Verder Hypotheken

3rd EEMI BAUHAUS EVENT
February 22, 2021

History

Start	Licencing	1st Funding	Beta pilot	Verder Hypotheken *)
Dec 2015 Establishment Jungo B.V.	**Jun 2016** AFM (regulator) Mortgage licences: • 2:60 Wft • 2:80 Wft	**Jun 2018** Funding Agreement with Institutional investor	**Jan 2019: Live** Horizontal split mortgage in combination with crowdfunding	**Q2 2021: Live** • IT investments in processing and CX/UX • Simple products • Focus on distribution power

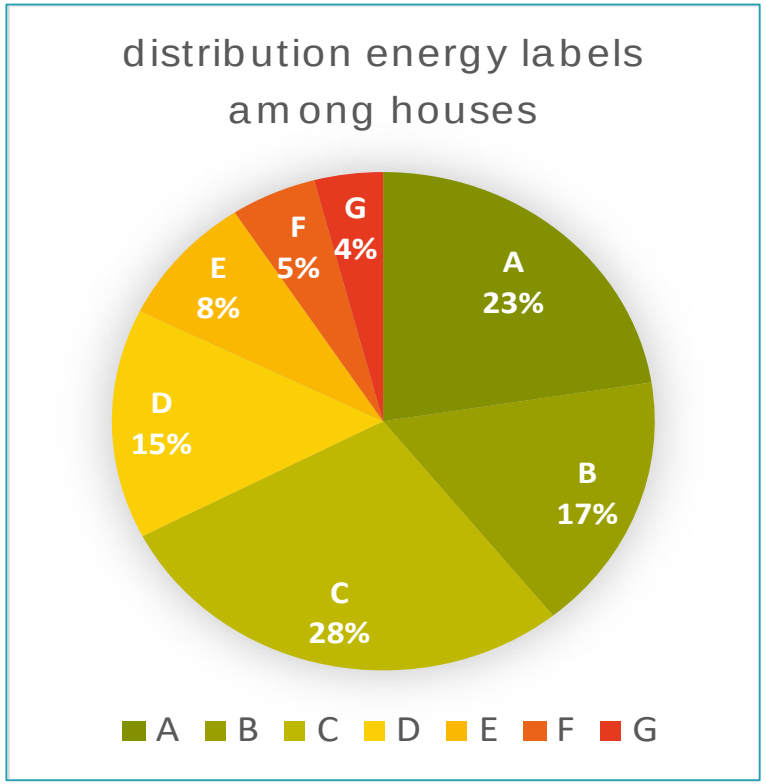
*) Verder Hypotheken is a brand name of Jungo B.V.

Ambition climate agreement NL market

Dutch government

- 2030: Improved sustainability for 1,5 million houses
- 2050 All houses are “gasless”
- Less than 25% of registered labels is A

Energylabels per 1-1-2020



Sources, Dutch government

Consumers response

Buyers are willing to pay a premium on houses

- Average investment in a Dutch home to improve the Energy label is more or less the same is the average premium in value
- Average cost to improve from G to A is EUR 22.000
- Average premium G to A is EUR 17.000
- Discounted Energy savings G to A is EUR 21.000
- Energy usage from G to A is -65%

Note:

before 2015 premium was practically zero

Source, Dutch Central Bank, Economisch Instituut voor de bouw

Response Dutch mortgage market

Mortgage providers

- Nothing; or
- Offer discount on A-label: and/or
- Additional borrowing capacity (>100% LTV) based on limited list of energy saving measures (by law)

Main focus on rewarding homes which are already green

Verder Mortgages

- Energy label based pricing
- Verder Green loan part at low costs, for all improvements
- Facilitating the improvements with a consultancy firm as partner

Main focus on improving

Partnering with consultancy firm

Oplossing	Verbetering comfort	Jaarlijkse besparing	Uitstoot vermindering	Investering	Terugverdientijd	Rendement
Zonnepanelen	n.v.t.	€ 756	1.921 kg CO_2	€ 4.458,69	5,9 jaar	6,1%
Vloerisolatie	n.v.t.	€ 206	451 kg CO_2	€ 2.182,34	10,6 jaar	4,3%
Isolatieglas	n.v.t.	€ 508	1.112 kg CO_2	€ 5.611,34	9,7 jaar	4,1%

Partnering with consultancy firm

JAARLIJKSE BESPARING

€ 756

JAARLIJKSE OPWEK

3.358 kWh

VERMINDERING UITSTOOT

1.921 kg CO_2

Bijbehorende offertes

PV10245 GEADVISEERD

Trinasolar

11 TrinaSolar panelen van 325 wattpiek inclusief SolarEdge omvormer, optimizers en installatie

€4.458,69 | €756 / jaar | 5,9 jaar

3 / 3 offertes geselecteerd

PV10245 • 11 Trina Solar panelen van 325 wattpiek incl...

GL10819 • 27m² HR++ Isolatieglas

VL10253 • 53m² Vloerisolatie met 14cm Icynene H2Fo...

HUIDIG MAANDBEDRAG	NIEUW MAANDBEDRAG
€ 294	€ 176

INVESTERING	RENDEMENT
€ 12.252	6,5%

COMFORTKLASSE WONING

★★★☆☆ (+2)

MAANDELIJKS JAARLIJKS

KOSTEN

CO_2-UITSTOOT

STROOMVERBRUIK

GASVERBRUIK

	KOSTEN	CO_2-UITSTOOT	STROOMVERBRUIK	GASVERBRUIK
HUIDIGE SITUATIE	€ 3.529	8.276 kg CO_2	7.000 kWh	2.400 m^3
TOTALE JAARLIJKSE BESPARINGEN	€ 1.417	3.366 kg CO_2	3.358 kWh	812 m^3
NIEUWE SITUATIE	€ 2.112	4.910 kg CO_2	3.642 kWh	1.588 m^3

3.366 kg CO_2 / jaar

STAAT GELIJK AAN

29 keer	1.043 liter	1.002 hamburgers	155 bomen
naar Parijs vliegen	diesel verbranden	van 100g rund eten	aan het compenseren

Incentives to **improve** sustainability

Energy label based pricing

- The better the energy label, the lower the interest rate
- Better energy label, increases the value of the property
- Improving sustainability decreases monthly costs

Verder Green loan part

- No profit for Verder: interest at or below cost price
- Low interest is 10 year fixed
- Savings on monthly energy costs is demonstrable bigger than extra monthly cost on interest and redemption.

One stop shop

- Energy savings advice
- Offerings for realisation
- Financing the investments
- Realising the improvements
- Registration of new energy label

Our view on sustainability

- Focus on **improving** the sustainability

(with 80% of building stock built before 2000, E. Piantoni, 2nd Bauhaus Event)

However:

- Funders who embrace sustainability should incentivise the improvement
  - Exposure at default is less due to higher value of the property
  - Default risk is lower due to lower monthly costs
- Governments who embrace sustainability should incentivise the funders and the home owners
  - Energy label based capital charges for mortgage providers
  - Tax incentives for home owners

Verder

Questions

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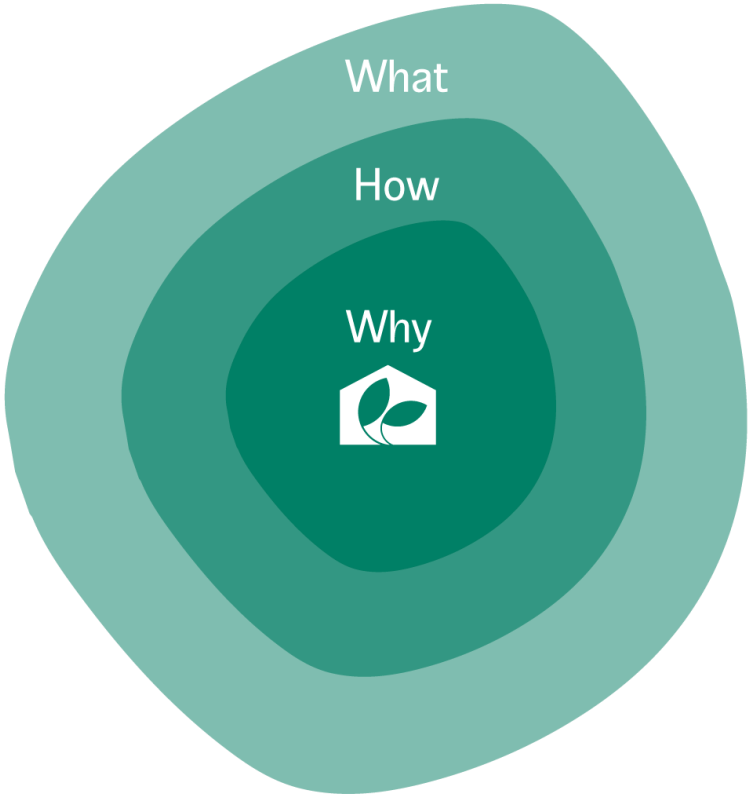
How to raise awareness in making properties greener

February 2021

UCI

UCI Green Strategy



WHY?

We believe in sustainability and responsibility buying a home is the most important decision made by most people.
We want to be by your side in this project, making it easier and more transparent.
With making your home more energy efficient in mind.
Protecting the planet without you being out of pocket.

HOW?

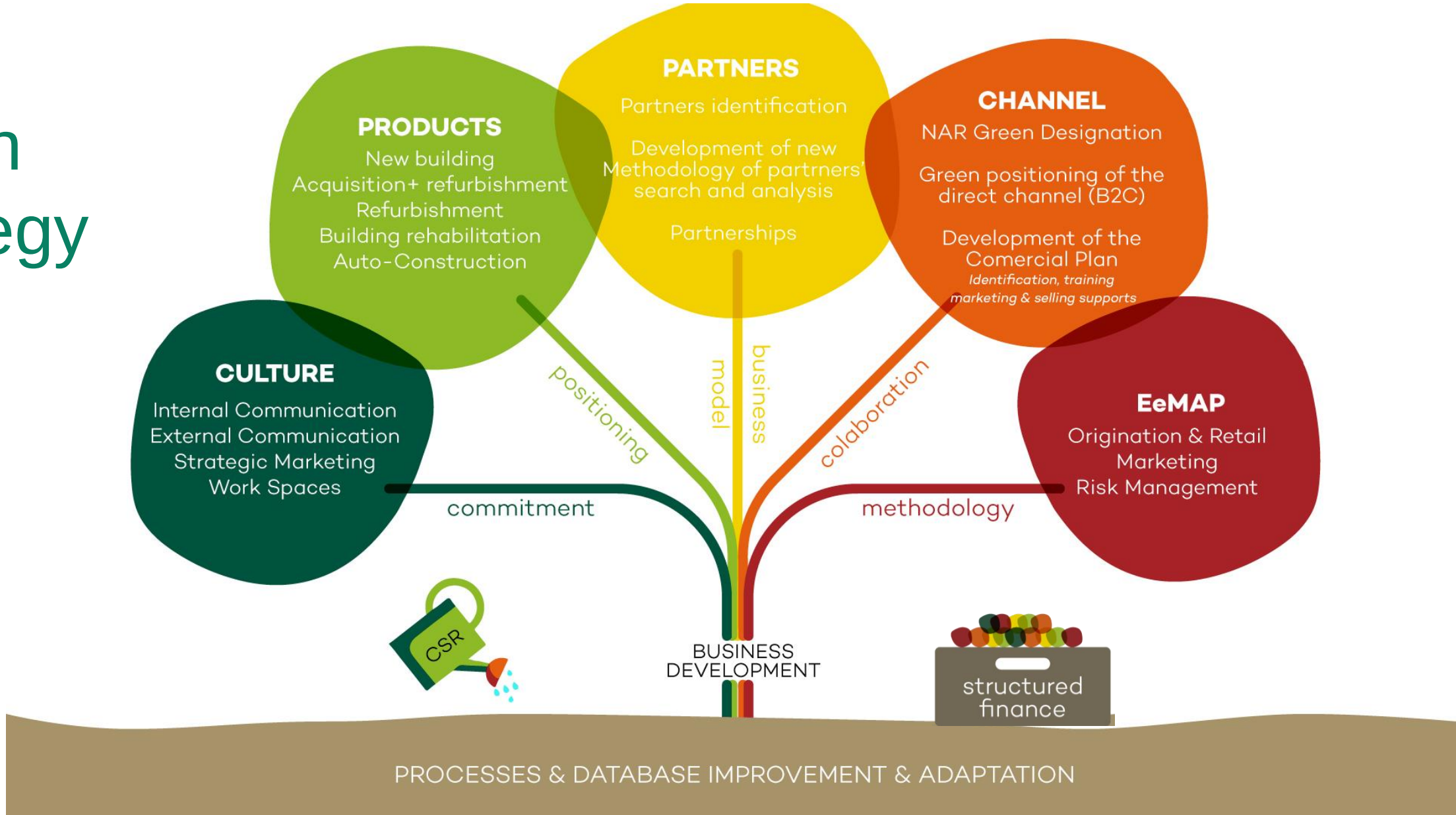
Creating Ecosystems that complement each other in perfect harmony, with well designed, attractive and differentiated products.

WHAT?

Sustainable and efficient products and services.

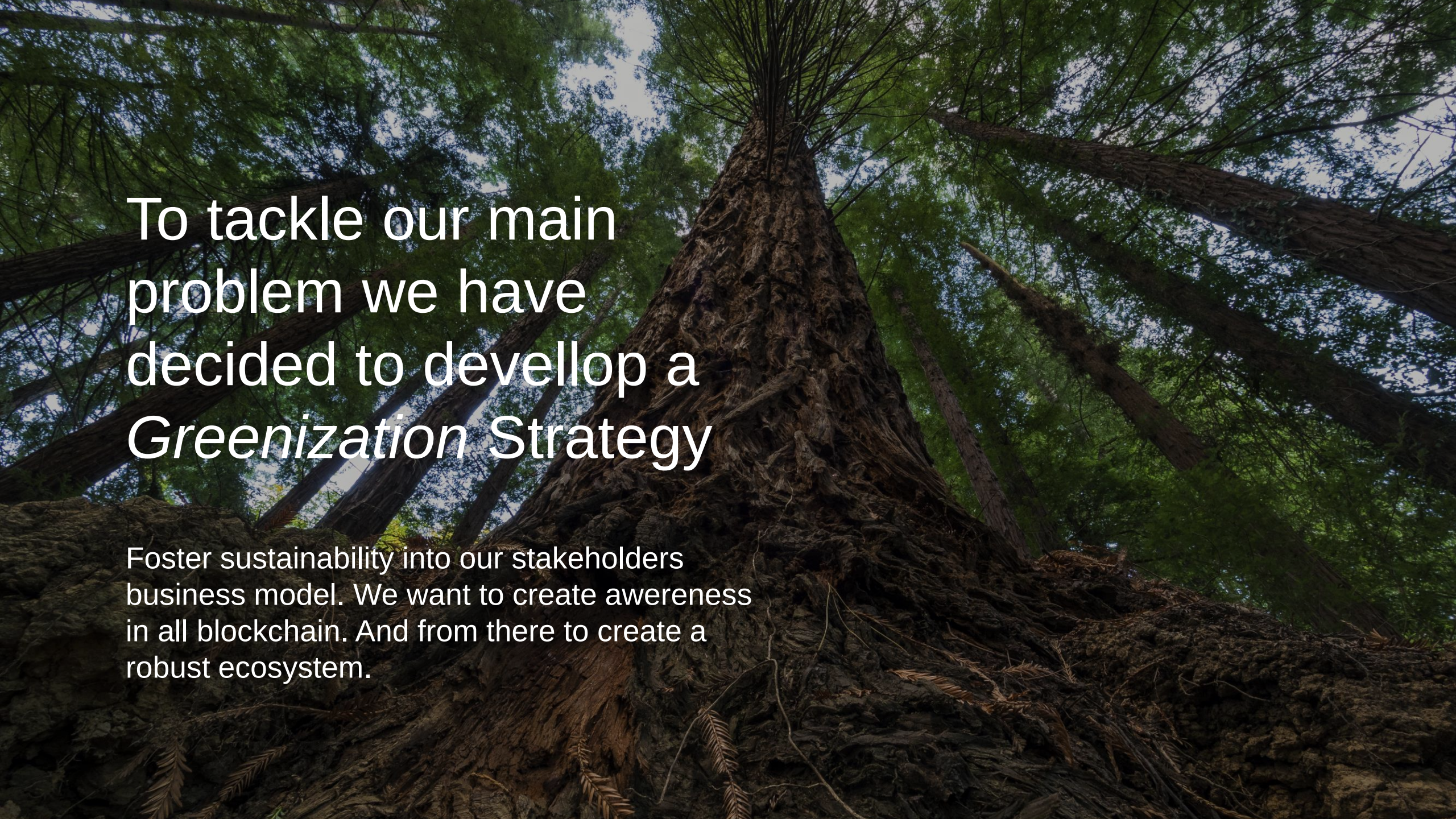

Will you join us
on the GREEN
REVOLUTION?

UCI Green Strategy



During this journey we have been experiencing some criticalities

- Lack of awareness among consumers and other partners about the “Green”
- Potential complexity of journey (energy advice) and additional process costs (EPC, valuation and energy certification)
- Lack of coordination of and between all relevant partners (government & institutions, utilities, energy advisors)



To tackle our main problem we have decided to devellop a *Greenization* Strategy

Foster sustainability into our stakeholders business model. We want to create awereness in all blockchain. And from there to create a robust ecosystem.

Greenmociónate

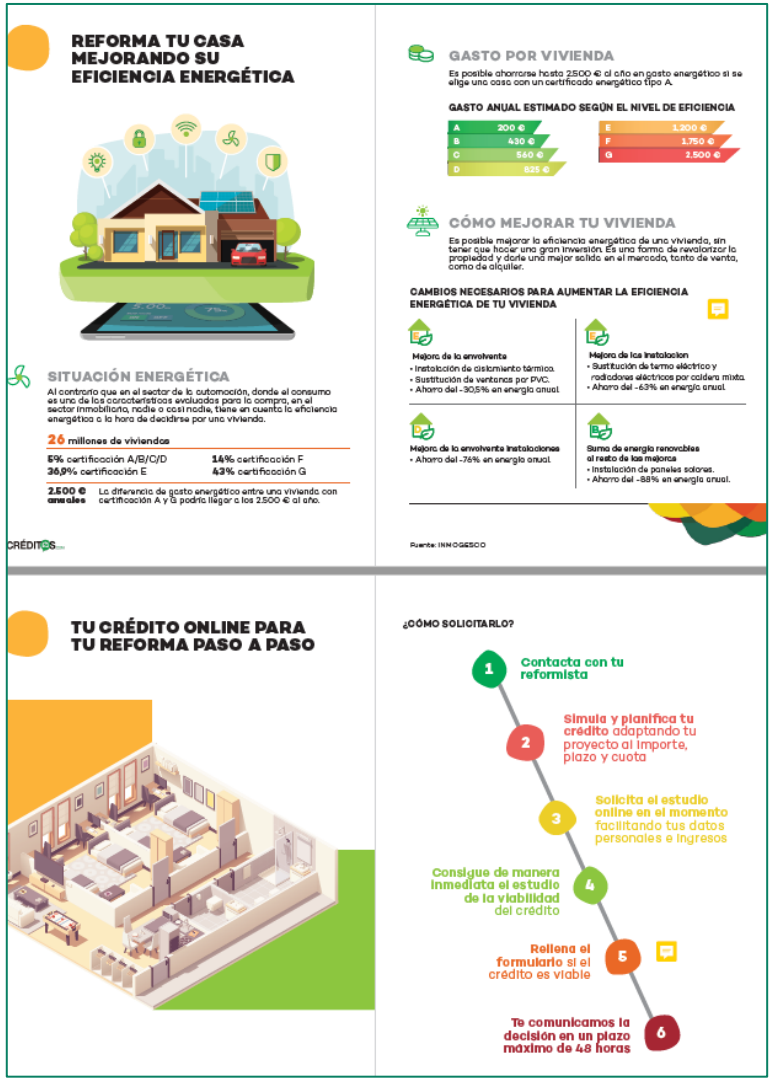
Meeting point to promote sustainability and energy efficiency in housing among real estate professionals, where we have counted with more tan 21 speakers and 400 assistants.

GREEN Materials

- ELEKTRA (energy savings calculator)

Http://51.83.70.217

- Green Refurbishment notebook
- Energy Efficiency guidelines Book
- LIVE GREEN renovation and rehabilitation videos



UCI

Key Strategic Partnerships

- EIB, EMF-ECBC (EEMI)
- Participation in the ERESEE (Spain energy rehabilitation long term strategy)
- GBCe and leader of WP AUNA EC project
- GLOVAL (appraisal and EE expert)
- Qualify renewable energy utilities
- United Nations Global Compact
- Lisboa Capital Verde Europeia 2020
- Qualify refurbishment companies
- Other business partnerships

WIND OF CHANGES

We are “Transformation Agents”

WE PROMOTE CHANGE
And want to help you to transform your business model towards "**Green**"

Thanks! ☺

Copenhagen Economics

FINANCING THE TRANSITION TO A CARBON-NEUTRAL ECONOMY

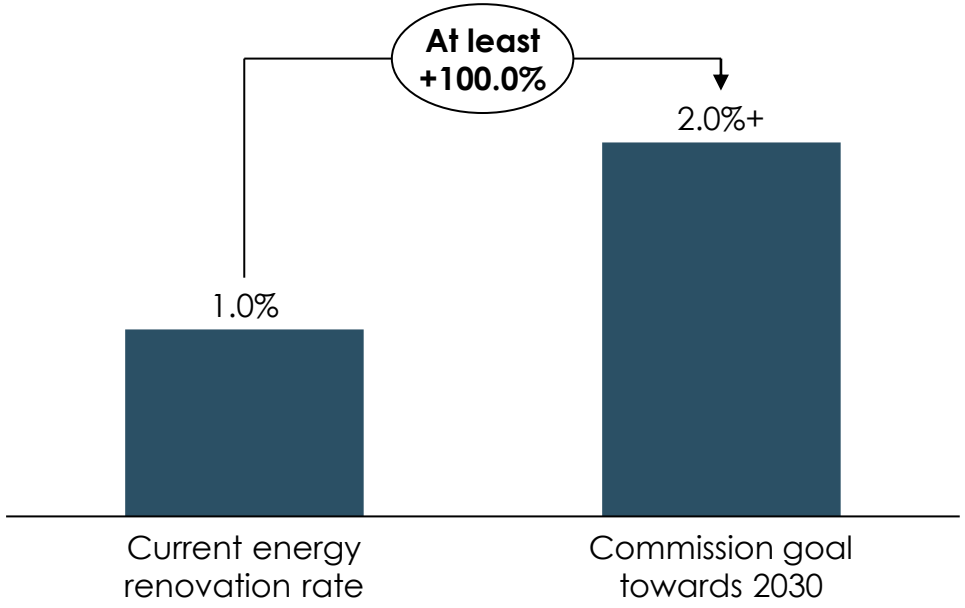
Two opportunities and two challenges right now for boosting energy renovation of the housing sector

Bauhaus Seminar
22 February 2021

Opportunity 1: Renovating the housing stock, massive potential at low costs

Annual energy renovation rate

Percent of EU building units per year



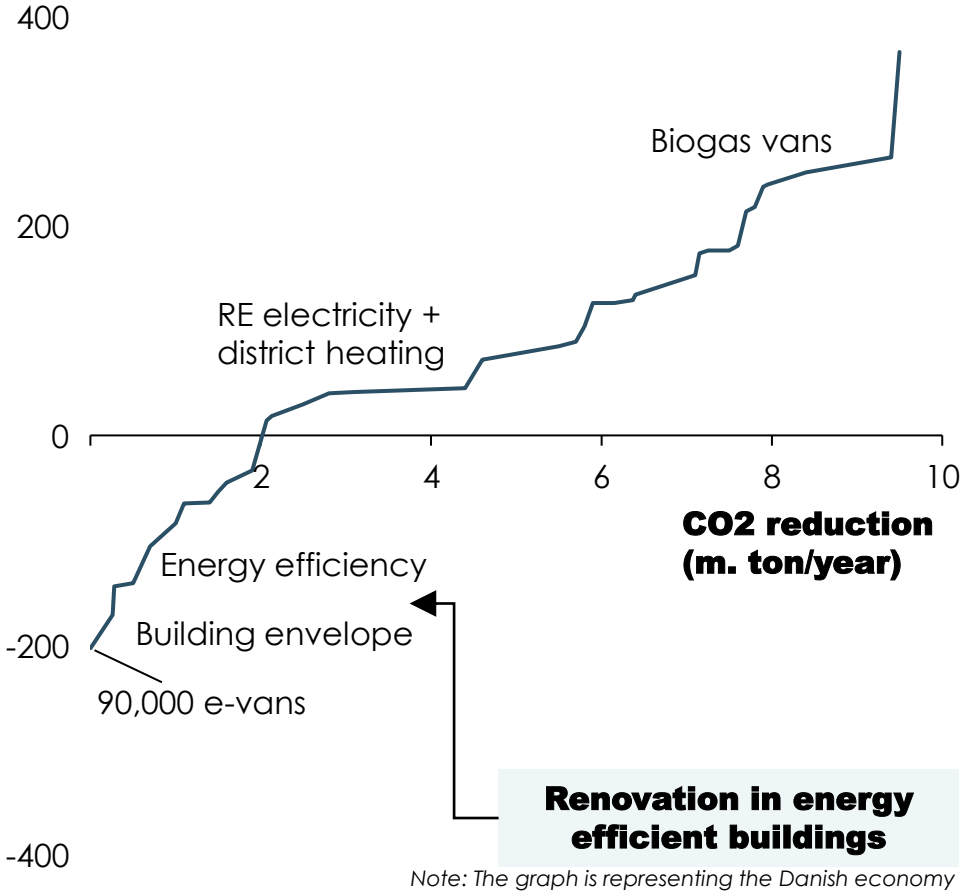
EU building mass
220 million building units in the EU (85% of total) were built before 2001

Commission goal
35 million building units renovated by 2030 reducing energy consumption by 14%

Source: European Commission (2020):A Renovation Wave for Europe - greening our buildings, creating jobs, improving lives

Marginal Abatement Cost curve

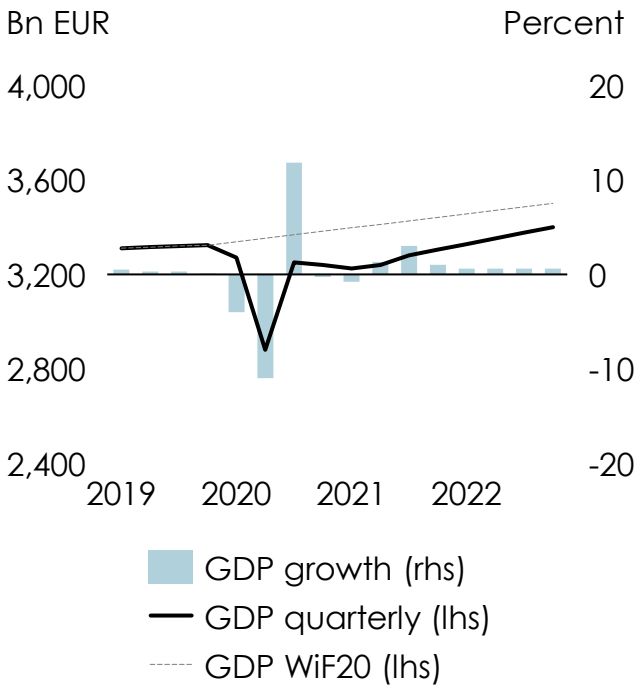
EUR/ton CO_2



Note: The graph is representing the Danish economy
Source: Copenhagen Economics based on Ea Energianalyse (2019)

Opportunity 2: A lot of spare capacity while governments really need low cost boost to the economy

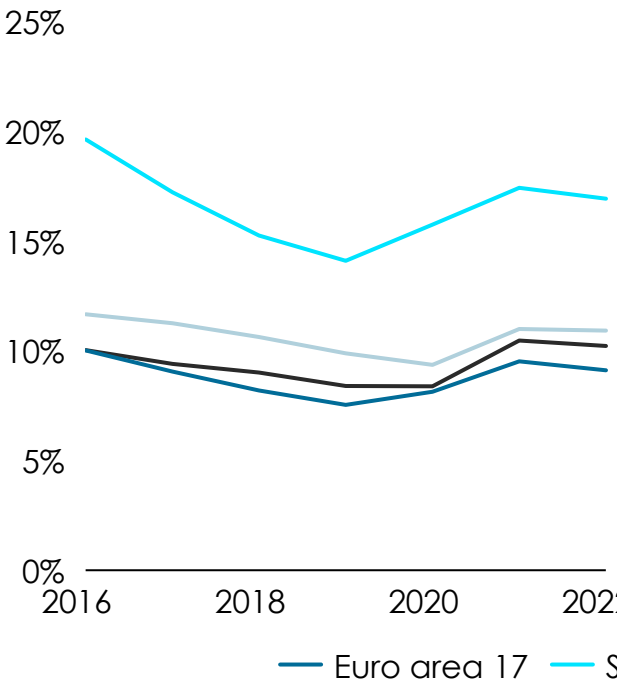
Production way below potential



Source: European Commission European Economic Forecast Winter 2021 (Interrim), Figure 1.15

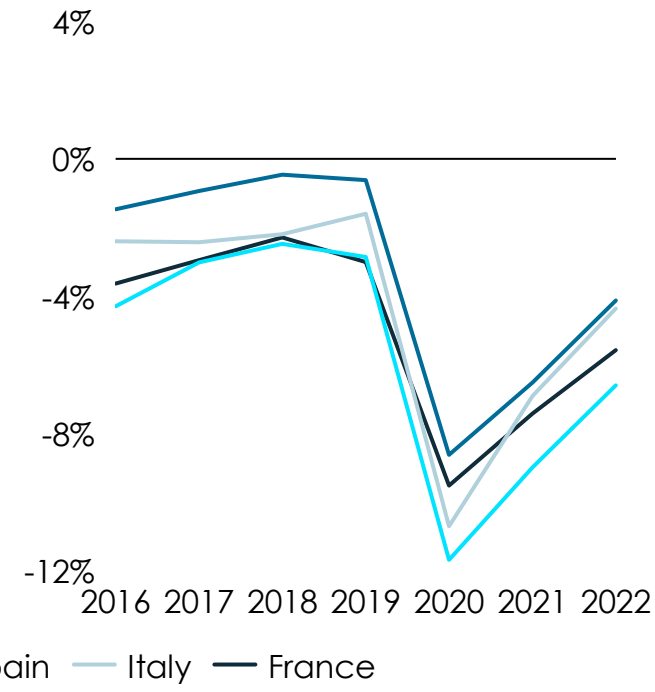
Unemployment rates high and rising

% of labour force



Governments have limited space for costly recovery packages

Public budget balance, % of GDP



Source: OECD Economic Outlook 108 database

Challenge 1: Taxonomy proposal may block private finance flowing to renovation

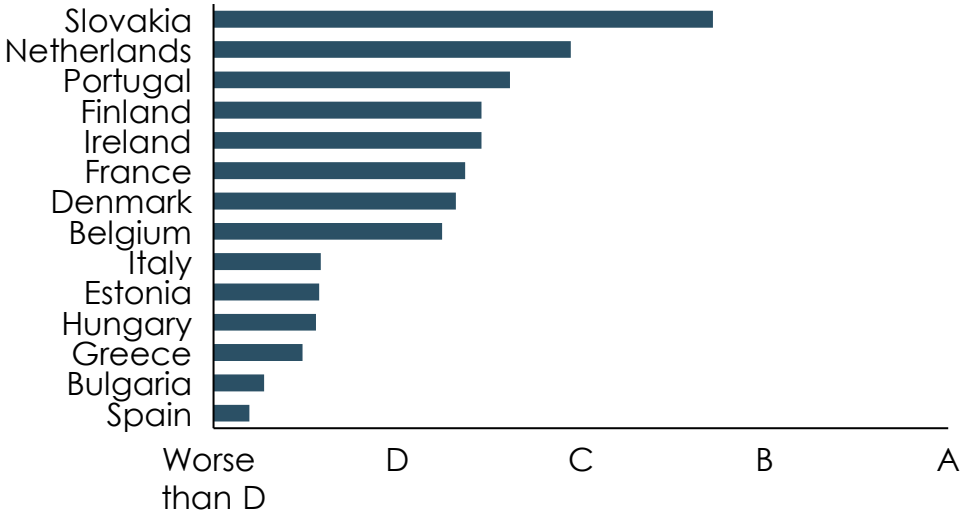
Existing buildings:
- at least EPC A

New Buildings:
- Near Zero Energy Building(NZEB) (or higher)

Setting too high standards may stop financing because it is simply too costly to attain standards

Average EPC label in 14 EU countries:

Way below the threshold proposed

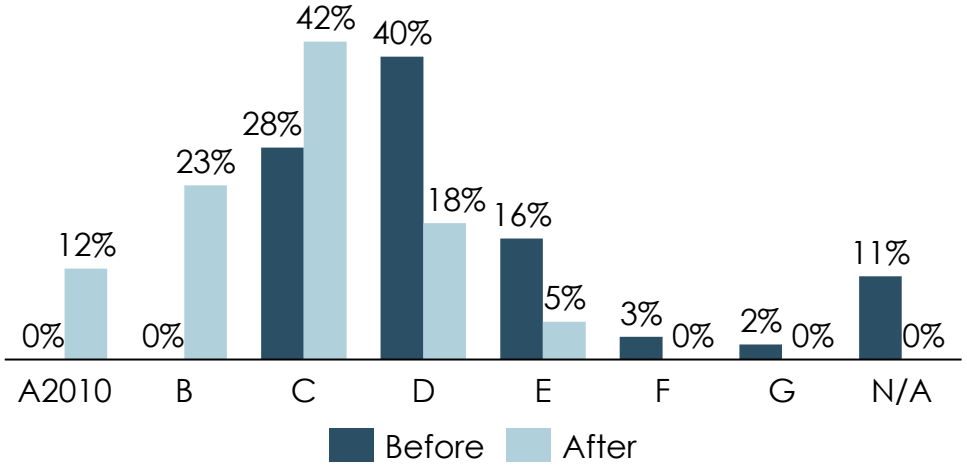


Source: Copenhagen Economics based on X-tendo (2020): Energy performance certificates assessing their status and potential, page 13

Even after renovating large part of the Danish social housing stock:

few will qualify

Percent of houses renovated

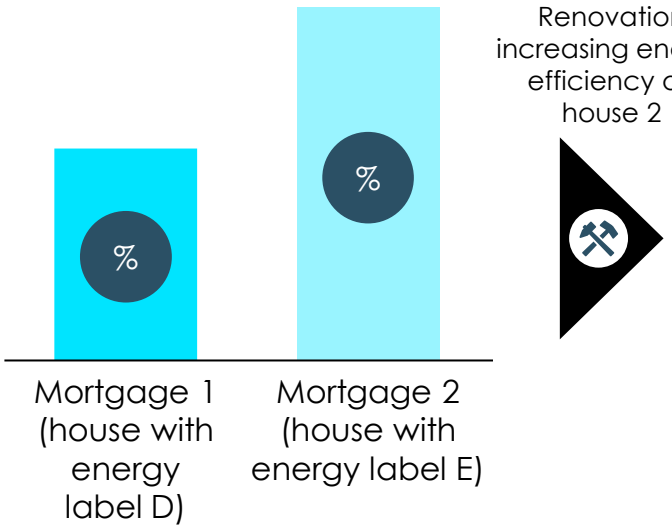


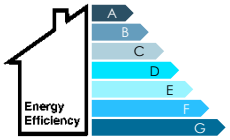
Note: Based on a sample and screening of social housing buildings in the National Buiding Funds renovation support system, 2020.

Challenge 2: Output floor in Basel 4 proposal may reduce incentives to invest in energy renovation

Mortgages' risk (estimated risk vs applied risk weights vs and applied output floor)

Estimated risk weights for prudential regulation





% Applied risk weight

Output floor

Possible to include mitigating factors in the capital requirement (Pillar II), i.e. an extra buffer on less energy efficient houses ("stress testing").

Conclusions and recommendations

Green Deal:

- € 750 billion to support climate, digitalisation and economic recovery over three years
- Golden opportunity for mobilising *private finance* with strained public finance and low hanging fruits

Take a broad approach to implementation:

Taxanomy and Basel package:

- to support, not impede

Digitalisation as key:

- new business and verification models to reduce costs and increase speed

European Semester:

- Identify and adress structural barriers that prevents finance to flow to deserving projects (rent regulation, foreclosure, effectiveness of legal system etc)

Winners with the smart approach:

- Climate, quality of housing, economy, public finances and notably lower income families

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REPLY

EEMI BAUHAUS

BRAINSTORMING ON RISK MANAGEMENT IN CREDIT INSTITUTIONS

February 22, 2021

Chris Rossi, Sebastien Gillet and Louis De Meester of Avantage Reply

Market initiatives

AGENDA

1. **Intro to Reply and Sustainability – 5 minutes**
2. **Presentation – 10 minutes**
3. **Discussion**

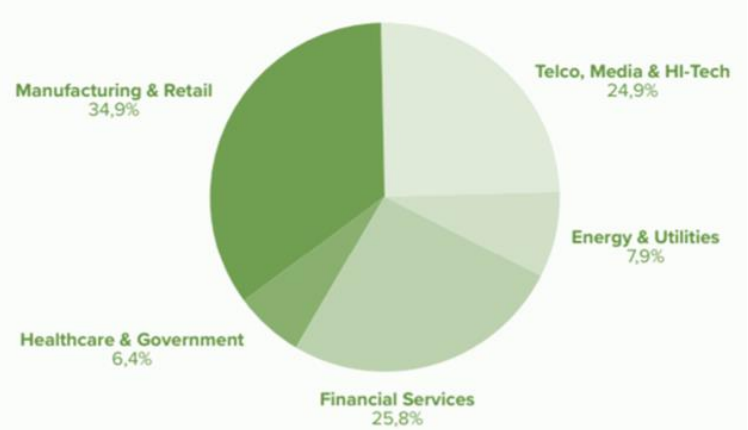
THE REPLY GROUP AND SUSTAINABILITY

REPLY GROUP PERFORMANCE

MARKET FOCUS

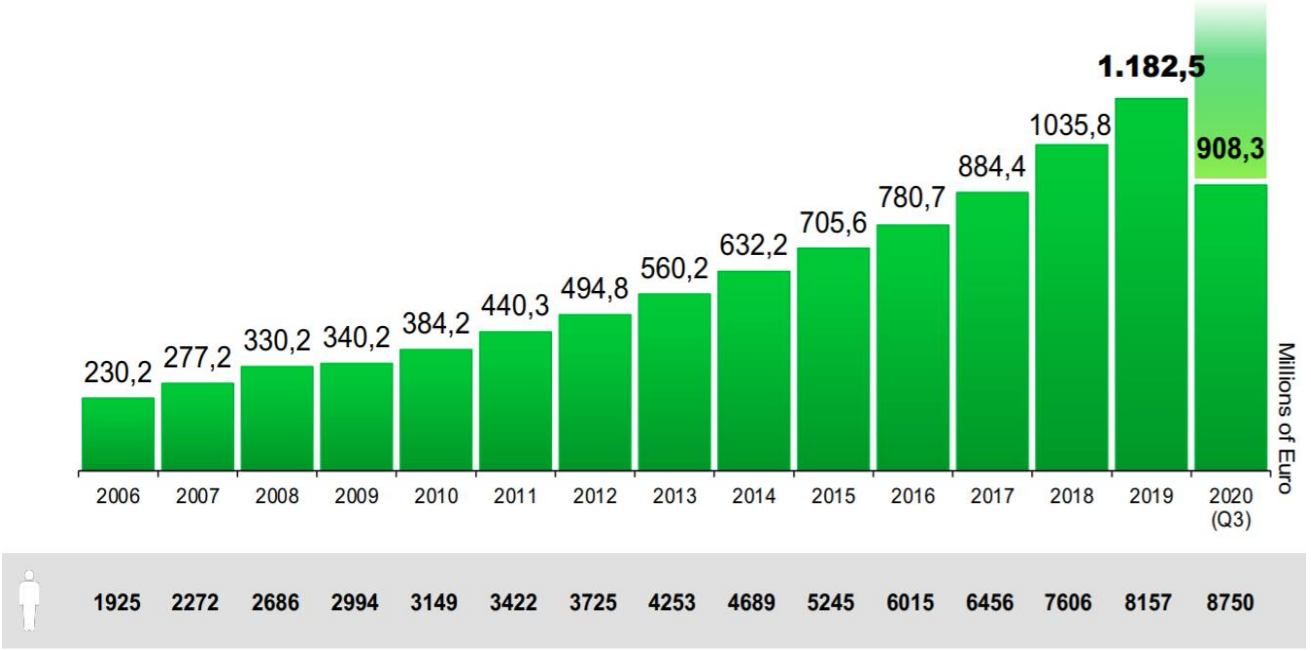
MARKET SERVICES

- Reply supports major organizations operating in **Telco** and **Media**, **Banking**, **Insurance** and **Financial companies**, **Industry** and **Services**, **Energy** and **Utilities** and **Public Administration** market segments.
- The breakdown of the Group's sales in its various vertical sectors is as follows (2019)



Long-termism comes to mind:

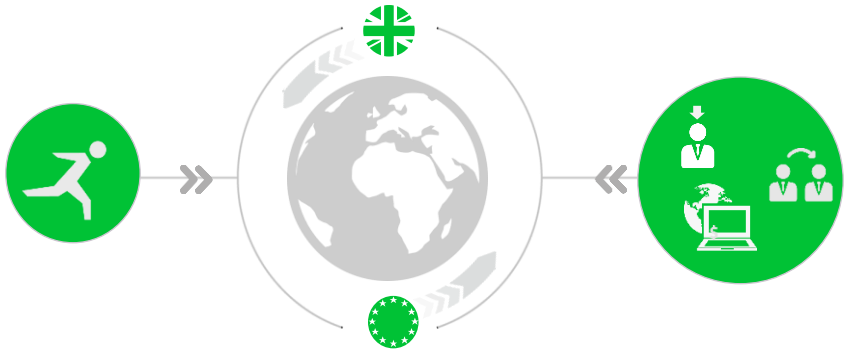
average YoY Growth of over 10% for the last 15 years



AVANTAGE REPLY'S VALUE PROPOSITION – FINANCE, RISK & DATA

FROM DESIGN TO IMPLEMENTATION AND CHANGE MANAGEMENT

We are a specialised management consultancy fully integrated across 14 European offices, working with leading financial institutions and for the regulators themselves. In addition, we leverage the technology capability of Reply not only to advise on change but to also implement it.

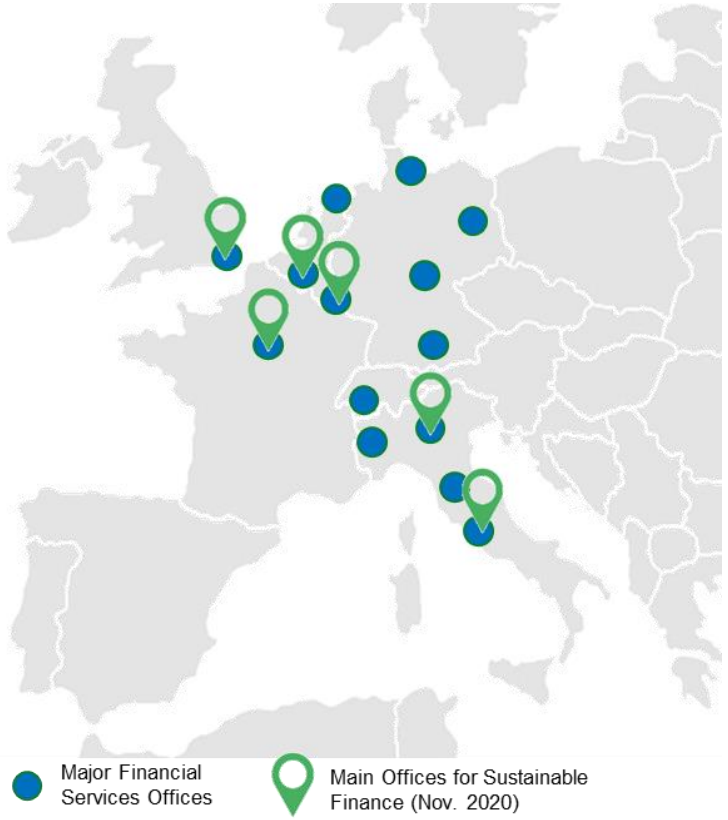


Regulatory

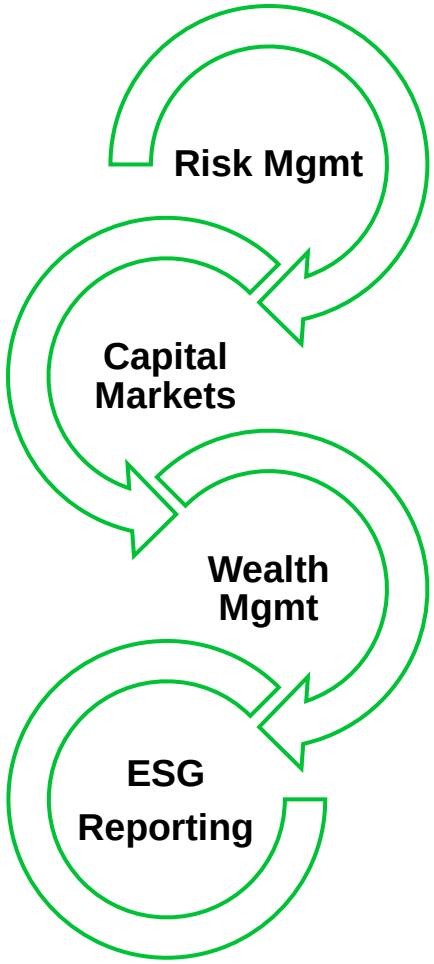
- Change management (implementation of a new regulation)
- Remediation (addressing recommendations from the supervisor)
- Interim support regulatory reporting, stress tests
- Optimisation (regulatory capital, liquidity, etc.)

Strategic, Business and IT Change, M&A

- Strategic & business change (e.g., customer journey, credit 're-invention')
- IT change (e.g., risk and finance systems)
- Data management & reporting



OUR AREAS OF EXPERTISE IN SUSTAINABILITY…



… SOME OF OUR CURRENT INITIATIVES

Integrating ESG data in the credit process

- Collecting data on energy performance of buildings used as collateral to improve the performance of the mortgage loan portfolio
- Set-up the processes to collect, validate, and update the relevant data through to all departments of the bank

Harmonized ESG reporting framework

- Align the internal data model with the EU taxonomy for sustainable activities and other reporting standards (GRI, ...)
- Alignment of internal and external reporting setting of links with the non-financial reporting process

ESG data collection tool for SME

- Generate savings by automating the manual collection process by :
  - Using publicity available data to complete an ESG Rating framework
  - Using Artificial Intelligence technologies to improve on manual processes

Managing financial risks arising from climate change

- Elaborate analytical framework to identify, assess and mitigate climate risks (physical/transition)
- Highlight transmission channels from environmental factors to ‘traditional’ risks (credit, market, etc) and conduct scenario analyses / stress tests to assess impacts on bank solvency and liquidity (to feed Risk appetite, ICAAP and ILAAP processes)
- Prepare self-assessments for the ECB guide on climate risks and draft remediation plans to meet supervisory expectations
- Identify relevant climate risk drivers and integrate them in the credit granting process
- Discuss meaningful information and key metrics on climate-related and environment risks

CASE STUDY: EEM DATA TO INTEGRATE INTO THE CREDIT PROCESS

Energy Performance and the underlying data points is the basis of the Energy Efficient Mortgage Initiative

New data points will need to be collected by Mortgage Lenders, considering national laws and tax incentives being proposed to stimulate the **Sustainable Economy**

Offering design	Customer On-boarding	Origination
✓ Pricing ✓ Geographic location ✓ Fiscal / Government incentives	✓ Targeted sales campaign (conscientious client)	✓ New data collection ✓ Front office expertise ✓ Due diligence

Post Sales	Monitoring	NPL Mgmt.
✓ Revised cross-selling for ESG products	✓ Basel Advanced Modeling ✓ Transition and Physical Risk monitoring	✓ Targeted workout and / or auction process

New Data Categories	EEM Initiative Data	Additional Data?
Energy Performance of the Real Estate	1. Energy Rating 2. Rating Methodology 3. Rating Date 4. Rating Technician	11. Sustainability method (solar, wind, etc) 12. Sustainability capacity (average daily KW)
Real Estate Characteristics	5. Construction year	13. Building material 14. Electric charging port
Energy Efficiency Financing Support Schemes	6. EE financing scheme 7. Subsidised loan 8. Government tax incentive 9. Tax rebate scheme 10. EE technology investment amount	15. Utility savings (average 1 year)

- **To participate in the EEM Initiative** the Bank will need to consider **at least 10 new** data points that are to be collected
- Additional data will allow the Bank to estimate the **economic availability of the customer and a revised fair value of the real-estate over time**

CASE STUDY: AUTOMATED COLLECTING TOOL FOR SME ESG DATA

Individuals and SMEs represents the most numerous borrowers (volumetric perspective)

Current sources of data

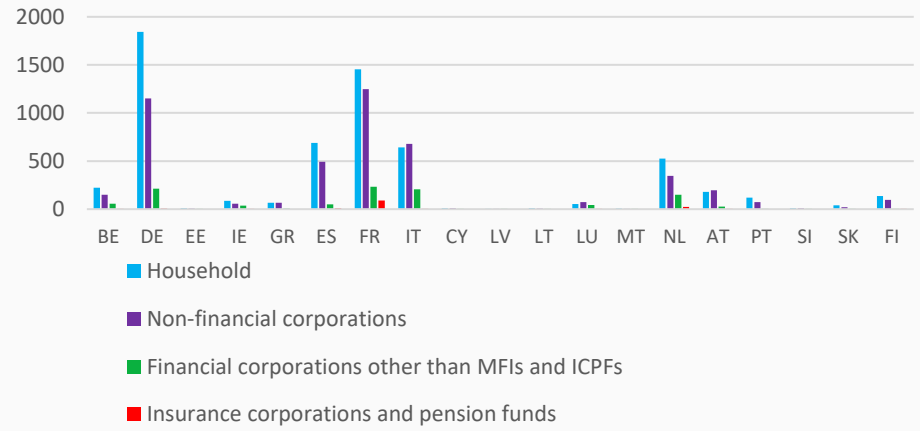
Referential data

Financial, accounting and banking data of the borrower

Data provided by the borrower

Surveys, communications and questionnaires

Sectoral breakdown of MFI loans vis-a-vis other euro area residents: December 2020 (EUR billions)



Source: ECB.

Current data gathering is:

- Time and money consuming
- Process to maintain accuracy and timeliness is heavy
- Available public data is not easily structured, retrieved and/or compared
- The data collection is for multiple needs and customers inside the bank

	Our proposal
	Use of Artificial Intelligence technologies to improve on manual processes
	Use of publicly available data to create or complete an ESG Rating framework

	Our goal
	Propose a cost and time-saving process
	Maintain a high quality process by limiting operational risk
	Streamlining of credit contracting to facilitate customer and audit experience
	Offer a customized and sustainable process through machine learning
	Publicly available data makes the collection process more robust / less falsifiable.

CASE STUDY : PHYSICAL RISK - FLOOD RISK

CREDIT RISK DRIVERS ARISING FROM ENVIRONMENTAL FACTORS

Risk identification

- Context : expected increase in severity and frequency of extreme weather and, as a result, of associated floods :
  - Risk of physical damages – that may not be fully insured – and business interruption in geographies where the topography is not favourable
  - Loss of luster of such regions and the associated impact on valuation

Risk qualification

- Exposure to physical risk due to the impact on valuation (ex-ante) and the resulting damages (ex-post)
- Key driver is the geographical location, in particular whether credit exposures are located within an identified vulnerable area
- Coverage of insurance is also a key factor
- Risk related to collateral valuation (LGD) and repair costs (PD)

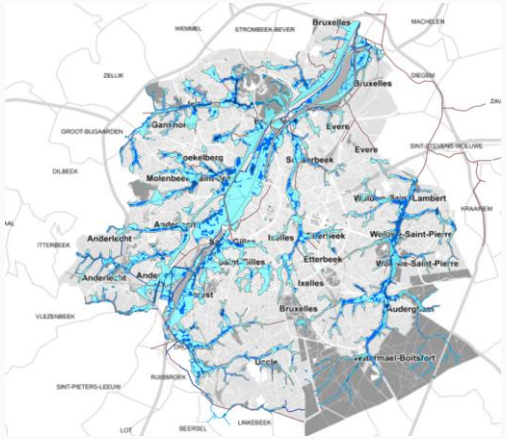
Risk quantification

- Portfolio sensitivity to be assessed through scenario analysis, as illustrated for credit risk :
  - Widespread flood, for which insurance companies don't cover all the damages (households to self-finance the repairs)
  - The event leads to many sellers / few buyers on the local real estate market, which prompts a structural drop in house prices
  - Business interruption leads to corporate default
- Inclusion in credit risk models e.g. through top-down adjustment (haircut as a function of the underlying topography)

Risk mitigation

- In general more opportunities to adapt to flood risks rather than to mitigate them
- In particular, securing appropriate insurance coverage and promoting operational resilience/contingency planning (incentives via pricing or credit conditions)
- Flood risks can be to some extent diversified away due to the typically local nature of those phenomenon

Identified flood zones in Brussels area



Source: environnement.brussels

WHITE PAPER: QUANTITATIVE TOOLS TO ASSESS CLIMATE RISK

Our most recent white paper starts with a classification of environmental risks (physical, transition), and how they propagate to the standard financial risks (credit, market, ...).

Possible tools are discussed aimed at supporting the low-carbon transition and aligning finance with sustainable growth. Some are variations of traditional monetary policy tools that can be used to enhance green investments, while others could be classified as unconventional tools.

A recognition is made between the type of tooling: macroprudential tools, ESG scoring, stress testing, climate VaR, ...

Coming soon

TODAY’S PRESENTATION

SOME OF THE HOT TOPICS WE COULD DISCUSS …

…there are too many to choose from

C-Level reporting
Debt Market
ICAAP
Government
Strategy
Long-termism
Regulation
Capital Markets
Green-Brown
Scoring
Non-Financial Disclosures
Risk Appetite Framework
Due Diligence
Private Equity
Scenario Analysis
Taxonomy
Smart Working
R&D
Policy
Insurance
ILAAP
ESG
SREP
Pricing
Active Asset Management
Innovation
The Consumer
Stress Testing
Project Finance
Waste Management
Reputation
Energy
Green Washing
Infrastructure
Carbon Footprint
Risk
Politics
Data Governance
Social Bonds
CSR
SRI
Solvency2
Job Creation
Transparency
Human Capital
Carbon Tax
Stakeholder Opposition
Technology
Procurement
Workplace Diversity
M&A
Corporate Behavior
Corporate Governance
Responsible Lending
Impact Investing
Subsidies
Green Bonds
Prudential Treatment

DEMAND FROM MARKET / SUPERVISORS / REGULATORS

A sample of the how Credit Institutions are getting squeezed from all sides

Market

- ✓ Sustainable Lending, for example, is in high demand, seen as helping reputation and has benefits from a marketing perspective
- ✓ Finding new Bsns opportunities: firms with better ESG scores experience lower cost of capital and cost of debt than companies with poor ESG scores www.msci.com *(2020)*

Supervisory

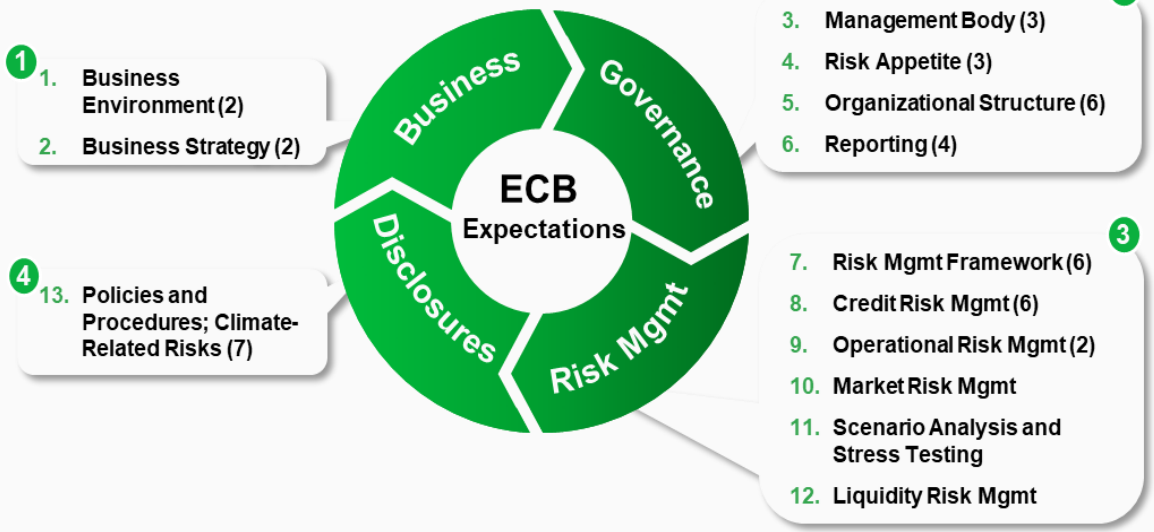
- ✓ The ECB and PRA (UK) have been very active over the last two years
- ✓ Climate Risk Self-Assessments and Stress-Testing are just some of the items on their radar for 2021-2022

Regulatory

- ✓ The ESAs are actively addressing mandates from the CRD, IFD, and more, to update regulatory requirements
- ✓ The EBA LOM Guidelines and updated SREP for ESG Risk feed into the European regulatory framework for Credit Lending specifically
- ✓ What will be in the next CRD and CRR…?

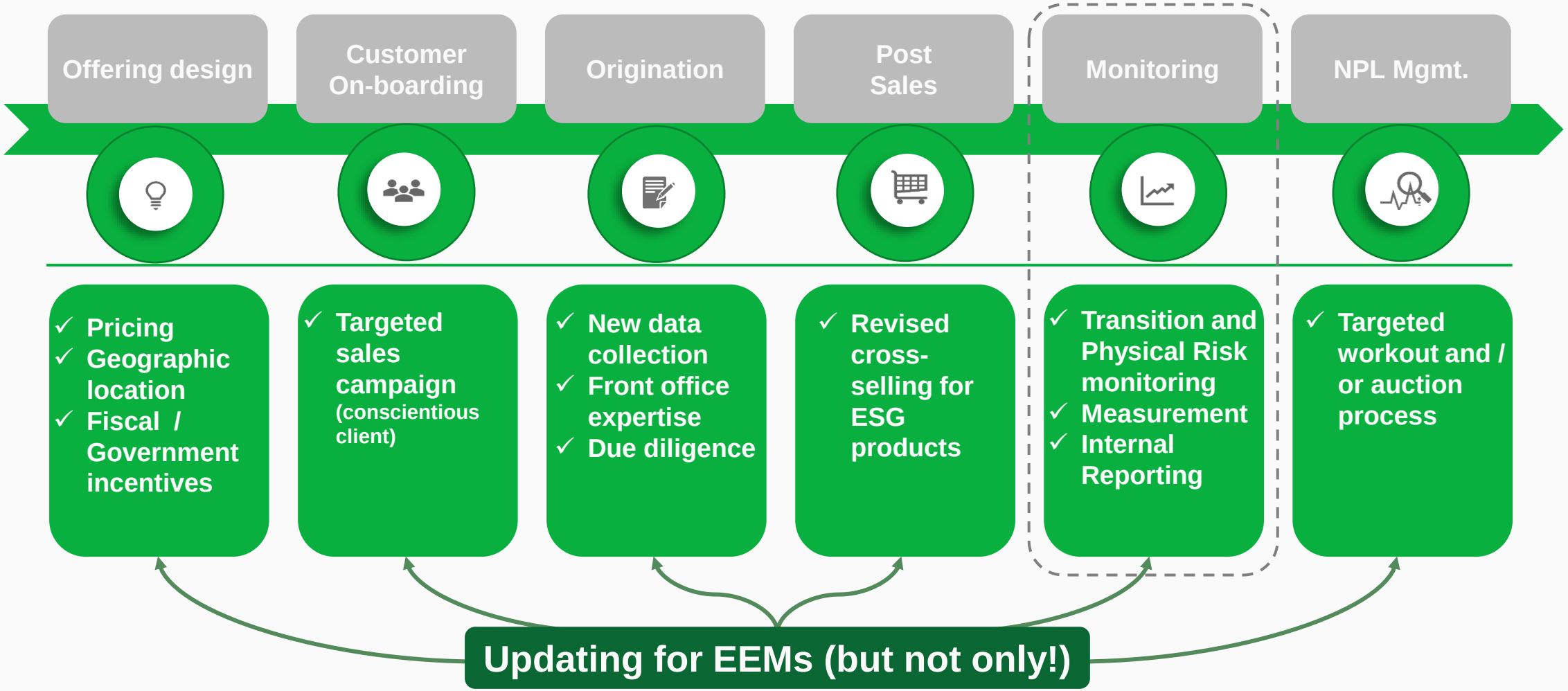
The ECB "Guide on climate-related and environmental risks"

4 Core topics **13** Main expectations **44** Detailed expectations



All of this somehow needs to be considered in the Credit Lifecycle

IMPACTS TO THE TYPICAL CREDIT LIFECYCLE



Typically, Risk Management's role is downstream, after business decisions have been made and data has been collected

OBSERVING AND MEASURING CLIMATE RISKS – WHERE TO BEGIN?

Assess your Risks

What are YOUR Transition and Physical Risks?

- How are you exposed to changes of new technologies or investment or carbon taxes?
- Do you have particular exposure in certain sectors: notably utilities, transport, material, industrials?
- Will adverse weather and rising sea levels affect physical assets and productivity?

Capture these Risks

Drill down of Asset Classes of Risk and Get the Right Data

- Balance sheet, asset and income stream mix and carbon footprint of each counterparty
- Company instruments - equities / bonds / credit ratings - both listed and unlisted
- Physical information around company's assets – location, value, utility
- Sovereign credit rating information and physical exposure to infrastructure depletion
- Exposure of property / infrastructure / mortgage loans to climate change

Advanced Modeling?

Introduce Climate Change Quantitative Models

- Provide a checklist of strategies, data and scoring techniques specific to your institution
- Calculate the financial impact at a instrument level of multiple climate scenarios
- Optimize the transition path for each counterparty's transition to low carbon footprint
- Consider climate stressed PDs and LGDs for improved and distressed asset classes

Information derived from these exercises should feed back into Business Strategy, Pricing, Stress Testing, …, and eventually into Capital Impact analysis

INDUSTRY PRACTICES AT THE MOMENT: MODELING AND STRESS TESTING

- **We observe a range of market practices in relation to approaches to climate change measurement**
- Practices range from nascent to integrated analysis based on a number of underlying analytical approaches
- The ECB and PRA have been active with a number of institutions, laying out clear expectations that firms would need to demonstrate progress on this front
- Some firms are undertaking more qualitative assessments in the short term, with analytical approaches considered for implementation in 2021 / 2022

Nascent — *Progressive Complexity of the Approach* — Mature

Do nothing/ wait and watch	Limited initial analysis	Scenario based approaches	VAR-like approaches	Integrated Analysis

• A few firms deem climate change risk assessments not to be a priority in 2020
• These firms are adopting a *"wait and watch"* strategy and aim to consider the issue in 2021
	• A limited number of firms have assessed that financial risk from climate change is not material based on a high-level analysis of their activities
	• One bank assessed climate change as primarily impacting credit risk. Given that this bank had limited credit risk exposure, they view climate change as currently not material
		• We observed a few firms following a scenario based approach to their assessments
		• Typically, a scenario with a narrative is defined and its impact is assessed. The scenarios typically used are:
		  ○ the Bank of England biennial scenarios;
		  ○ a scenario created by the client based on its own vulnerabilities.
		• In some cases the scenarios are 1-off shocks, while other firms apply a number of consecutive shocks to simulate the evolution through time.
		• Firms are undertaking sector and country assessments for physical and transition risks to inform their scenario analysis
			• Some have developed a value-at-risk type metric leveraging on the existing modeling and stress testing methodologies they use
			• The volatilities and correlations (variance / covariance matrix) are being considered but not typically shocked at this point
			• Evaluating the outcomes from these approaches help decide their next steps and analytical investments
				• Fewer still are considering integrated analysis of physical and transition risks through a number of underlying approaches, integrated with their broader risk management framework
				• These approaches are at new and are being actively developed by some larger firms and research institutes

Not necessarily wrong…	A start by assessment	Ready to make assumptions and test the outcomes	Analysis with stable groundwork and confidence	Focus next slide

CASE STUDY: INTEGRATED ASSESSMENT MODEL

Measuring and pricing Transition Risk of Corporate Counterparties with Imperial College of London and the Bank of England

1 GHG Scenario

- ✓ Projections needed of changes in temperature & green house gasses. e.g. using Representative Concentration Pathways (RCP) developed by the International Panel on Climate Change (IPCC)
- ✓ Policy expectation scenarios (new policy and carbon tax) are to be added.

3 Risk factor modelling

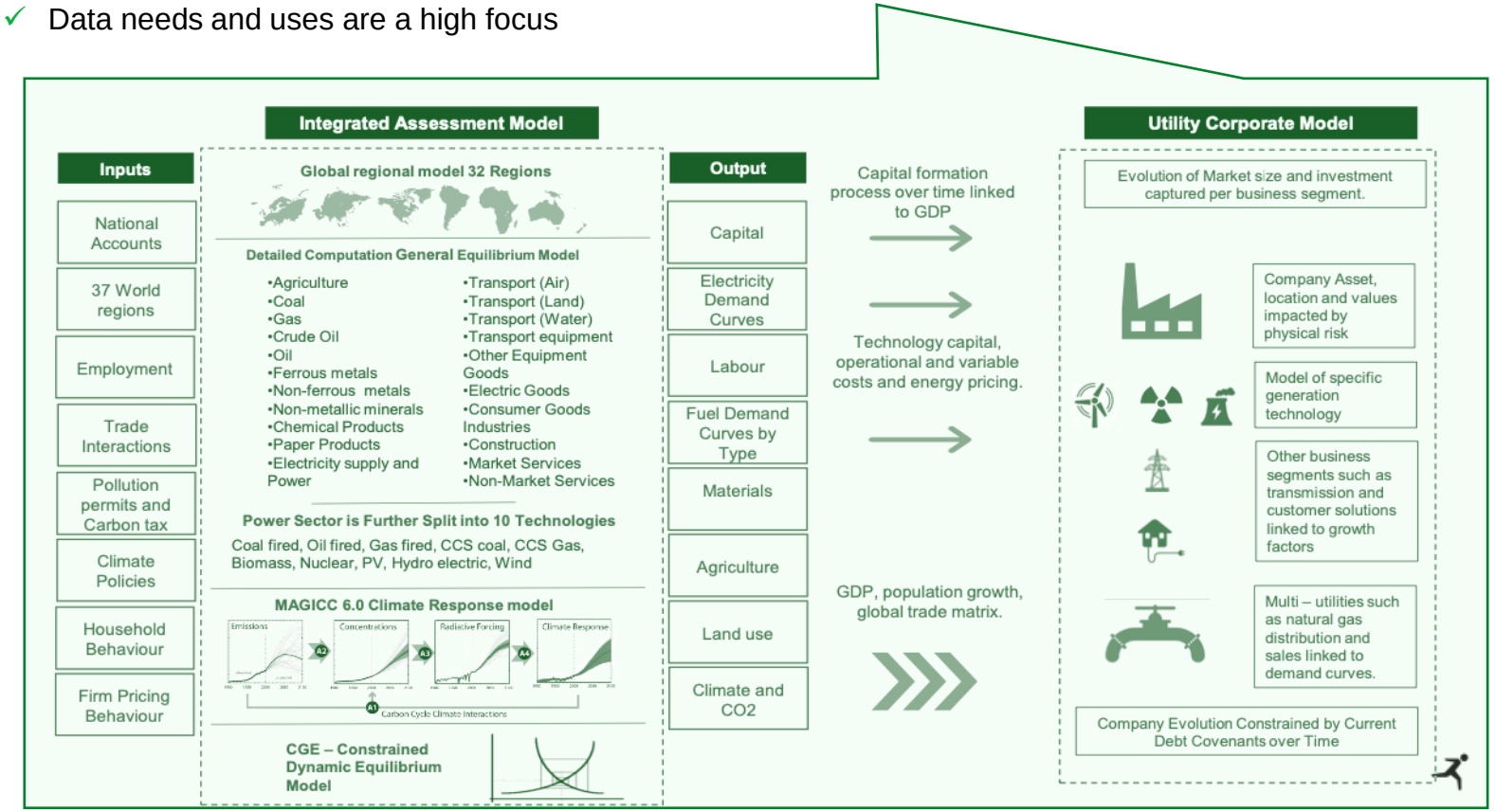
- ✓ Translate the IAM outputs into risk factors.
- ✓ Usually done by first modelling key companies / sectors (revenues, debt levels etc.). These are then translated into:
  - changes in equity prices
  - changes in credit spreads
  - changes in default probabilities

4 Aggregation & Scoring

- ✓ Aggregate the changes in risk factors with the positions to obtain projected impacts
- ✓ Derive brown/green fractional scoring
- ✓ Capital Impact (new IRB?)
- ✓ Stress Testing scenarios for the MLT

2 Integrated Assessment Model

- ✓ A constraint model is built by limiting total green house gas emissions based on climate path
- ✓ The constraints are modelled using an Integrated Assessment Model (i.e. projecting the economy and climate variables)
- ✓ This helps to simulate various sectors and/or regions, energy usage, energy prices, carbon taxing, and technology mix
- ✓ Data needs and uses are a high focus



Via Avantage Reply collaboration with Quant Foundry, London

ADDITIONAL RELEVANT CASE STUDIES

A summary of case studies with respect to climate change, modelling and Stress Testing

	ST Methodology Review	ST implementation	Risk Identification	Risk Data	Project set-up
Situation	The UK subsidiary of a G-SIB requested an independent review of its stress-testing methodology for financial risks from climate change.	The UK subsidiary of a G-SIB with both retail and corporate activities requested support to review the existing methodology and improve any identified gaps.	A UK bank requested support to ensure all the climate change impacts are identified across its business.	A large European bank requested that Avantage Reply help define the processes and IT flows to ensure that relevant climate data is captured and made available for: • risk management; and • business decisions.	A bank under direct ECB supervision requested help to set-up a bank-wide programme to prepare the bank to meet the upcoming ECB Guide on climate-related and environmental risks.
Our Approach	An in-depth review of the existing methodology was performed. Additional research was performed to provide: • Possible alternative approaches; • Possible alternative data sources.	An in-depth review of the existing methodology was performed. The existing methodology was complemented by: • Enhancing the scope of exposures to which it applies; • Developing new methodology for other type of exposures.	Avantage Reply reviewed the client's financial statement, Pillar 3 and ICAAP. A structured workshop was then held with Risk and the Business. The workshop identified areas were the risk is estimated to be material based on expert judgement.	Avantage Reply provided a team that: • Identified if the data is already captured or if a new source is needed; • For new data, a process is defined to capture it; and • Created business requirements for data to be made available in the relevant systems.	Avantage Reply provided resources that: • Identified all the key topics to be addressed; • Reviewed internal arrangement (i.e. committees and processes) to identify who should be accountable for various parts
Outcome	A report was provided to the client detailing our observations and providing concrete suggestions for improvements.	The scope of the existing stress testing methodology was increased from 1 type of exposure to include 3 types of exposures.	The outcome of the workshop enabled the client to identify all areas were they have a possible material risk exposure to climate change. For all areas identified as possibly material models will be developed to quantify the risk exposure	The project is ongoing. The first phase, i.e. identifying which data is already available within the bank vs new data required has been completed. The current focus is on defining how new data will be captured.	A governance structure has been defined that leverages on existing committees and responsibilities. The proposed governance will ensure an exhaustive and consistent approach is adopted to address the expectations of the ECB guide.

RECAP AND CONCLUSIONS: SOME TAKEAWAYS

01

Risk Taxonomies

- Should climate change be a discrete risk in the taxonomy or a meta-risk that cuts across?
- How to define it so that we can process and analyse it further?

02

Business Model Analysis

- A risk-based approach is fine but business model analysis should be considered, including vulnerability and sustainability analysis.
- How to reflect climate change in the budgeting and planning assumptions (outside of stress testing)?

03

Metrics and Reporting

- Have we introduced climate change related metrics in reporting?
- Defining appropriate metrics and thresholds (e.g. GHG emissions of counterparties).

04

Scenario Analysis

- Developing appropriate scenarios and industry/country assessment frameworks that are integrated with the ERM Framework.
- Are the scenarios well understood and capture the interactions between physical and transition risks?

05

Internal Audit

- Are internal audit teams looking at Climate Change initiatives within their audit plans?
- Is there sufficient robustness of Climate Change management approaches to withstand IA scrutiny?

06

Implementation Plans

- How to develop plans to implement climate change related initiatives across our ERM Framework?
- Going beyond the ICAAP how can climate change be incorporated into the bank's strategy?
- Are these plans funded and executable?
- Can they withstand internal and supervisory scrutiny?

THANK YOU!

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BACKUP

FIVE KEYS DIFFERENTIATORS

KEY TO THE QUALITY OF THE FIRM SERVICES

Integrated pan-European footprint

- Leading business and regulatory capabilities, leveraging our experience with best-in-class solutions in other countries

Embedded in the industry and regulatory ecosys

- Advanced regulatory and supervisory capabilities, leveraging knowledge gained when working for the European Central Bank, the Single Resolution Board, etc.

Technology enabled

- Demonstrated capability to implement change in IT systems, leveraging 8,000 technologists and partnerships with key vendors

Experienced delivery teams

- Staffing model drawing on business, technology and regulatory professionals organised in 'SWAT' teams.

Price policy

- Operational efficiency resulting in competitive price policy

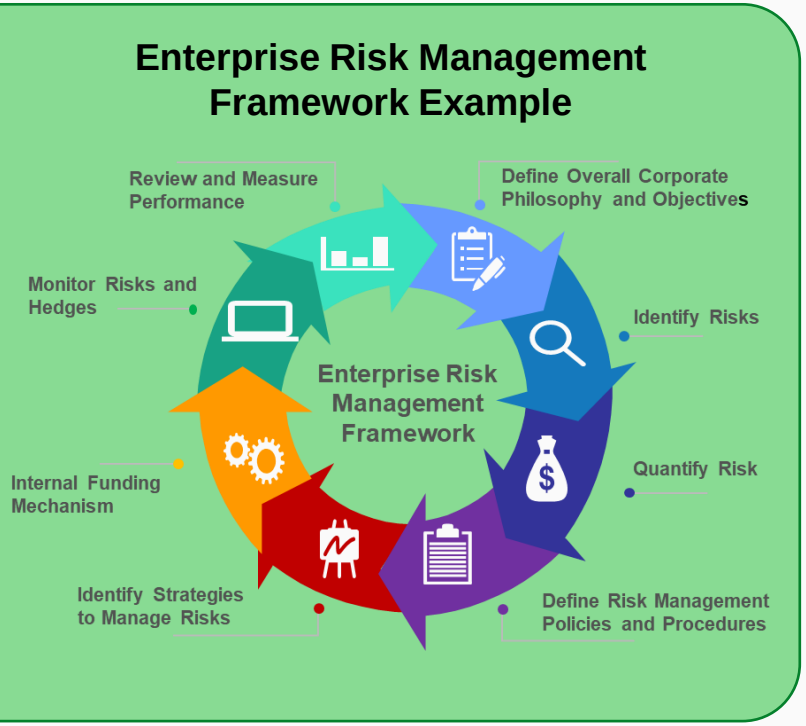
RISK MANAGEMENT DECISION MAKING FROM ALL ANGLES

Credit Institutions will need apply an approach that brings together several functions of the organization

Some are leaning on an ERM approach, utilizing competent resources throughout the firm to allow the interpretation and mitigation of ESG / Climate Risks with **a complete picture**

At the very least, Credit Institutions should look at…

1. **Financial Considerations**
2. **Strategic Considerations**
3. **Operational Considerations**
4. **Risk Assessments**



> ***ICP 16 sets out an international standard that calls for insurance supervisors to require an 'insurer's ERM framework to provide for the identification of all reasonably foreseeable and relevant material risks and risk interdependencies for risk and capital management.'*** *In this context, it is encouraging that all surveyed jurisdictions regard climate risks as being "reasonably foreseeable, relevant and material"*
>
> *– Bank of International Settlements, Policy Paper for Insurance Sector (Nov. 2019)*

A circular approach for the circular economy?

THERE ARE MANY RISK FACTORS TO CONSIDER

Factor Type	Macro Categories	Sample Indicators
ESG	Energy Water Emissions Waste Natural resources Environmental opportunities	• Energy usage and type • Waste water • GHG Emissions • Biodiversity and land use • Environmental impact
	Human capital Product liability Stakeholder opposition Social opportunities Other	• Human capital development • Safety standards • CSR Data • Charity contributions
	Corporate Governance Corporate Behavior	• Ownership structure • "Tone from the top"
Other ESG Factors	Green investment Carbon impact	• Green Bonds • Sustainable linked loan
Environmental Performance and Climate Risk	Revenue mix Carbon dependency Carbon Intensity Carbon Reduction Strategy Debt Covenant	• Capital / Operational expenditures • Transition Funding • Physical Hazards • Carbon emission by productivity

IMPACT OF ESG FACTOR AND TYPE OF METRIC EVALUATION

Financial condition of borrowers

- Overall exposure and credit worthiness
- Market projects for business segment (eg. NACE/BICS) of the Counterparty
- Financial fundamentals rating
- Benchmarking comparison against external ESG ratings

Environmentally sustainable lending

- Destination of Loan Use
- Geographic Location
- Maturity time horizon
- Loan Origination
- ESG Scoring and sustainable economy contribution
- ESG Materiality Matrix

Value of Assets

- Collateral Fair Value Projections
- Geolocation of Collateral
- Certification (eg. Energy efficiency of buildings)
- Heavy machinery and infrastructure use

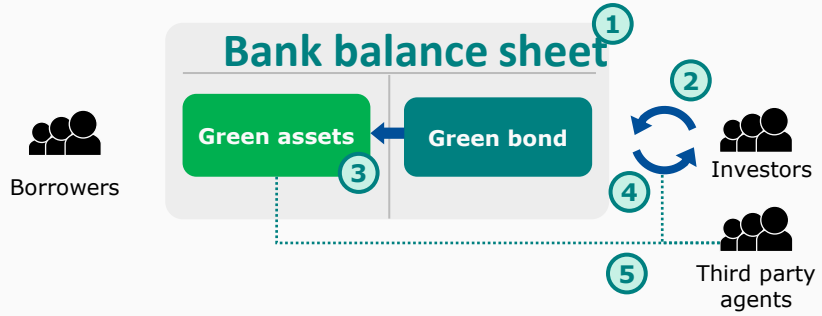
More Risk Factors means more challenges and complexities, but also more opportunities…

Green bonds

Defining features and industry standards (ICMA GB Principles)

Green bonds represent **market-based solutions** to channel funds to environmentally beneficial projects, as well as to raise awareness of environmental risks. The borrower **commits to use the proceeds** of the bonds **exclusively to (re)finance climate and environmental projects**.

Key features of a green bond



1. Publication of a **green bond framework**, defining eligible assets and overall objectives of the approach
2. Issuance process **similar to regular bonds*** (amendment to EMTN programme referencing the GB framework)
3. Proceeds used to **finance or refinance** green investment projects or assets (build-up phase then maintenance that may require to periodically replenish for amortising loans)
4. Specific disclosure to be released on a periodic basis:
   - **Allocation report** : breakdown of the green pool
   - **Impact report** : avoided GHG emissions
5. **External review** by a mandated third party agent to ensure eligibility / provide assurance

The Green Bond Principles

Industry standard developed by ICMA in 2017-18, articulated **around 4 components**

1	**Use of Proceeds**	Definition and description of the eligible project categories
2	**Project evaluation and selection**	Description of the internal selection process (governance, parties involved, etc)
3	**Management of Proceeds**	Control framework to ensure compliance with self-imposed eligible project categories
4	**Reporting**	Description of the reporting intention (frequency, topics, etc)

Ongoing initiative at European level to develop a statutory green bond standard, more stringent than the current industry standard (GBP) with an alignment to the EU taxonomy and mandatory third party verification

Expected proposal in 2021 Q2

*Green bonds can be issued in the form of different instruments (unsecured, covered bond, securitisation)

Green bonds

Development of the market from a niche to a mainstream asset class

Market developments

- First issuance in 2007 by EIB, with momentum picking up in 2015-2016 following the Paris Agreement
- Since, the market has grown exponentially and now includes public development banks, sovereign, banks and companies
- Largest European banks launched green bond programmes around 2015; over the last couple of year an increasing number of medium-sized banks have entered the market as well

Benelux Banks active on the green bond market

ING — Since 2015: 8 deals for 4,3 Bn€

ABN·AMRO — Since 2015: 4 deals for 2,5 Bn€

Rabobank — Since 2016: 3 deals for 2,2 Bn€

de volksbank — Since 2019: 2 deals for 1 Bn€

KBC — Since 2018: 2 deals for 1 Bn€

No active issuers but legal regime for "renewable energy covered bonds" since 2018

Incentives to issuing green bonds

Pros

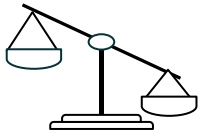
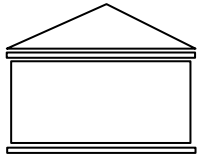
- Tap into an active markets with increasing demand from ESG-friendly investors
- Diversify funding mix
- Flexible format as can be used for different instruments (unsecured, subordinated, covered, etc) incl. for MREL purposes
- Reputational benefits
- Signal management commitment to tackle climate change ("walk the talk")

Cons

- Absence of direct economic benefits as the pricing is similar to a regular bond (same underlying risks)
- Costs associated with the underlying reporting processes and the external review (TPV)
- Reputational damages in case of not being able to associate enough green assets (could lead to liability risks although in principle not a legal requirement)
- Lack of eligible green projects and assets

ESG RISKS MANAGEMENT AND SUPERVISION

Examples of ESG factors included in the most commonly used frameworks – adaptation from the EBA (Oct. 2020)

Source	International Frameworks[1]	European Framework[2]	Industry Framework[3]	Common Areas[4]
ENVIRONMENTAL 	• Air pollutants • Waste management • Use of Ecosystem • Innovation in environment	• Land degradation, desertification, soil sealing • Ecosystems protection	• Waste management • Research and development in low-carbon and other environmental technologies	• **Energy use and efficiency** • **Water use and consumption** • **Biodiversity** • **GHG emissions** • **Deprived landscape revitalisation**
SOCIAL 	• Workplace and Customer health and safety • Training and education	• Insufficient whistleblower protection	• Access to credit and financial inclusion • Personal data security	• **Labour and workforce considerations** • **Human rights** • **Inequality** • **Gender rights** • **Minority rights**
GOVERNANCE 	• Codes of conduct and business principles • Accountability • Transparency and disclosure • Board diversity and structure • Bribery and corruption	• Trafficking in human beings • Exposure to controversial weapons (land mines and cluster bombs)	• Stakeholder engagement • Shareholder rights	• **Rights and responsibilities of directors** • **Remuneration**

1) United Nations' Principles for Responsible Investment (UNPRI), the United Nations' Environment Program (UNEP) Finance Initiative (FI)'s Principles for Responsible Banking, the Global Reporting Initiative's from the Global Sustainability Standards Board (GRI-GSSB), the Equator Principles; the Natural Capital Protocol + Supplement (Finance) 2) Regulation EU 2020/852 on the establishment of a framework to facilitate sustainable investment, and amending Regulation (EU) 2019/2088 and Draft RTS ESG Disclosures Consultation Paper 3) EBA Market Practices Survey on Sustainable Finance and 4) EBA staff

EBA LOAN ORIGINATION MONITORING

The guidelines point out the need for banks to **consider ESG risks in the entire credit life-cycle**, including strategic, organizational, data, qualitative and quantitative analysis

Banks will have to take into account many new regulatory requirements and significant changes in the market for ESG and Climate Risk (e.g. ECB expectations, EBA Action Plan, …)

Highlights on ESG and Climate Risks

Governance

- **«Tone from the top»**: corporate culture from top mgmt
- **Review the RAF:** Physical and Transition Risks
- Integrate **ICAAP** and **ILAAP** processes
- New **training** and **specific roles**

Procedures

- **Identify fraudulent or suspicious activity**
- **Due diligence** and ensure quality
- **New Transition Risks** analysis techniques
- Determine limits the debtor's cash flows
- **New risk factors** into the risk assessment

Pricing

- **Impact of risk factors** for products by sector or at debtor level
- Establish mechanisms for **determining spreads**
- Consider risk-adjusted performance metrics

Monitoring

- Carry out a **periodic review** of the risk profile of the debtor, macro-economic conditions, and trends in certain sectors

Reading Between the Lines

New Data and Sources

- **Check for "Green Washing" and ensure quality and**
- **Update processes** to collect **new data** on debtors
- Use new **reliable external sources** on ESG and Climate Risk

Apply methodologies, models and techniques

- Integrate considerations for **Transition Risk** and **uncertainties** in the social-political context:
  - New laws and regulations (penalize or benefit existing debtors)
  - Pricing of MLT and cash flow estimates of debtors should be refined
- **Consider Physical Risks** in assessing of the values of assets
- Utilize advanced tools and data analytics for new pricing

Introduce Change and Progressive Enhancements

- Integrate ESG and Climate Risk into **Enterprise Risk Mgmt**
- Develop internal competencies: train resources to **recognize** ESG and Climate risks, **interpret sustainable balance sheets,** and **identify new opportunities**

> *"In these guidelines, the EBA is introducing prominently **environmentally sustainable lending dimensions**, and is setting **requirements for institutions to consider ESG factors, environmentally sustainable lending and associated risks in their credit policies and procedures**. This is a significant step considering the **importance of the topic for the EU**…"*
>
> *– EBA, Guidelines on Loan Origination Monitoring (EBA/GL/2020/06), May 2020*