

How methodological harmonisation will lead to organised data flows in food sustainability

CSRD and related sustainability initiatives

AgGateway Europe meeting, Berlin, March 14th, 2025, Daoud Urdu



Agenda



General WSER framework

Multi-actor Approach for Digital
Innovation

The 4-Step Sustainability Blueprint



Sustainability landscape

Public: CSRD, PEF, SBTI, etc.
Private: Ecolabeling, TSC, etc.
Data4Food2030 case study
THESIS



Data landscape

Hestia
OpenLCA
Data Standards

Wageningen University & Research

- Academic research & education, and applied research
- 5,800 employees (5,100 fte)
- >10,000 students (>125 countries)
- > 30 locations in NL, also global satellites
- Turnover about € 650 million

*To explore the potential of nature
to improve the quality of life*



14x



#1 Agricultural Sciences

Wageningen Social & Economic Research (WSER)

- Support in navigating social and economic trade-offs to drive transitions in agrifood.
- Data and economic models to assess and design scenarios for informed-decision making.
- Themes such as, *food system transition, impact valuation of nature-based solutions, transparency on sustainable and inclusive value chains, and healthy food and lifestyles*
- 7 groups, including Sustainable Value Chains and Data Science & Innovation

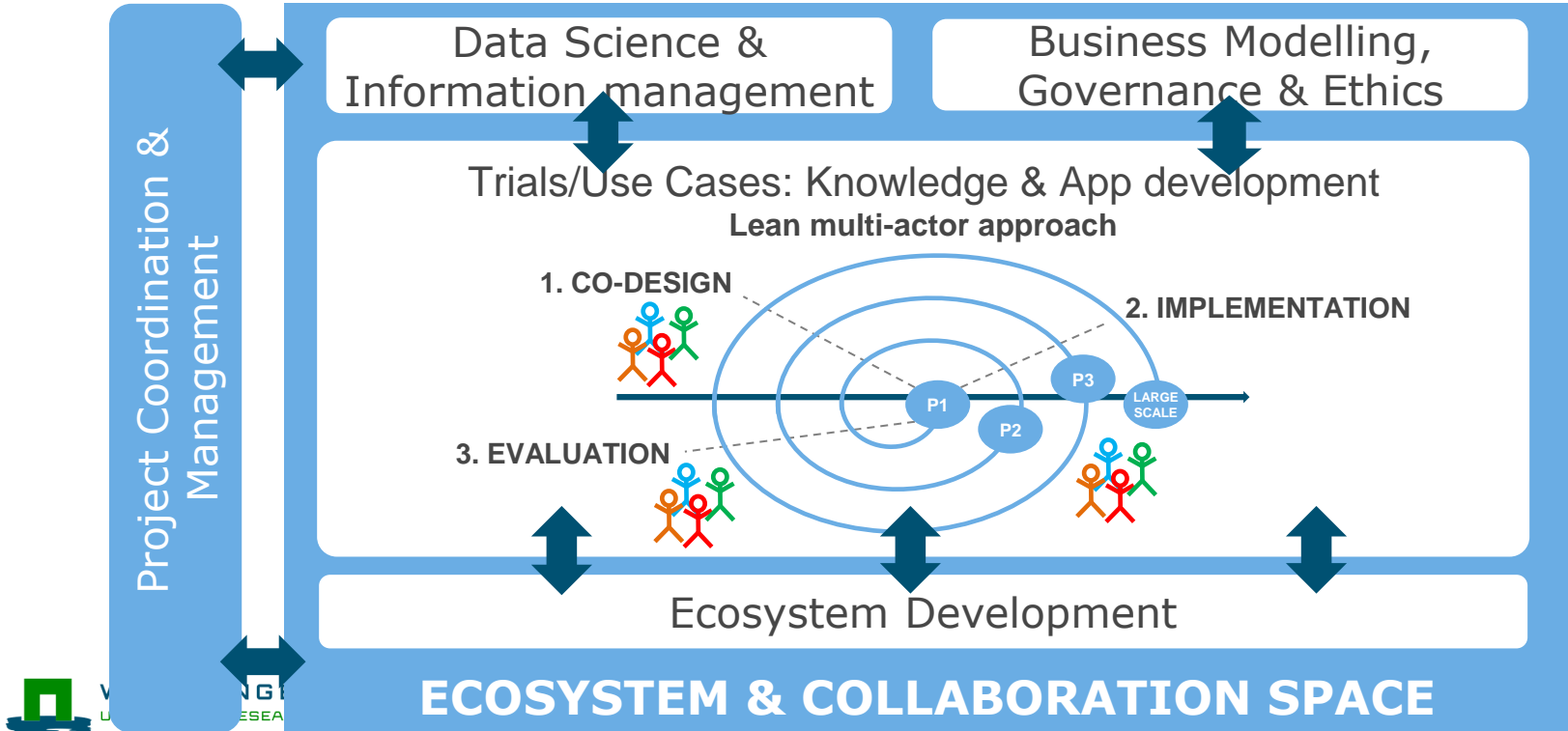
Take home message: A harmonized approach for sustainability data sharing requires multidisciplinary collaboration

- Sustainability assessment methods require harmonization and standardization as much as data requires
- Regulatory developments can shift industries' priorities
- Reuse of existing data standards can aid in addressing specific cases in the agri-food chain

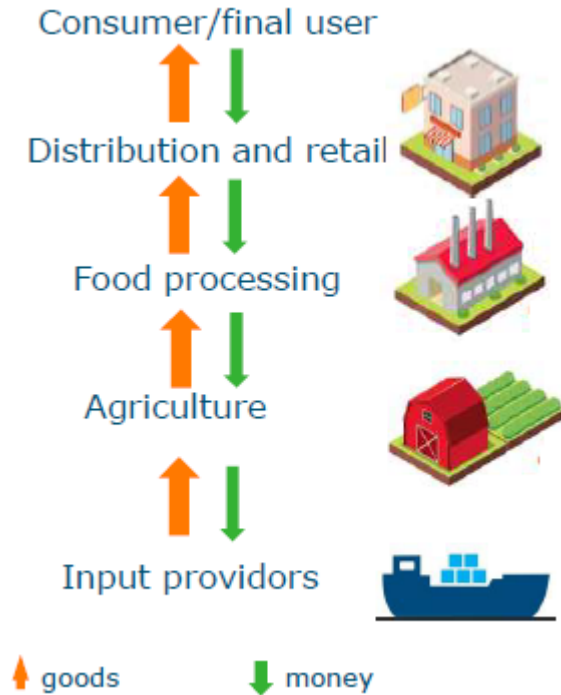


General Wageningen Social and Economic Research framework

Multidisciplinary, collaborative, agile approach for Digital Transformation



Generic sustainability framework



Methods



Data



Communication



Incentives



Sustainability landscape

Public: CSRD, PEF, SBTI, etc.

Private: Ecolabeling, TSC, etc.

- Data4Food2030 case study THESIS

A "**regulation**" is a binding legislative act. It must be applied in its entirety across the EU

A "**directive**" is a legislative act that sets out a goal that EU countries must achieve. It is up to the individual countries to develop their own laws on how to reach these goals

Corporate Sustainability Reporting Directive (CSRD)

- EU **mandatory** sustainability reporting according to European Sustainability Reporting Standards (ESRS).

Green Claims Directive

- Directive on the provision of product environmental footprint (PEF) information to consumers

Regulation on Deforestation Free Products (EUDR)

- Deforestation-free palm oil, cattle, soy, coffee, cocoa, timber, rubber (also derived products such as beef, furniture, or chocolate)

Corporate Sustainability Due Diligence Directive (CSDDD)

- EU **mandatory** reporting on corporate sustainability due diligence in supply chain (manage and mitigate environmental and human risks impacts)

Sustainable Finance Disclosure Regulation (SFDR)

- Setting out how financial market participants have to **mandatory** disclose sustainability information

CSRD content (1/2)

- **Double materiality**
 - How business activities affect the environment and society
 - How sustainability issues impact the company's financial health
- **3 layers:** General (2023), sector specific, entity specific
 - **Sector specific** guidelines expected to follow by 2026
- **3 reporting areas:** strategy on reporting, implementation reporting, and performance measurement
- **Assurance** - external assurance reported sustainability information
- **EU Taxonomy** - reported sustainability information integrated with the EU Taxonomy, defining environmentally sustainable economic activities
- Report or explain
- Sector specific guidelines will follow (Agri-food, retail)

CSRD content (2/2)

- **3 topics how to report** - European Sustainability Reporting Standards (ESRS):
 - **Environmental:**
 - Climate change (refers to GHG Protocol and PEF), disclosure of:
 - Pollution
 - Water (fresh water and marine resources)
 - Biodiversity
 - Resources & circular economy (refers to PEF)
 - **Social:** working conditions, human rights impacts, social and community engagement
 - **Governance:** business ethics, anti-corruption, board diversity and structure, and risk management

ISO Standards in development for Social LCA

CSRD Timeline: new updates (03-2025)



SUSTAINABLE BUSINESS

Europe Waters Down Flagship Climate Accounting Policy

The European Commission diluted the regulatory measures after receiving backlash from companies and member countries that say the new rules hurt competitiveness and raised costs for businesses

By *Yusuf Khan*

Feb. 26, 2025 11:24 am ET | WSJ PRO

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■ (Original) Timeline

- **2024:** > 500 employees, >20 million assets, >40 million Sales
- **2025:** >250 employees
- **2026:** SME's on stock exchange
- **2028:** Non-EU companies; 150 million sales in EU

■ Approximately 50.000 companies in the EU

CSRD Omnibus developments

Some changes:

- Sector specific guidelines are scrapped
- Number of companies covered from 50k to 7k

Omnibus Changes to European Sustainability Reporting			D. A. Carlin & Company
	Element	Prior Requirement	Omnibus Revision
CSRD/ESRS	CSRD Firm Size	Companies with 250+ employees and EUR 50m turnover	Only companies with >1,000 employees and either EUR 50m turnover or EUR 25m balance sheet total remain in scope.
	CSRD Number of Companies Covered	>50,000	<7,000
	CSRD Third-Country Undertaking Threshold	EUR 150m turnover	Raised to EUR 450m turnover
	CSRD Value Chain Reporting	Companies required to obtain data from all suppliers where feasible and reasonable	Not required to obtain data from non-CSRD companies. Limitations placed on data requests for SMEs connected to the voluntary SME reporting standard.
	CSRD Assurance	Limited assurance required, with plans to transition to reasonable assurance	Remains limited assurance; reasonable assurance requirement removed
	CSRD Reporting Deadlines	Set deadlines for first disclosures and audits	Delays of up to two years for wave 2 and 3 companies
	Double Materiality	Required (both financial and impact materiality)	Retained in the Omnibus
	ESRS Sector-Specific Standards	Mandatory sector-specific reporting standards to be introduced	Scrapped

CSRD related standards

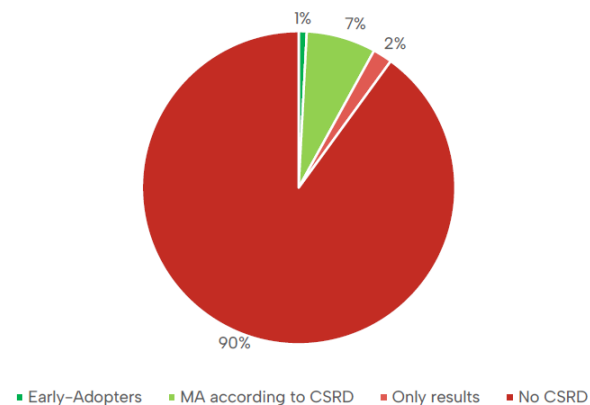
- International Sustainability Standards Board (ISSB), European Sustainability Reporting Standards (ESRS) are bodies that established the CSRD and International Financial Reporting Standard (IFRS) is a standard
- Interoperability Guidance, published by the European Financial Reporting Advisory Group (EFRAG)
 - Alignment on definitions
 - Common terminology
 - Climate-related disclosures

CSRD Early Adopter insights (Müller & Valkyser, 2024)

- The CSRD Adoption in the STOXX 600 FY 2023 on their materiality analysis
 - Only 8% have shared a detailed CSRD materiality assessment
 - Climate and Workforce are material for all companies
 - Cybersecurity is mentioned often as an entity-specific topic
 - Only 4% makes use of quantitative data
 - Less use of internal data (in contrast to what is suggested by the ESRS)

CSRD Early Adoption in STOXX

Early Adopter Categories STOXX Europe 600 FY2023



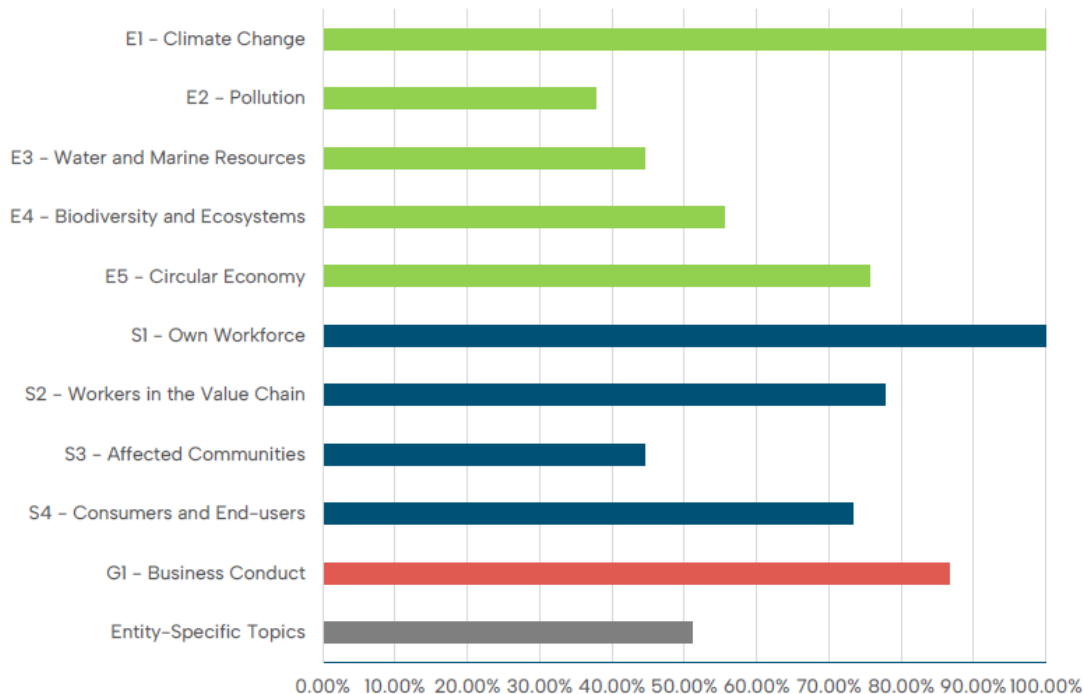
UNIVERSITY
OF COLOGNE

Prof. Dr. Maximilian Müller & Nina Valkyser

Topics:

Materiality of topical standards

Materiality of topical ESRS, n = 45*



- A **standard** is classified as **material** if **at least one sub- or sub-sub topic is identified as material**.
- **7 topical standards are material (in part), on average**
- **E1 Climate Change** and **S1 Own Workforce** are material for all firms, **G1 Business Conduct** for most of the firms
- Some of the **other E** (e.g., Pollution, Water) and **S** standards (e.g., Affected Communities) are of **more limited relevance**
- **More than half of the firms identify entity-specific topics – Cybersecurity is the most frequent entity-specific topic**
- **Some firms struggle converting their legacy topics to ESRS topics – challenging comparability over time and across firms**

Initiatives to improve market forces on sustainability



TSC THESIS

70 members global
1500 companies reporting as of 2015
(\$1000 billion sales)
WSER leading European Office



Footprinting / Ecolabeling

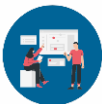
LCA & EU standard: 16 env. Impacts
Communication to consumer / scope 3
French, UK, DK, NL, and >25 retailers in EU



True Price

Social & environmental effects monetized
Communicate True Costs to stakeholders
Basis for reallocation of benefits along value chain
Also applied in gov. policy

Data4Food2030 vision



Explore fair **“Data Sharing”** between agri-food companies



Better understand the critical characteristics of a fair **Data Economy**



Use **9 Case Studies** to demonstrate its potential and feasibility



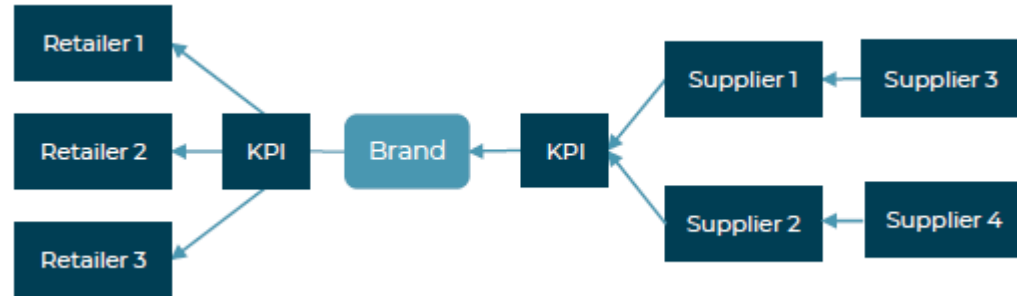
Data4Food2030 Partners

24 Partners
12 Countries



TSC's Sustainability Insight System (THEISIS)

- TSC's strategic objectives
 - Advance science
 - Enhance decision-making
 - Support positive impact
- Globally harmonized indicators for 115 consumer product categories
- Currently piloting on areas to integrate qualitative data and quantitative data



THESIS™ Current 12 Retail Users

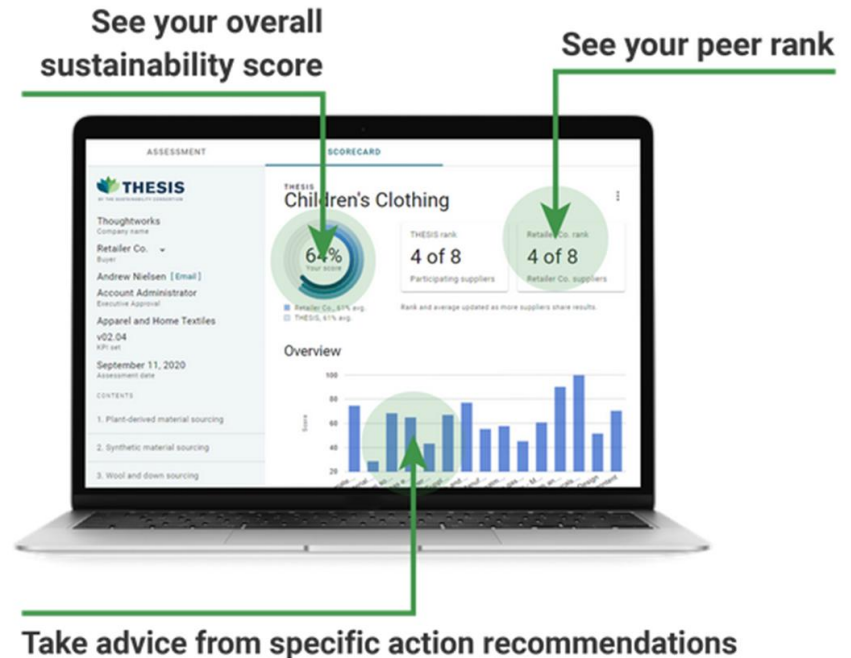


THESIS

- Data marketplace & central platform
- Tool for sustainability reporting
- Value of sustainability product data
- Environmental and social sustainability KPI
- Technical difficulties, low incentives, high workloads.
- Reporting burdens, low follow-ups

THESIS – Science-based Sustainability Assessment

- For suppliers and retailers to benchmark, quantify and act on sustainability issues for global supply chains
- +1500 suppliers responding to nearly 3000 product category assessments submitted across the years



Increased demand for sustainability impacts of food

- Product Environmental Footprint (PEF) is not obligatory
- Science Based Targets Initiative (SBTI) requires to provide information on *how* a certain sustainability goal is going to be achieved
 - Voluntarily
- Green Claims Directive in development, harmonized communication towards the consumer
- Ecolabels

Footprinting: Life Cycle Assessment

- Environmental impacts of products or services during their entire life cycle.
- A robust method, however, due to the lack of data availability incomparable assessments across different organizations.
 - For example, CO₂ storage in soils
- Challenges in scaling, due to limited data and lack of a harmonized methodology across organizations.

Agenda



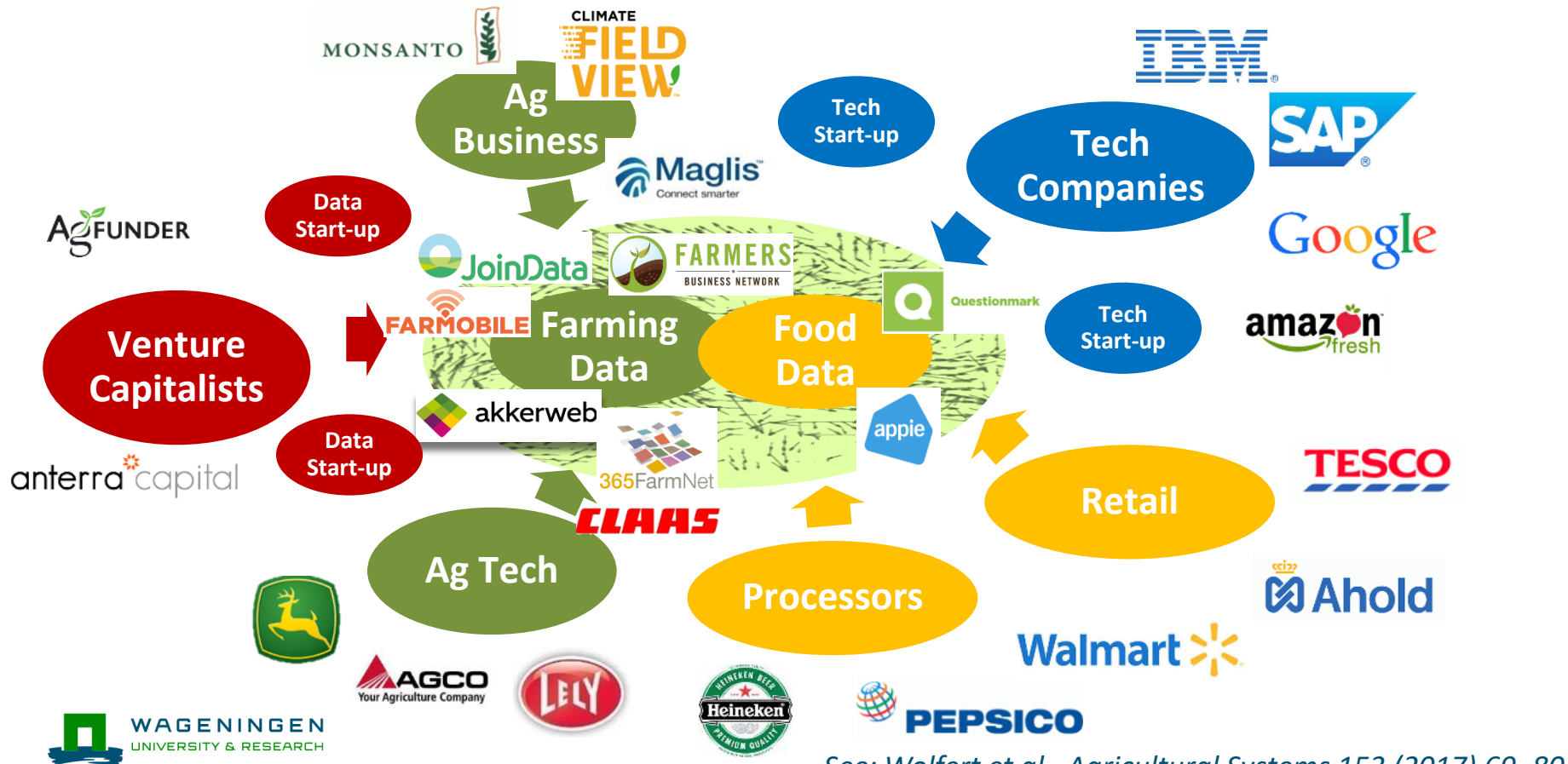
Data landscape

CEADS

Standards (Hestia, OpenLCA)

Ecolabels data

The Battlefield of Data for Farming and Food



See: Wolfert et al., *Agricultural Systems* 153 (2017) 69–80

CEADS: Common European Agricultural Dataspace

- Deploying and operating the Common European Agricultural Data Space
- A lean multi-actor approach with 8 Use cases on data sharing
 - Use case “Farm-level sustainability with agri-environmental and accountancy data”
- Work packages on Technical Infrastructure, Data Space Ecosystem Development, Governance, Business Modeling, ELSA

HESTIA

- “Improvement of environmental sustainability of the agricultural system”
- Addressing the challenges of data availability, accessibility, comparability, and disambiguates on the term “sustainable agriculture” on products or production for both farms and food producers.
- Achieving their mission by providing, a harmonized format for agri-environmental data and open data on production practices and environmental impact of food
- Mission to provide harmonized data and scientific models for agri-environmental data
- Open data and models on practices and environmental impact of food

Data standards matrix in Data4Food2030

	Agri-food	Non agri-food
Generic	AGROVOC	Resource Description Framework Asset Administrative Shell
	Saref4Agri Reference Model Agro	Asset Description Metadata Schema Friends Of A Friend
	AgroRDF Agricultural Information Model	Graph Query Language Item Relationship Service
	AgroXML Agricultural Data Application Programming Toolkit	International Standardisation Organisation Semantic Sensory Network Ontology
	Infrastructure for Spatial Information in Europe	Linked Data Event Streams
Specific	ISOBUS	Mozilla WebThings Electronic Product Code Information Services
	Farm Oriented Open Data in Europe	Smart Data Models E-Delivery
	E-Crop Hestia FoodOn	Observations & Measurements SensorML
	Partnership for Carbon Transparency	SensorThings Common Objects in Context
	OpenLCA	Open Neural Network Exchange OpenID

Ecolabels data & tools providers

Eco-Score	Planet-Score	EnviroScore	Eco Impact	Coop Sweden Sustainability Declaration	Made Green in Italy	French initiative

beelong.ch

IGD

SUSTAINED ●●

Foodsteps

inoqo

eaternity



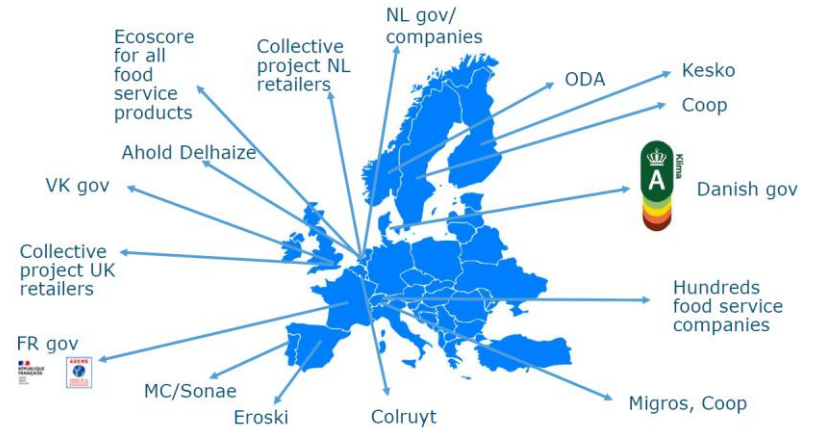
CarbonCloud

M-Check Migros

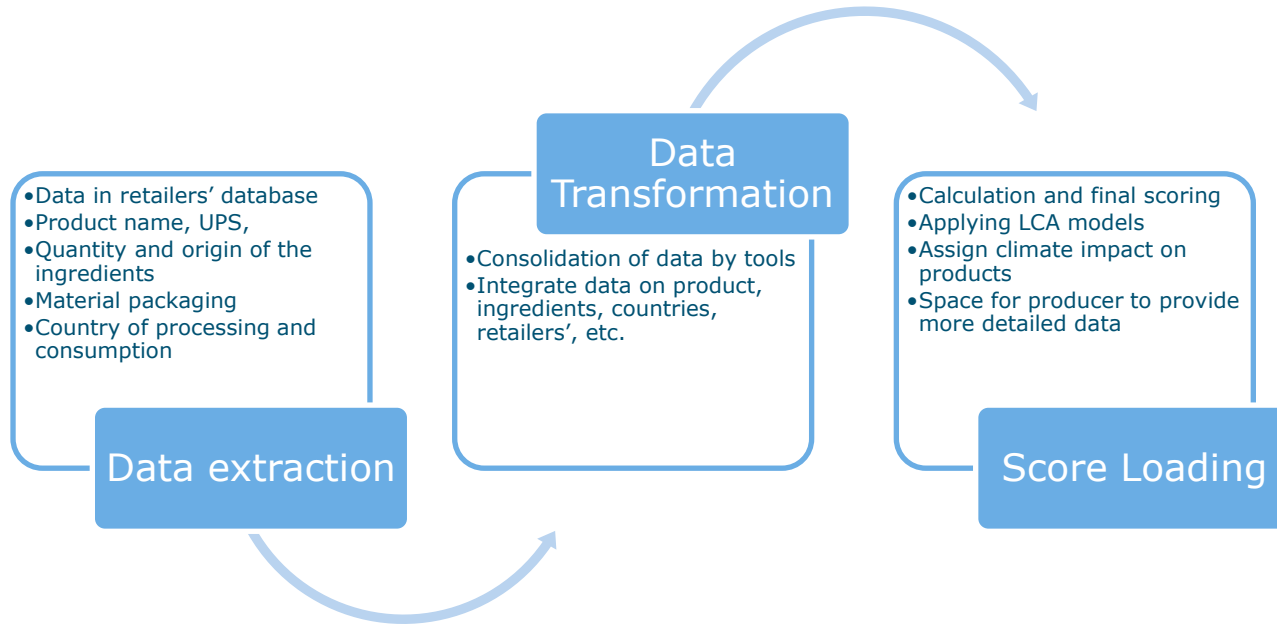
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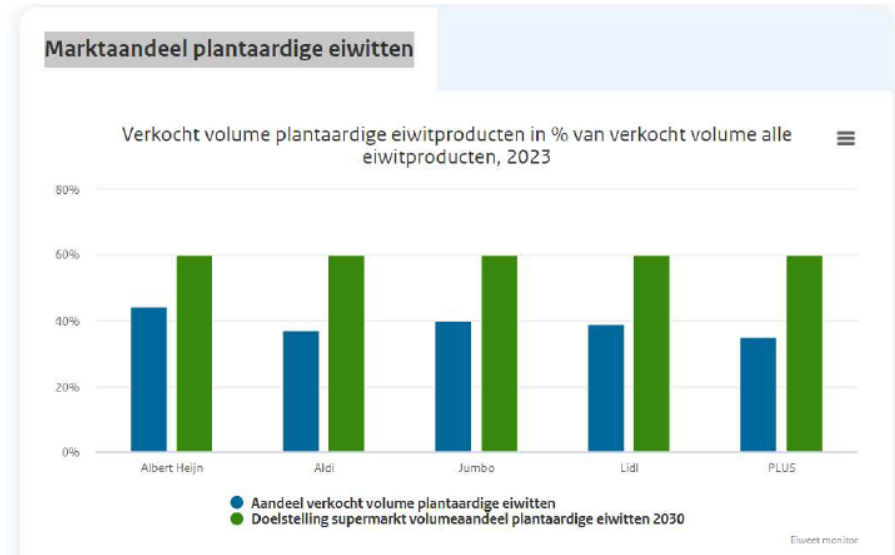


Generic process of Ecolabeling tools
















Harmonized footprinting is first step, not sufficient

- Stakeholders should provide right incentives: e.g. Marketing mix retail
- Monitor progress all supply chain partners
 - Agree about objectives
 - CSRD
 - Dashboard retail
- Farmer2B and farmer2Gov
 - EU Strategic dialogue: Benchmark all EU farms
- B2B, B2R, B2Finance



Sustainability incentives for all food: RFC

(Local) government, landlords, financial sector: pilots

Themes	Indicators	Threshold value (start of bonus)	Bonuses	Top value (maximum bonus)	Total
 ANIMAL HEALTH AND WELFARE	 Longevity (years + months)	€0,00 5 years and 4 months		7 years and 2 months €0,10	€X,XX
	 Calf rearing (KalfOK)	€0,00 70 points		95 points €0,10	€X,XX
 CLIMATE	 Greenhouse gas emission (gram CO ₂ -eq/kg milk)	€0,00 1100 g CO ₂ -eq		775 g CO ₂ -eq €1,50	€X,XX
 BIODIVERSITY	 Nitrogen soil balance (kg N/ha)	€0,00 160 kg/ha		20 kg/ha €0,10	€X,XX
	 Ammonia emission (kg NH ₃ /ha)	€0,00 70 kg/ha		35 kg/ha €0,10	€X,XX
	 Protein from own land (% Of total protein used)	€0,00 45%		80% €0,10	€X,XX
	 Permanent grassland (% Permanent grassland)	€0,00 40%		100% €0,10	€X,XX
	 Nature & Landscape (% total surface)	€0,00 0%		40% €0,10	€X,XX
 GRAZING	 Grazing		Partial grazing €0,40	Full grazing €1,30	€X,XX +
					€X,XX

Takeaways

- Harmonised impact measurement of all food is a gamechanger
- Still many challenges to solve but huge resources available
- Incentives from all stakeholders for more sustainable food
- The adoption of existing data standards can help for specific cases, e.g. LCA
- Reference semantic standards can support in linking different sub-domains

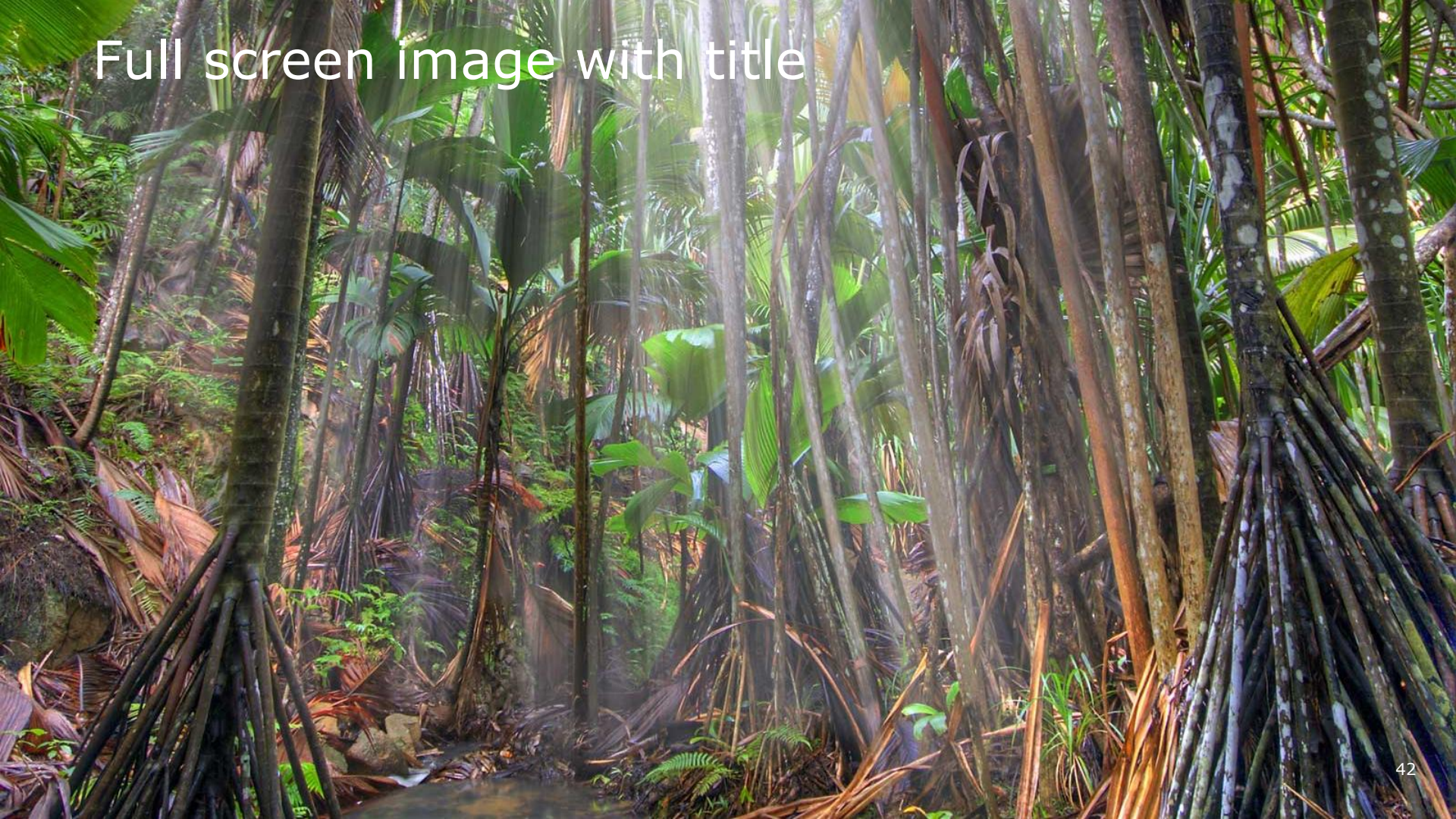
Conclusions - sustainability

- CSRD very extensive and very influential (including supply chain)
- Indicators ready but remaining questions
- Sector specific indicators will follow
- Both forward and backward looking indicators
- Integration with business models/strategy/risk management
- Far more than reporting requirement: management requirement

Conclusions - data

- Agri-Food chains become more technology/data-driven
 - Probably causes major shifts in roles and power relations among different players in agri-food chain networks
- Digital Innovation requires a multi-disciplinary, collaborative, agile approach
 - Governance and Business Models are key issues
 - There is a need for a facilitating open network infrastructure

Full screen image with title



Thank you for your attention

More information? Reach out for further collaboration:

- Koen Boone
- Erin Killeen
- Emil Georgiev
- Roel Helmes
- Daoud Urdu

