raw materials. But the hybrid method can obscure this fact.

4. Supplier-specific method - a combination of primary activity data on the mass or quantity of purchased products from specific suppliers and primary product and supplier-specific emission factors per unit.

Advantages

• The supplier-specific method is highly accurate and obviously highly specific to a company's supply chain. It is the pinnacle of the calculation hierarchy and is only used by the most advanced companies in this space, and very rarely possible for the full value chain.

Disadvantages

• While there are companies capable of doing the supplier-specific method, there aren't many at this stage yet. This is largely because you don't just collect data points from your suppliers, you also need to do product foot printing, again and again as products change - which consultants charge a lot of money to do. This creates a high barrier to entry for most companies and makes this approach very hard to scale in the short term.

5. Automated ESRS - a hybrid approach that draws utility from all the various calculation methods above.

This comprehensive methodology leverages the strengths of spend-based, average data, hybrid, and supplier-specific methods, ensuring the necessary specificity and accuracy need for compliance. This approach embodies our commitment to precise, tailored, and forward-thinking ESRS E1 calculations.

Advantages

• Rather than acting from a single method, the available data cross-referenced with the ESRS rules dictate the approach, which is then fully documented in an analysis log with all sources and possible inaccuracies for the evaluation of each posting provided ready for auditing.

• By embracing improved data accuracy, selecting suitable calculation methods, and exploring innovative approaches we can collectively advance ESG/ESRS data transparency.

Disadvantages

• Very hard to create programmatically, and as such very costly to develop and maintain – cannot be done by internal IT department.

• If not developed with great insight in ESRS, it may make serious mistakes – however, if done with transparency such error are quickly found and corrected.

The selection between these approaches' hinges on company specific sustainability ambitions, including the desired accuracy, available resources, and the specific objectives of the ESRS E1 calculation.

From a high-level perspective two methodologies come to the forefront - the utilization of the spend-based (average values), the most prominent, and the application of the activity-based calculations, the most accurate and specific.

When navigating the ESRS compliance landscape and given the complexity of this domain, it could be tempting to implement the less complicated spend-based approach – well aware that it´s only providing a simplified and generalized perspective.

With the ESRS E1 becoming "mandatory", the requirements for CO2 calculations will become more concrete, detailed, and restrictive. Consequently, the choice of method is limited as companies must be able to document significant impacts for the entire value chain in detail.

Supply chain is specifically mentioned 31 times in ESRS and with the requirements its evidently very important to be able to share your data as effortless as possible to optimize your ESRS operation, as well as :

1. General impact and risk assessment -> collect actual supplier data for location, sector, etc.
2. Direct supplier engagement (T1) -> collect data about process, polices and relevant metrics
3. Supply chain mapping -> get a deeper understanding about what, where and how the input for your product or services are sourced
4. If no primary data is available, secondary data input can be used as a last resort but only for a transitional period of 3 years otherwise – supply chain details in the sustainability statement should be feasible and within reasonable effort

ESRS FACT

There are circumstances where the undertaking cannot collect the information about its upstream and downstream value chain as required by paragraph 63 after making reasonable efforts to do so. In these circumstances, the undertaking shall estimate the information to be reported about its upstream and downstream value chain, by using all reasonable and supportable information, such as sector-average data and other proxies.

Source: *https://ec.europa.eu/finance/docs/level-2-measures/csrd-delegated-act-2023-5303-annex-1_en.pdf#page=13*

ESRS E1 became mandatory, as Scope 1, Scope 2 and Scope 3 (where relevant) were added to the information that companies are to disclose about environmental factors in the final text of the CSRD.

Disclosure Requirement E1-1 – Transition plan for climate change mitigation. The company must report on its transition plan to mitigate climate change in accordance with this disclosure requirement. This must include a description of the efforts the company has already made and what it plans to do in the future.

ESRS FACT

If the undertaking concludes that climate change is not material and therefore omits all disclosure requirements in ESRS E1 Climate change, it shall disclose a detailed explanation of the conclusions of its materiality assessment with regard to climate change (see ESRS 2 IRO-2 Disclosure Requirements in ESRS covered by the undertaking's sustainability statement), including a forward-looking analysis of the conditions that could lead the undertaking to conclude that climate change is material in the future. If the undertaking concludes that a topic other than climate change is not material and therefore it omits all the Disclosure Requirements in the corresponding topical ESRS, it may briefly explain the conclusions of its materiality assessment for that topic.

Source: https://ec.europa.eu/finance/docs/level-2-measures/csrd-delegated-act-2023-5303-annex-1_en.pdf#page=7

Over the past 12 months Genetix has developed a solution, called Automated ESRS, which aims to simplify, standardize, automate and report on upcoming EU CSRD/ESRS E1 compliance requirements in a high (financial) data quality, which requires traceable and auditable data. The solution automates the retrieval of data and structures the reporting. Out-of-the-box, the solution provides the fundamental components required to support compliance regulations and data security.

We have started with E1 (Climate Change) which, among other things, contributes to the automation of the company's scope 1, 2 and 3, which contains great value creation here and now for most companies, which is available today.

Over the course of 2023 additional modules will be added to complete the entire ESRS requirements – but with a stringent focus on data.

ESRS compliance is an ongoing journey, not a one-time project or initiative, and consequently organizations need to prioritize ESRS as a core aspect of their strategy and integrate it as a core component of their business operation – to be better positioned to thrive in an increasingly complex ESRS compliance space.

The Automated ESRS solution has been developed for creating an ESRS data baseline through an automated data collection process and calculation method (EFRAG), as we strongly believe (as stated previously) everything starts with data - with the ESRS data baseline in hand, organizations have a qualified starting point to ensure compliance with the ESRS regulatory requirements.

To ensure that the ESRS sustainability efforts remain effective, it requires regular updates and disclosures. By following this process with a focus on operation and planning, organizations can identify relevant sustainability indicators, set ambitious goals and targets, develop a comprehensive action plan, implement the plan effectively, monitor and evaluate performance, and continuously improve their sustainability performance over time and report in a transparent and accurate manner.

All this happens on Microsoft Azure™ servers within the EU, ensuring GDPR compliance where relevant.

With all this it is now clear that Genetix can significantly help companies automate their ESRS data and reporting, saving significant resources and money, while at the same time strengthening the company's competitiveness and reducing risks.