A SYSTEM CHANGE COMPASS
Implementing the European Green Deal in a time of recovery
GLOBE Wake Up Call - 26 November 2020

Funded by

S Y S T E M I Q
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S U N Institute
Environment & Sustainability
Initiated by Deutsche Post Foundation

MAVA
FONDATION POUR LA NATURE
For the first time in human history we face the emergence of a single, tightly coupled human social-ecological system of planetary scope.

We are more interconnected and interdependent than ever.

Our individual and collective responsibility has enormously increased.
2020: Wake-up call for “The future we want”

Tipping point for the climate-biodiversity-health:
We are leaving the “safe operating space” across multiple earth systems

An economic reset:
Economies in lockdown and governments releasing the biggest stimulus packages in recent memory

Paradigm change in European politics:
The European Green Deal as new strategic objective, supported by a new cohort of politicians

Multilateralism on the test bench:
America and China are going different ways

Activism with renewed vigour:
European Green Deal
Important to Remember

- It is a **new growth strategy** acknowledging that environmental and economic goals are not in contradiction and future economic development depends on how we will preserve and protect our natural capital.
- Special attention is given to **social considerations of the transition**. Success of the reform efforts proposed by EGD depends on acceptance, particularly from the socially more vulnerable groups of people.
President von der Leyen State of the union - Building the world we want to live in: a union of vitality in a world of fragility

- This is our **opportunity to make change happen by design** – not by disaster or by diktat from others in the world.
- To emerge stronger by **creating opportunities for the world of tomorrow** and not just building contingencies for the world of yesterday.
- **Propelling Europe forward**: building the world we want to live in
- **The European Green Deal is our blueprint to make that transformation.**
- It is about making **systemic modernisation across our economy, society and industry**. It is about building a stronger world to live in.
- The Virus showed the **limits of a model that values wealth above wellbeing.** It brought into sharper focus the **planetary fragility** that we see everyday through melting glaciers, burning forests and now through global pandemics
- **Our leadership is not about self-serving propaganda.** It is not about Europe First, this should bring the fight against common threats, but also:
  - **Building and strengthening transnational global structures.**
  - **Building back better for the global south.**
  - **The planetary responsibility of leadership.**
  - **The mutual gains of multilateralism.**
The Objective of the Report

5 core questions for our report:

Will the EGD achieve its goals as it stands today?

If not, what (systemic) conditions need to be in place to change that?

What interventions are needed to put these conditions in place?

What are the economic ecosystems that will meet our societal needs in the spirit of the EGD?

What are the industrial champions that we should support to build these systems (and where budget and recovery money should be spent)?

**Trigger:**
- Need to think holistically about EGD
- Conversation with EC on challenges of combining EGD with recovery

**Authors:**
- Club of Rome and SYSTEMIQ

**Contributors:**
- Wide array or organisations from civil society, academia and business leaders
The System Change Compass contributes to the implementation of the ambitions of the European green Deal

Ambition of the EGD is high...

- Sets zero net emissions of GHG by 2050 and decoupling of growth and resource use
- Acknowledges need for fair and just transition
- Aims at strongly interlinked and mutually reinforcing policy recommendations

...but implementation is uncertain

- Does not sufficiently address drivers and pressures that cause environmental damage
- Does not offer systemic perspective to guide decision-making
- Implementation is put at extra risk due to COVID-19 recovery
- Maps and envisions the system in service of people and planet
- Derives system level orientations towards desired state
- Charts pathway towards prosperity and wellbeing within planetary boundaries
UNEP IRP and Club of Rome:

The core limiting factor of human wellbeing and our (economic) development are (the unsustainable use of our) natural resources and environmental sinks.

Report is based on natural resource optics.

The way we treat natural resources to a large extent determines economic results, as well as environmental and health impacts. Natural resources are the bridge between economy and competitiveness on one hand and climate change, biodiversity loss, pollution and health implications on the other.
System change approach
Relation to existing global agreements

Report does also not have the ambition to address all system changes arising from global commitments like those related to SDGs and Paris climate agreement.

Yet it is still an important contribution to their implementation.

According to the International Resource Panel trade-offs among various SDGs are unavoidable and the most efficient strategy to mitigate them and create synergies to resolve the development and environmental challenges is through sustainable consumption and production.
Our Economy

Vary across scales & global geographic regions

policies

Convention on Biological Diversity
ipbes
IPCC
THE CLUB OF ROME
SYSTEMIQ
Translating the system change compass to systemic orientations

System Change Compass (10 Principles)

Application to the system to derive systemic orientations

- 30 System-level orientations
- 3-5 ecosystem-level orientations
- 50+ Champion orientations

OVERARCHING SYSTEM
ECONOMIC ECOSYSTEM
CHAMPIONS
Translating the system change compass to systemic orientations

System Change Compass
(10 Principles)
The System Change Compass

**Redefining Prosperity:** Embracing social fairness for real prosperity

**From**
Prosperity defined by aggregate economic growth

**To**
Prosperity defined by fair and social economic development
The System Change Compass

REDEFINING PROSPERITY:
Embracing social fairness for real prosperity

REDEFINING NATURAL RESOURCE USE:
Prosperity decoupled from natural resource use

From
Prosperity based on natural resource consumption

To
Prosperity decoupled from resource consumption through efficiency, sufficiency and a shift to responsible use of natural resources
The System Change Compass

Redefining Prosperity: Embracing social fairness for real prosperity

Redefining Natural Resource Use: Prosperity decoupled from natural resource use

Redefining Progress: Meeting societal needs as a purpose of a model based on economic ecosystems

From
Growing economic activities and sectors

To
Focusing on societal needs that need to be fulfilled without transgressing planetary boundaries
The System Change Compass

REDEFINING PROSPERITY: Embracing social fairness for real prosperity

REDEFINING NATURAL RESOURCE USE: Prosperity decoupled from natural resource use

REDEFINING PROGRESS: Meeting societal needs as a purpose of a model based on economic ecosystems

REDEFINING METRICS: Performance measurement updated

From

Decisions driven by optimising for GDP growth

To

Decisions driven by holistic metrics including natural capital and social indicators
The System Change Compass

**REDEFINING PROSPERITY:** Embracing social fairness for real prosperity

**REDEFINING NATURAL RESOURCE USE:** Prosperity decoupled from natural resource use

**REDEFINING PROGRESS:** Meeting societal needs as a purpose of a model based on economic ecosystems

**REDEFINING METRICS:** Performance measurement updated

**REDEFINING COMPETITIVENESS:** Digitization and smart prosperity at the heart of European competitiveness

**From**
Massive dependency of Europe on imports of natural resources

**To**
A resilient Europe based on low carbon products, services, and digital optimisation
The System Change Compass

REDEFINING PROSPERITY:
Embracing social fairness for real prosperity

REDEFINING NATURAL RESOURCE USE:
Prosperity decoupled from natural resource use

REDEFINING PROGRESS:
Meeting societal needs as a purpose of a model based on economic ecosystems

REDEFINING METRICS:
Performance measurement updated

REDEFINING INCENTIVES:
Show the real value of social and natural capital

REDEFINING COMPETITIVENESS:
Digitization and smart prosperity at the heart of European competitiveness

From
Incentives supporting the status quo

To
Incentives aligned with Green Deal ambitions and economic ecosystems
The System Change Compass

REDEFINING PROSPERITY:
Embracing social fairness for real prosperity

REDEFINING NATURAL RESOURCE USE:
Prosperity decoupled from natural resource use

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REDEFINING INCENTIVES:
Show the real value of social and natural capital

REDEFINING COMPETITIVENESS:
Digitization and smart prosperity at the heart of European competitiveness

REDEFINING CONSUMPTION:
From owning to using

From
Owning products as part of individual identity

To
Experiencing and using products and services as part of individual, shared, and collective identity
The System Change Compass

REDEFINING PROSPERITY: Embracing social fairness for real prosperity

REDEFINING NATURAL RESOURCE USE: Prosperity decoupled from natural resource use

REDEFINING PROGRESS: Meeting societal needs as a purpose of a model based on economic ecosystems

REDEFINING METRICS: Performance measurement updated

REDEFINING COMPETITIVENESS: Digitization and smart prosperity at the heart of European competitiveness

REDEFINING INCENTIVES: Show the real value of social and natural capital

REDEFINING CONSUMPTION: From owning to using

REDEFINING FINANCE: The facilitator of the transition

From
Subsidising and investing in “old” industries

To
Supporting and facilitating economic ecosystems
The System Change Compass

**REDEFINING PROSPERITY:**
Embracing social fairness for real prosperity

**REDEFINING NATURAL RESOURCE USE:**
Prosperity decoupled from natural resource use

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**REDEFINING CONSUMPTION:**
From owning to using

**REDEFINING FINANCE:**
The facilitator of the transition

**REDEFINING GOVERNANCE:**
A systematic approach to governance influenced by science

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**From**
Top down, static, slow normative policy processes

**To**
Transparent, flexible, inclusive, participatory models of governance influenced by science
The System Change Compass

**From**

Traditional leadership roles and expectations

**To**

System leadership based on an intergenerational agreement

**Redefining Leadership:**
Intergenerational agreement through new forms of leadership

**Redefining Prosperity:**
Embracing social fairness for real prosperity

**Redefining Governance:**
A systematic approach to governance influenced by science

**Redefining Finance:**
The facilitator of the transition

**Redefining Consumption:**
From owning to using

**Redefining Natural Resource Use:**
Prosperity decoupled from natural resource use

**Redefining Progress:**
Meeting societal needs as a purpose of a model based on economic ecosystems

**Redefining Metrics:**
Performance measurement updated

**Redefining Competitiveness:**
Digitization and smart prosperity at the heart of European competitiveness

**Redefining Incentives:**
Show the real value of social and natural capital
Translating the system change compass to systemic orientations

System Change Compass (10 Principles)

Application to the system to derive systemic orientations

30 System-level orientations
3 System Level Interventions for each Compass Orientation

COMPASS PRINCIPLES

REDEFINING PROSPERITY:

01 Embracing social fairness for real prosperity

SYSTEM LEVEL INTERVENTION

1. Balance policy attention from income and wealth creation to income and wealth distribution, and ensure that economic transition contributes to equality and social fairness by guaranteeing universal basic services and minimum levels of income.

2. Create conditions for social acceptance of the necessary transition through enhancing reskilling and educational programmes; introducing funding mechanism to support transition and supporting lower- and middle-income groups to help them absorb full-costs introduced through all economic eco-systems.

3. Replace part of the income-based taxes with resource-based taxes to address resource as well as social policy targets.
02 REDEFINING NATURAL RESOURCE USE: Prosperity decoupled from natural resource use

1. Complement energy and GHG-related targets by introducing science-based resource use (absolute) decoupling targets following sufficiency principles
2. Assess all policy proposals through dematerialisation and energy-efficient decarbonisation impacts
3. Align current legal and financial systems with circular and carbon-free principles and support the necessary infrastructure and research to contribute to achieving a carbon-free circular transition
REDEFINING PROGRESS:
Meeting societal needs as the Purpose of a model based on economic ecosystems

1. Meeting societal needs inside safe operating space, respecting planetary boundaries, should be a primary goal for all European institutions and national governments.
2. Replace short-term-based governance driving public, private and financial policy decisions with longer-term strategic approach and incentives.
3. Reorganise European institutions, governments and other governing bodies and promote industrial dialogue, to address societal needs and industrial ecosystems logic and enable addressing the complexity of challenge - avoid a silos-based approach.
3 System Level Interventions for each Compass Orientation

**REDEFINING METRICS:**

1. **Replace GDP with a new, comprehensive wellbeing measure that also integrates social and environmental needs**, accompanied by a set of additional indicators
2. **Introduce natural capital accounting**
3. **Standardise company and investor reporting** with a decoupling lens against indicators of societal needs, pollution and emissions related to production
## 3 System Level Interventions for each Compass Orientation

<table>
<thead>
<tr>
<th>COMPASS PRINCIPLES</th>
<th>SYSTEM LEVEL INTERVENTION</th>
</tr>
</thead>
<tbody>
<tr>
<td>REDEFINING</td>
<td>1. Build EU competitiveness based on resource, including energy, productivity leading to optimisation enabled by digitalisation</td>
</tr>
<tr>
<td>COMPETITIVENESS:</td>
<td>2. Support the development and deployment of new digital services-based or other resource and energy reducing models</td>
</tr>
<tr>
<td>Digitalisation and smart prosperity at the heart of European competitiveness</td>
<td>3. Support solutions, which will strengthen resilience and strategic autonomy of the European economy, provide new local jobs and enhance education and job (re-training) programmes</td>
</tr>
</tbody>
</table>
3 System Level Interventions for each Compass Orientation

**COMPASS PRINCIPLES**

**REDEFINING INCENTIVES:**

**06** Introduce the real value of social and natural capital

**SYSTEM LEVEL INTERVENTION**

1. Follow the policy principles in all industrial eco-systems, which would reflect and include all costs, like carbon pricing or resource taxes, related to environmental and health impacts (so called “externalities”)

2. Replace, without further delay, all harmful and unsustainable subsidies supporting extraction, consumption, and disposal of natural resources. Strengthen producer liability and use freed up funding to support activities reducing natural resource use, especially of hard to abate sectors

3. Prioritise investments in “rebooting” nature and update environmental standards to take into consideration systemic interactions between climate-biodiversity-health, to ensure greater resilience to future shocks
### 3 System Level Interventions for each Compass Orientation

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<tr>
<td>REDEFINING CONSUMPTION:</td>
<td>1. <strong>Educate consumers</strong> and provide them with information, like product passport, to <strong>empower</strong> them for informed choices</td>
</tr>
<tr>
<td>From owning to using</td>
<td>2. Explore the opportunity offered by a less ownership-biased younger generation and provide consumers with alternatives to meet their needs</td>
</tr>
<tr>
<td></td>
<td>3. Support transition of governance, legal and financial systems to enable <strong>Producer Ownership business models</strong></td>
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### 3 System Level Interventions for each Compass Orientation

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<tr>
<th>System Level Intervention</th>
<th>Compass Principles</th>
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<tbody>
<tr>
<td>1. Ensure financial accounting and risk assessment fully disclose climate, nature and diversity impact indicators of investment portfolios</td>
<td>REDEFINING FINANCE: The facilitator of the transition</td>
</tr>
<tr>
<td>2. Orientate all public investments to catalyse system change, along the lines of compass orientations and economic ecosystems while considering immediate &quot;symptomatic&quot; action needs</td>
<td></td>
</tr>
<tr>
<td>3. Support and de-risk private investment and expend blended financing in emerging industrial ecosystems and their respective champions</td>
<td></td>
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</tbody>
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3 System Level Interventions for each Compass Orientation

COMPASS PRINCIPLES

REDEFINING GOVERNANCE:

09 Sharing sovereignty and working together

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<th>SYSTEM LEVEL INTERVENTION</th>
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<tbody>
<tr>
<td>1. <strong>Support</strong> inclusive, informed, fair and participatory governance systems, ensuring that all relevant stakeholders have voice, agree and share the <strong>ownership</strong> of necessary system change</td>
</tr>
<tr>
<td>2. Explore the establishment of an international resource management convention and ensure better <strong>inclusion</strong> of resource management in all existing international agreements</td>
</tr>
<tr>
<td>3. Lead the implementation of more innovative, deliberative formats for policymaking, especially at supranational level; provide development <strong>funds</strong> to promote decoupling globally through co-creating or fostering new projects and programmes that are &quot;bottom-up&quot;, and enhance governance models to support those implementing them</td>
</tr>
</tbody>
</table>
3 System Level Interventions for each Compass Orientation

**COMPASS PRINCIPLES**

**SYSTEM LEVEL INTERVENTION**

**REDEFINING LEADERSHIP:**

10 Intergenerational Agreement by System Change Leaders

1. **Build trust** through stronger commitment to, and rules on, *science-informed policy making*, based on credible knowledge from diverse knowledge systems on all governance levels, and better define how the *precautionary principle* should be used in practice to strengthen resilience and build preparedness.

2. **Empower and support system change leaders at all levels**, from private to public, from local to global, and ensuring gender equality, to drive the change.

3. **Ensure that the rights of future generations** are considered in policymaking and their voices are better heard and included in decision-making debates.
Translating the system change compass to systemic orientations

System Change Compass (10 Principles)

Application to the system to derive systemic orientations

30 System-level orientations

3-5 ecosystem-level orientations

OVERARCHING SYSTEM

ECONOMIC ECOSYSTEM
Economic Eco-Systems

Related to resource intensive human needs
- Nutrition
- Mobility
- Housing
- Daily functional needs

Supporting the fulfilment of multiple human needs
Translating the system change compass to systemic orientations

System Change Compass (10 Principles)

Application to the system to derive systemic orientations

- 30 System-level orientations
- 3-5 ecosystem-level orientations
- 50+ Champion orientations

OVERARCHING SYSTEM
ECONOMIC ECOSYSTEM
CHAMPIONS

THE CLUB OF ROME
SYSTEMIQ
### 50+ nascent industrial champions that should be supported to built ecosystems based on compass orientations

<table>
<thead>
<tr>
<th>Healthy food</th>
<th>Built Environment</th>
<th>Intermodal Mobility</th>
<th>Consumer goods</th>
</tr>
</thead>
<tbody>
<tr>
<td>- Organic food and beverages</td>
<td>- Smart urban planning</td>
<td>- Fast charging infrastructure</td>
<td>- Product-as-a-Service models</td>
</tr>
<tr>
<td>- Regenerative agriculture</td>
<td>- Rethink built environment</td>
<td>- High speed railway infrastructure</td>
<td>- Maintenance and value retention in products</td>
</tr>
<tr>
<td>- Sustainable aquaculture and fishing</td>
<td>- Repurposing of underutilized</td>
<td>- Modern and adapted transit</td>
<td>- Peer-to-peer product sharing platforms</td>
</tr>
<tr>
<td>- Reduce and valorise food waste</td>
<td>buildings</td>
<td>infrastructure</td>
<td></td>
</tr>
<tr>
<td>- Urban agriculture</td>
<td>- Retrofit existing buildings</td>
<td>- Car and ride sharing models</td>
<td></td>
</tr>
<tr>
<td>- Product reformulation for nutritious food</td>
<td>- Fluid and sufficiency-oriented space management</td>
<td>- End of life management for cars</td>
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<tr>
<td>- Alternative proteins</td>
<td>- Circular and net-zero housing</td>
<td>- Electric and autonomous vehicles</td>
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<table>
<thead>
<tr>
<th>Nature-based</th>
<th>Energy</th>
<th>Circular Materials</th>
<th>Information and processing</th>
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</thead>
<tbody>
<tr>
<td>- Restoration of degraded land and coasts</td>
<td>- Renewable power generation</td>
<td>- Localized and distributed value chain systems</td>
<td>- Distributed manufacturing</td>
</tr>
<tr>
<td>- Sustainable Forest management</td>
<td>- Energy storage</td>
<td>- Asset recovery systems and reverse logistics</td>
<td>- High-speed digital infrastructure</td>
</tr>
<tr>
<td>- Urban greening</td>
<td>- Hydrogen economy</td>
<td>- Markets for secondary materials</td>
<td>- Digital material information and tracking systems</td>
</tr>
<tr>
<td>- Systems for paid ecosystem services</td>
<td>- Smart metering and (point-of use) energy management</td>
<td>- Mechanical recycling</td>
<td>- Data generation, processing, and protection</td>
</tr>
<tr>
<td>- Seaweed</td>
<td>- Grid integration and technologies</td>
<td>- Chemical recycling</td>
<td></td>
</tr>
<tr>
<td>- Marine and land based environmental protection areas</td>
<td>- Production of low-carbon gaseous and liquid fuels</td>
<td>- Materials-as-a-service models</td>
<td></td>
</tr>
<tr>
<td>- Ecotourism</td>
<td>- Carbon capture infrastructure</td>
<td>- New materials and high-performing substitutes</td>
<td>- Artificial Intelligence for societal challenges</td>
</tr>
<tr>
<td></td>
<td>(transition technology only)</td>
<td></td>
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</tbody>
</table>

### R&I European Partnerships (49 proposed)
A new systems map to envision the system and its parts

New organization of economic activities
One overarching system that consolidates the European economy in its entirety.

Application of the compass on each level
30 System-level political orientations
3-5 economic ecosystem level orientations
50+ champion orientations

Economic ecosystems can meet a specific societal need (e.g. intermodal mobility system) or support the fulfilment of multiple societal needs (e.g. new energy system).

“Champions” are economic subsystems which could become the new spearheads of the green, resilient and fair post-COVID economy Europe wants to build.
How this could be useful in policy creation

Mobility

**ECONOMIC ECO-SYSTEM ORIENTATIONS**

- **Reduce the need for motorized trips through**
  - city design for shorter commutes, facilitating residential relocation to shorter commutes, improving digital infrastructure and offerings to promote non-travel meetings,
  - promoting working-from-home (teleworking) policies
  - enabling low-material, zero-fuel "active" transport e.g. extension of cycling lanes, conversion of highly frequented city zones into pedestrian areas
  - shortening supply chains to increase freight efficiency

- **Prioritize medium of transport that is easiest to electrify and maximise utilisation through**
  - e.g. train transport over airplanes, particularly for regional or domestic flights

- **Maximize the utilisation per vehicle and trip for freight and passengers through**
  - intercity: (high-speed) rail
  - urban: public transport, intermodal integrated mobility offerings
  - enablers: infrastructure, exclusive lanes for shared transport and micro mobility, digital platforms,
  - ocean/air: avoiding empty/unladen journeys resp. in passenger aviation not fully booked flights, modularity of planes for different uses that is adaptable to current need of either passenger or freight capacity through modules

- **Reduce energy intensity and consumption of fuel made of mineral oil by**
  - promoting electric vehicles in all possible cases
  - reducing energy intensity (energy consumption per tonne transported) by technical and operational interventions in aviation and shipping
  - shifting to sustainable fuels for indispensable aviation and shipping trips

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**Policy support**

- Regulation
- Funding support
- Other incentives
- Market signals etc.

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**Intermodal Mobility**

- Fast charging infrastructure
- High speed railway infrastructure
- Modern and adapted transit infrastructure
- Car and ride sharing models
- End of life management for cars
- Electric and autonomous vehicles
- Infrastructure to improve traffic flow and AV adoption
- Green aviation
- Green shipping
- Walking/cycling infrastructure
System Change Compass: Policy Conclusions

• Define desired target societal outcomes and metrics per economic ecosystem and restructure scope of work on EGD to be in line with this
• Bring a “whole of government” approach to the implementation of the EGD, based on shared outcomes to be achieved across departments
• Pressure test implementation policy measures to ensure they address drivers and pressures (as identified in the Compass) and not merely address symptoms
• Across all levels of the system, consider political orientations and their respective implementation through policy measures
• At champion level, consider how best to create market conditions and direct funding support like coronavirus recovery money into the new building blocks of the European industrial backbone for the 21st century
EGD and the post-COVID Recovery
Two Sides of the same Coin

1. The economic policy designed by the EGD and related documents is the most convincing competitiveness policy for the European Union.
2. EGD already provides convincing answers to some COVID-19 related concerns in relation to reconsidering globalisation effects.
3. Both EGD and post-COVID-19 call for an inter-generational solidarity and agreement.
4. COVID-19 is providing the necessary missing urgency to the EGD and climate related financial efforts.
5. Both COVID-19 and EGD related challenges require a new approach to governance, in particular on the global level.
THANK YOU!