

# ESG data for Sustainable Finance and Green Banking

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# ESG Concept

## Sustainable finance paradigm

**Focus:** Sustainability impact of business activities

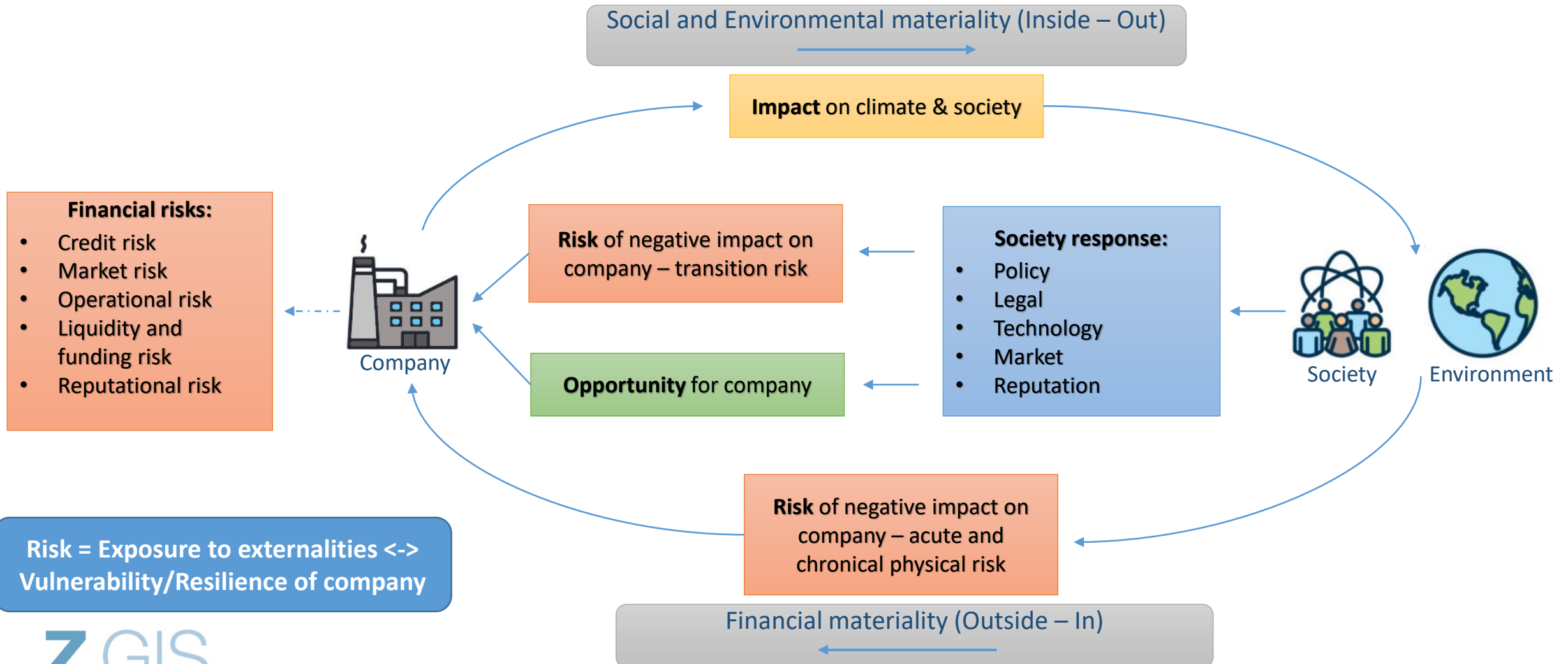
**Belief:** sustainability enhance financial returns through risk reduction and growth opportunities

**Goal:** to identify sustainability issues impacting the materiality (financial performance)

-> issues depends on sectors & industries



# ESG Concept – Double Materiality



# State of Art: ESG ratings

## ESG rating agencies:

- Proprietary ESG framework (cross-industry)
- Data collection:
  - company: disclosure, questionnaires
  - public data sources: reports, articles, statistics
- Tech-based: data scraping & Natural language processing (AI)
- Spatial analysis: models of natural and man-made disasters (partially)
- Diversity of frameworks: scope, measurements (data/methods), weighting

## Problem:

- non-standardized & incomplete/inconsistent data
- under-disclosure (ex. nature-related risks)
- bias (ex. greenwashing of self-disclosure)
- heterogenous frameworks
  - low granularity
  - -> no/ little correlation, no comparability
- -> accuracy & objectivity?

# State of Art: ESG ratings

## Standardization:

- GRI, SASB, TCFD, ... -> disclosure & sustainability accounting
- EU Taxonomy / SFDR

Discrepancy: Quality of existing ESG ratings <-> actual need of the industry

## Request (for risk management):

- Higher granularity & resolution (space & time)
  - -> asset assessment
- More objectivity -> based on hard facts (quantifiable measures)
- standardization & transparency

-> Higher demand for data and standardization

# New approach

Geospatial approach based on a further developed 'spatial finance' concept

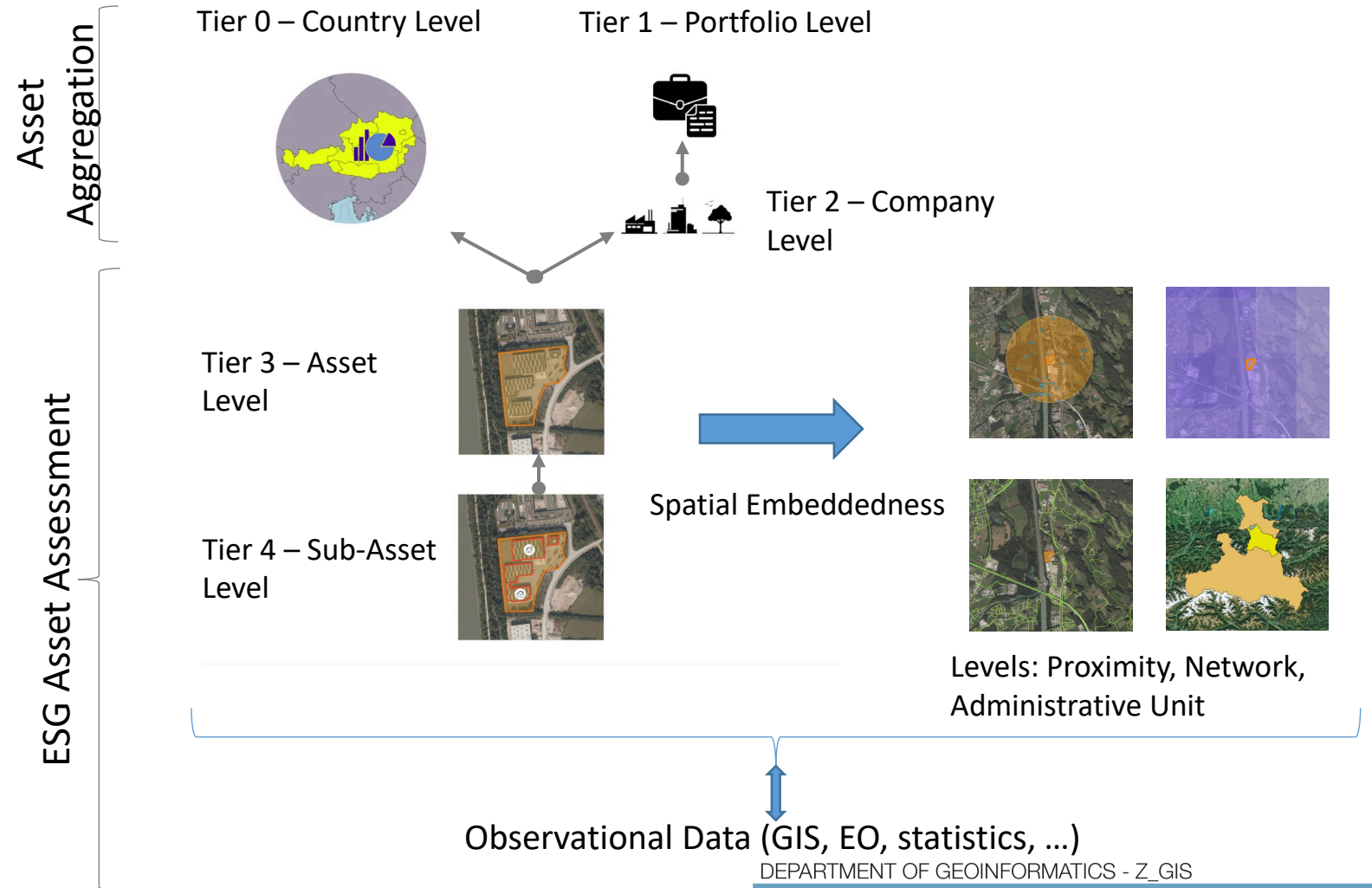
- Make use of EO & GIS data potential
- spatial embeddedness of ESG
  - Q: Does a high-water demand has the same risk for a company, if the company is located in an arid or non-arid region?
- -> Focus on E&S (Inside-out & Outside-in)
- -> Integration in a holistic ESG framework (G – entity level; E & S asset level)

Mix of methods required due to diversity of indicators & data sources

- simple to complex spatial & AI methods
- insufficient data (absent or quality) -> equivalent or inferior substitutes/proxies

# Extended 'Spatial finance' concept

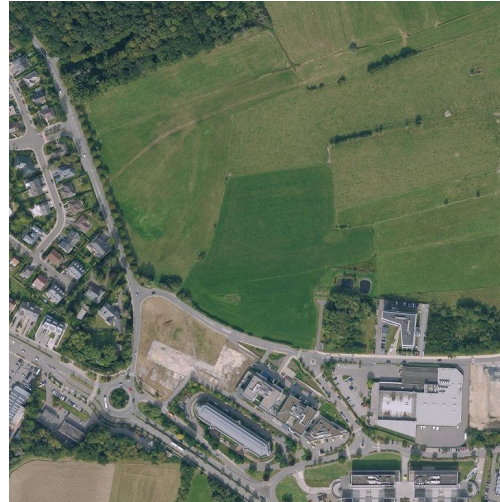
ESG Framework:  
Defines ESG issues specific  
to business activity/asset



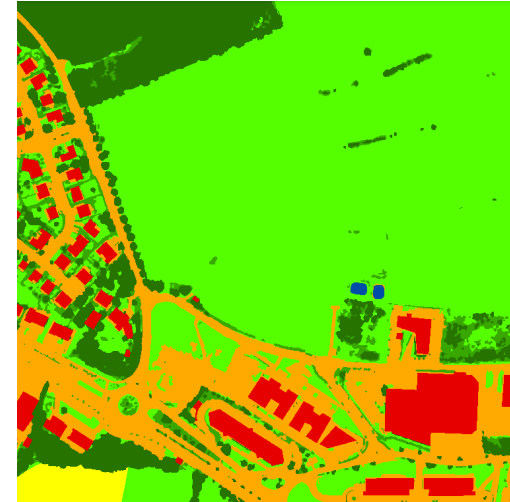
# Potential – ESG Indicators (Real Estate)



Cadastral land register



Satellite imagery (high resolution)



Land use classification

Tier 3: Asset Level -> On site



- Biotope area factor
- Green roof area



- Heat island effect

(Sealing, surface reflectance, ecological features,...)

*Combined with spatial embedded data: weather (ex. CAMS), large scale sealing, surface reflectance*



- Surface runoff

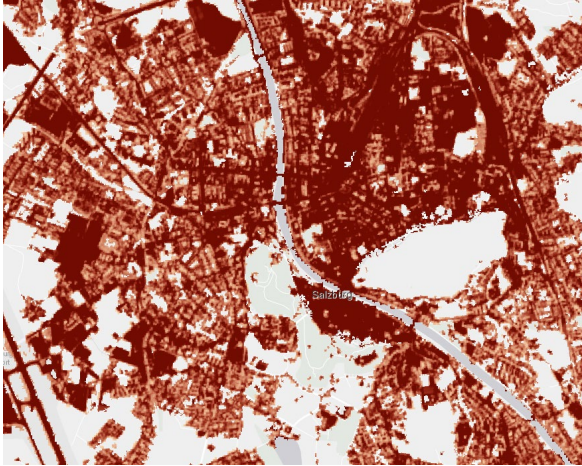
(Sealing/Imperviousness, DEM)

*Combined with spatial embedded data:*

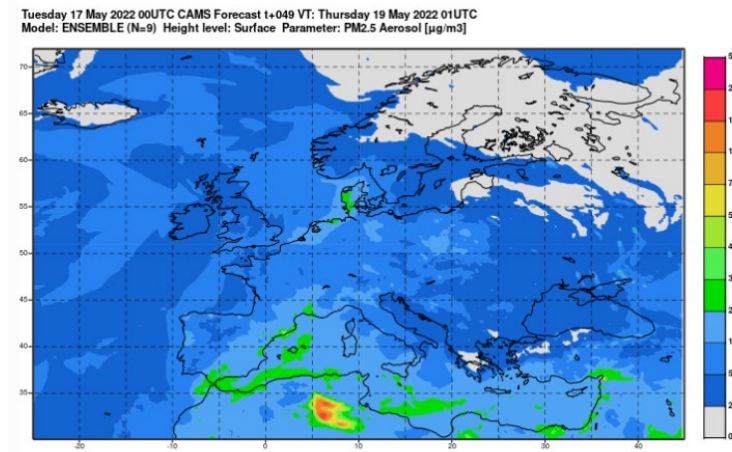
*Weather data, large scale sealing*



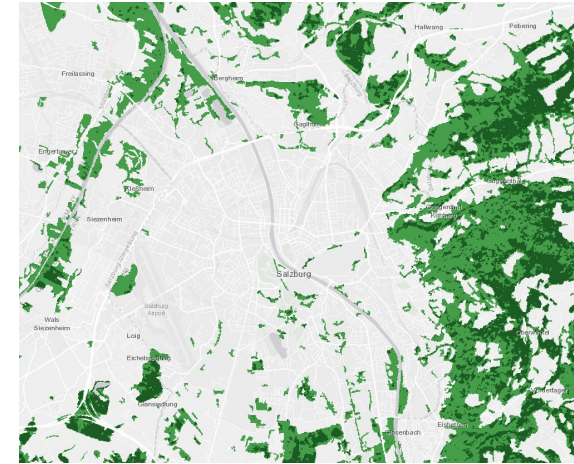
# Potential – ESG Indicators



Sealing (10x10m resolution)



Pollution (PM2) (low resolution)



Forest (10x10m resolution)

Tier 3: Asset Level -> Spatial Embeddedness



- Pollution
- Ecological recreation areas
- Heat island



- Surface runoff (imperviousness/sealing)

Copernicus Services:

- CLMS (land use, ...)
- CCS (water quantity indicators, climate change projection,...)
- CAMS (air quality,...)



- Sensitive Land Protection

# Conclusion

Geospatial approach based on 'hardfacts' (quantifiable measures):

- Objective
- Scalable/world wide applicable
- Enables automation
- Spatio-temporal assessment
- High accuracy
- High resolution (asset level)
- High granularity

-> Integration of spatial embeddedness of ESG

-> Harmonization between tech & financial actors/companies

-> Flexibility due to diverse data sources

-> Huge potential for E & S

Integration in holistic ESG framework as Sub-framework

Potential:

- ESG automated metrics & ratings
- Digital solution for disclosure & risk management of companies