

UNDP BIOFIN – TNFD Training

LEAP - Evaluate

June 2025

Climate Risk Services

UNDP

BIOFIN
The Biodiversity Finance Initiative

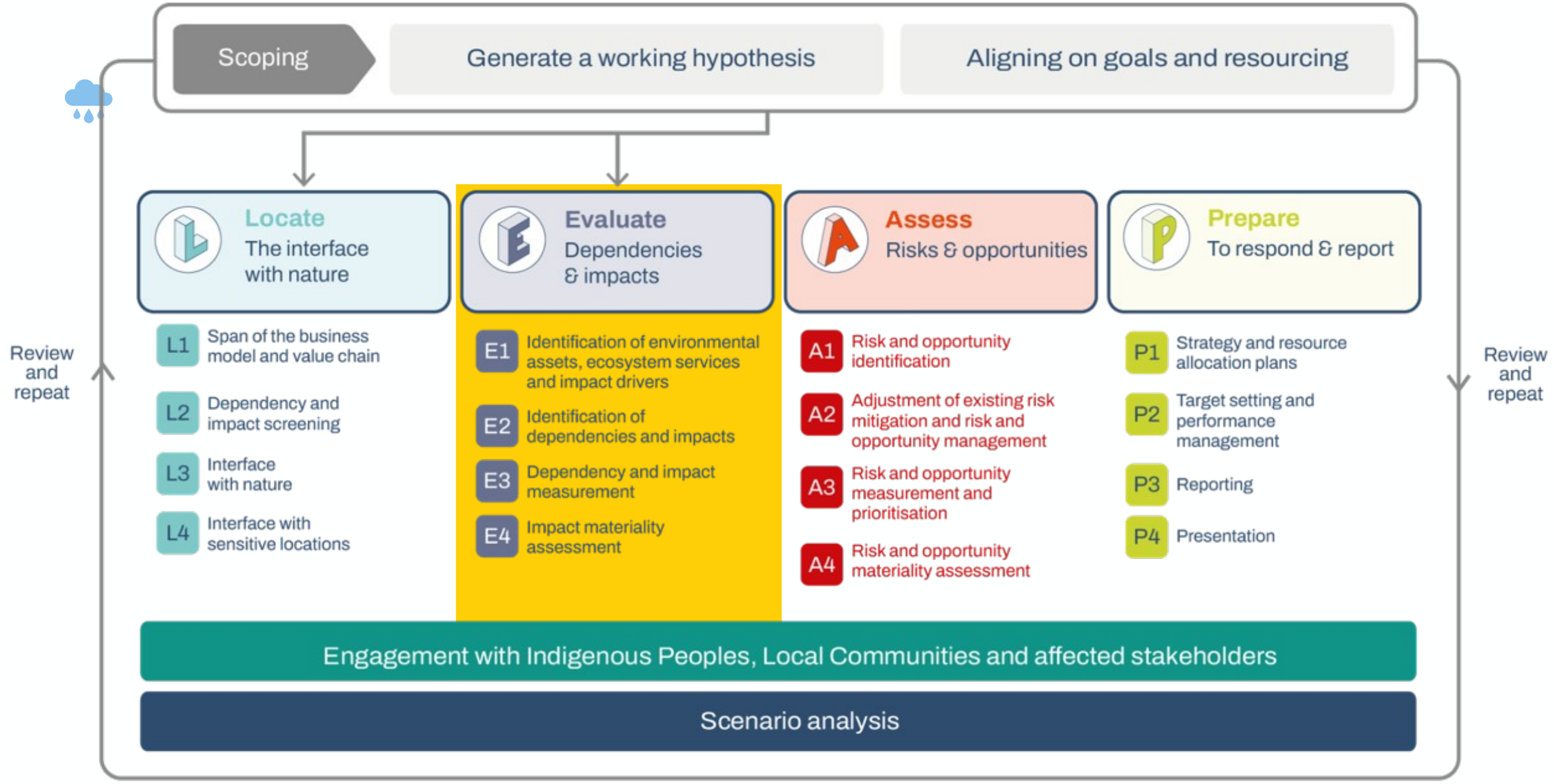
In this video…

1. Introduction to the Evaluate step
2. Case studies

Key Objectives

- Understand how the evaluate step builds upon the locate step, its purpose and how to undertake it.
- Understand how the case studies undertook the evaluate step.

EVALUATE



Source: TNFD (2024) TNFD in a Box

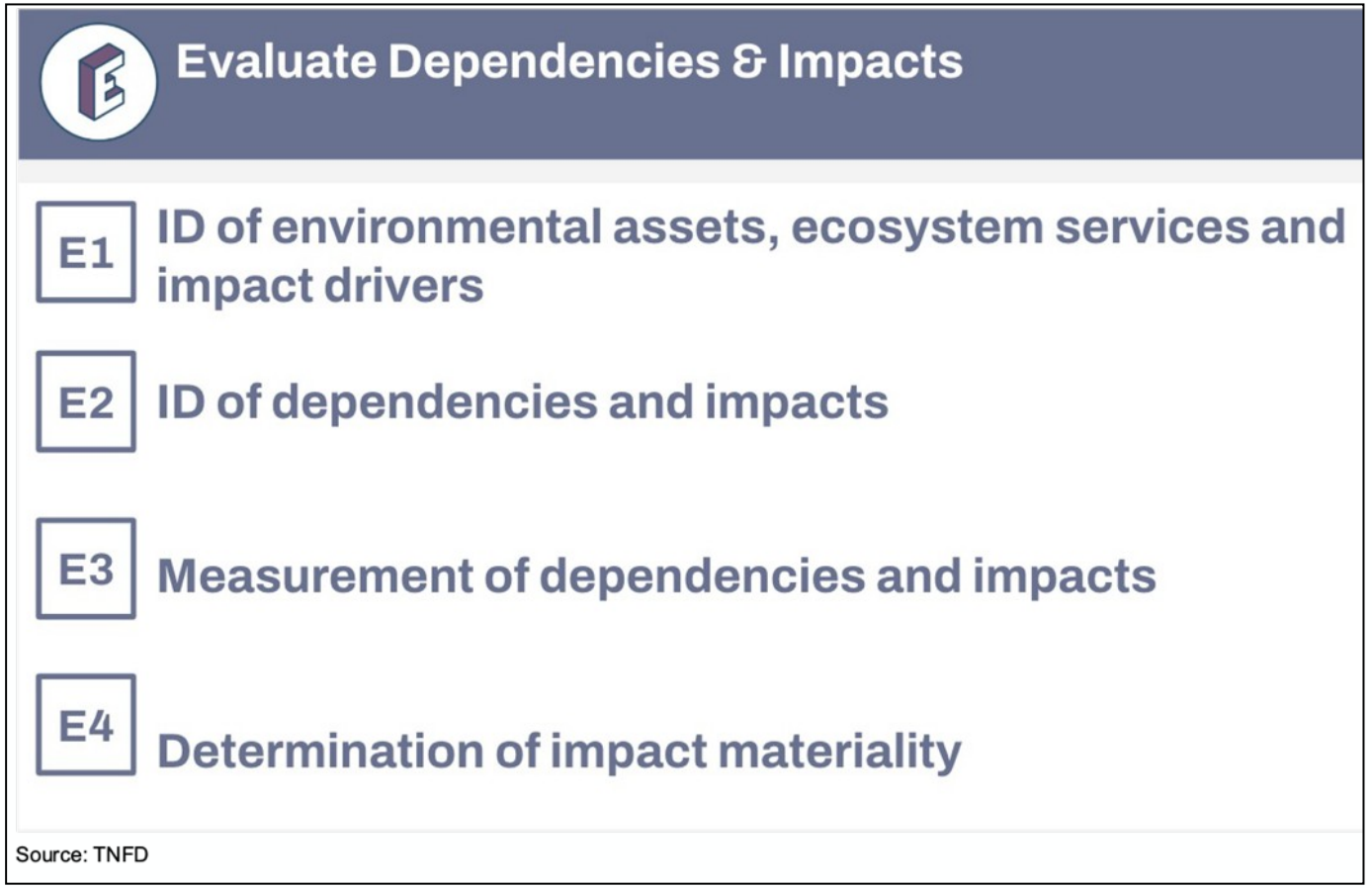
Evaluate

What is the purpose of the evaluate step?

The aim of the evaluate step is to understand what your organisation's/client's **impacts** and **dependencies** are.

Tips

- *Essentially what you want to produce are lists of the relevant environmental assets, ecosystem services and impact drivers.*
- *From those lists identify **dependencies** on ecosystem services and contributions to **impact** drivers*
- *Then you add a materiality angle.*
- *For financial institutions you should look at the impacts/dependencies within your portfolio sectors and add the lens of your financial exposure.*



Evaluate – E3 measurement

How to measure impacts and dependencies? What metrics should be used?

E3 Measurement of dependencies and impacts

Often cited as an issue blocking nature disclosures, E3 recommends your organisation to in some way measure its impacts and dependencies.

Where can you find guidance for this?

- TNFD core disclosure metrics
- TNFD sector-specific metrics

E4 Determination of impact materiality

This is more of an optional step – not every organisation needs to do this. You will need to do it if you are disclosing aligned to:

- The GRI reporting framework
- The EU ESRS

What does impact and dependency measurement look like?

How does it differ between corporates and financial institutions?

Corporates can look at their direct business operations and apply the TNFD recommended metrics – using both **qualitative** and **quantitative** methods (e.g. tonnes of different pollutants emitted per site).

BUT

A **financial institution** will potentially have hundreds of companies within its portfolio – so a different approach is needed.

This approach involves gathering data and information on clients – this can be as simple as location and sector, through to best practice information such as client nature risk management information.

This information should then be used to qualitatively evaluate the scale of the FI's financial exposure to various impacts and dependencies.

Again – start with what's possible and improve over time.

Case Studies

Evaluate case study- Vale

How did Vale evaluate their impacts and dependencies in plain English?

→ They used publicly available raw datasets to assess the dependencies of their operations, for impacts they directly assessed contributions to impact drivers through internal data already gathered (for other corporate reporting), the also assessed the state of nature at their sites – again using publicly available datasets.



→ Once they had their list, they used tools to assess the materiality of these impacts and dependencies (to enable comparisons and prioritisation).



→ They also used the state of nature information to help prioritise – essentially looking for highly material dependency in nature degraded areas and highly material impacts in nature sensitive areas.

Evaluate case study- Vale

How did Vale evaluate their impacts and dependencies?

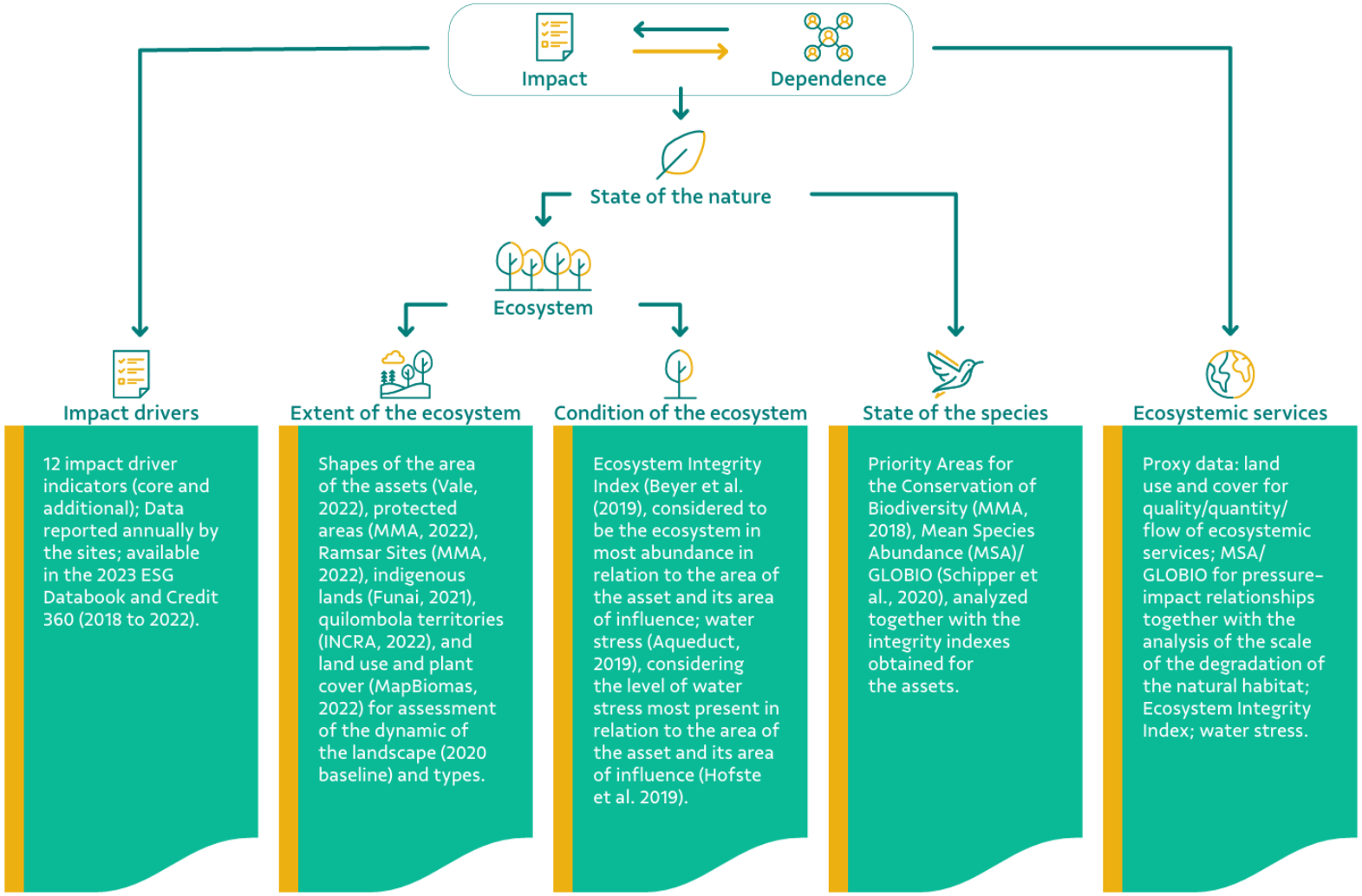
LEAP Approach

Evaluate

The impact drivers were measured using data relating to emissions, water use, pollutants, waste and biodiversity that are reported annually by the operations and are available at corporate level in the 2023 Vale ESG Databook. The data used was that available covering the period 2018 to 2022 (the most up-to-date data available at the time the pilot was developed).

Focusing on the State of Nature for the measurement of Extent of the Ecosystem, data was used relating to Protected Areas, Ramsar Sites, Traditional Communities and Land Use and Cover; for the Ecosystem Condition, the data used was drawn from the Ecosystem and Water Stress Integrity Index; whilst to measure the State of the Species, data were used from the Priority Areas for Conservation of Biodiversity and Mean Species Abundance (MSA).

For ecosystemic services, the assessment was performed by means of proxy data, using measurements relating to the ecosystems and the species. Based upon these data, a score was calculated that reflects the general condition of these services in relation to the location of the assets.



Evaluate case study- Vale

How did Vale evaluate their impacts and dependencies?

LEAP Approach

Evaluate

The SBTN materiality tool and ENCORE were used for assessment of the production processes and the materiality of the impacts and dependencies.

The main impact drivers associated with the production processes are related to the **water use and alterations to ecosystems**, these being directly related to the reality of the business.

The assets are largely dependent upon **water provision (ground and surface)**, whilst also of importance is **climate regulation, mass stabilization and erosion control**.

Vale's production process with the greatest amount of material impacts is mining, followed by ports and railroads.

Railroads and ports are Vale's production processes with the greatest **number** of material dependencies, although **mining** has the greatest amount of **high materiality** dependencies.

Key

Vale production processes

Mine | Railroad | Port

Materiality*

Very high | High | Moderate | Low | Non-material

Impact drivers	Materiality of the impact
Water use	
Use of continental water ecosystems	
Use of marine ecosystems	
Use of land ecosystems	
GHG emissions	
Non-GHG emissions	
Water pollutants	
Soil pollutants	
Solid waste	

	Ecosystemic services	Materiality of the dependence*
Provision	Ground water	
Provision	Surface water	
Maintenance	Water flow maintenance	
Maintenance	Quality of the water	
Maintenance	Climate regulation	
Maintenance	Floods and storm protection	
Maintenance	Mass stabilization and erosion control	

*Materiality analysis based on ENCORE.

Evaluate case study- Vale

How did Vale evaluate their impacts and dependencies?

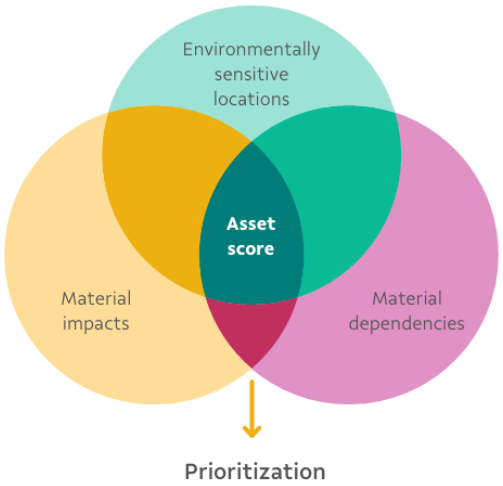
LEAP Approach

Evaluate

Based upon the materiality of the impacts and dependencies connected to the environmental sensitivity of the areas in which the operations are located, the prioritization was refined. A score was created as well as a ranking which identified the most sensitive areas where Vale's operations have the potential to cause the greatest environmental impacts (areas of greatest Nature Integrity), as well as where the integrity of nature has been historically affected, resulting in a scarcity of ecosystemic services (regions of less Nature Integrity).

We prioritized the two most extreme contexts which, connected to the impacts and dependencies, create an environment that is conducive to the development of risks, these being surveyed and presented in the next stage.

The table on the right shows the ten operations prioritized using this assessment.



	Position	Asset	Production process	State
Assets located in areas of greater natural integrity	1	Manganês do Azul	Mine	PA
	2	Salobo	Mine	PA
	3	N4 N5	Mine	PA
	4	S11D	Mine	PA
	5	Timbopeba	Mine	MG
Assets located in areas of less natural integrity	1	Tubarão Complex	Port	ES
	2	Vitória–Minas Railroad (stretches 1 to 5)	Railroad	MG and ES
	3	Carajás Railroad (stretches 1 to 6)	Railroad	PA and MA
	4	Minas do Meio (Itabira)	Mine	MG
	5	EFC 6	Railroad	MA

Key

Mine Railroad Port

Evaluate case study- PIDG

How did PIDG evaluate their impacts and dependencies in plain English?

→ Assessed **dependencies** in their portfolio **qualitatively** at a **sector-level**.

→ Assessed **impacts** using a **sector-based qualitative** approach with the addition of one quantitative method for land-use.

Evaluate case study- PIDG

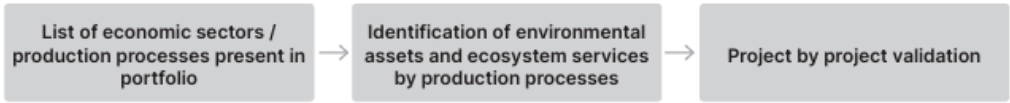
How did PIDG evaluate their impacts and dependencies?

3. Focusing on direct operations the following approach was undertaken.
   - Qualitative approach to dependencies aimed at identification of nature-related dependencies of PIDG's portfolios at the sector level (not specific to priority location).
   - Quantitative estimation of size and scale of terrestrial land use impacts using a well-established method (Biodiversity Extent Condition Significance (BECS) framework)[5].
   - Qualitative impact pathways identification for impacts on other pressures on nature (beyond land use), with mapping of project level metrics to TNFD's core global disclosure metrics.

Dependencies

To identify nature-related dependencies, the relevant assets and ecosystem services, data from ENCORE database was used and triangulated using transaction-specific information and expert judgement to generate a list of most relevant environmental assets and ecosystem services (Figure 5).

Figure 5: Process of characterisation and refinement of ecosystem services related to industries and production processes



Impacts

Using a similar approach to the above, to identify nature-related impacts from PIDG portfolios, data from SBTN Sectoral Materiality Tool (SMT) were used. SMT provides a sector-based universal ranking for impacts[6] on nature covering both direct operations and (partly) upstream supply chains. To identify key impacts on nature, this ranking data (Very Low to Very High) was used combined with financial exposure to understand risk for PIDG.

Comprehensive quantitative impact driver data (e.g., quantification of indirect nature impacts caused by the project, volume of wastewater, pollutant load, etc.) of the transactions was not available. To illustrate how an analysis of impacts scale and size could be undertaken going forward, a method based on the BECS framework was designed to estimate land use impacts. Due to unavailability of detailed data on the extent of

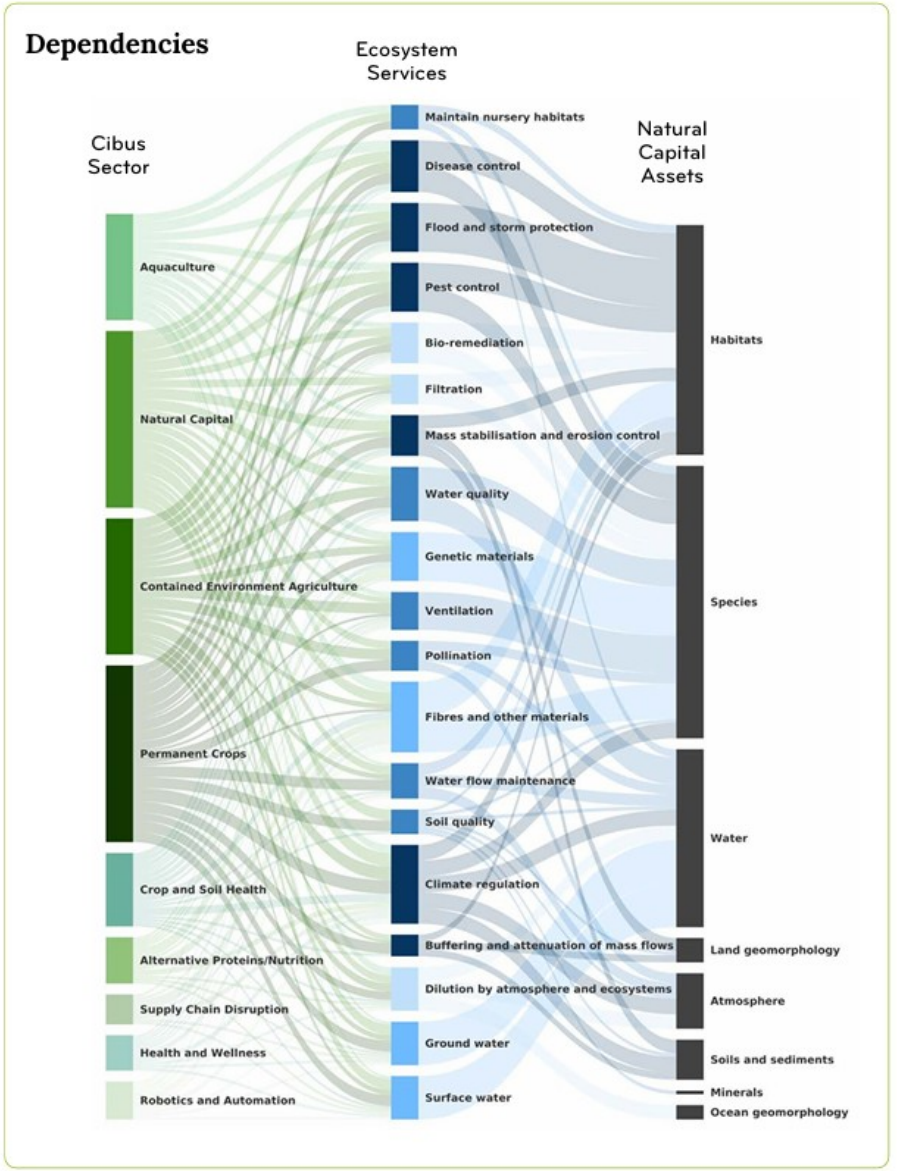
Evaluate case study- Cibus Capital

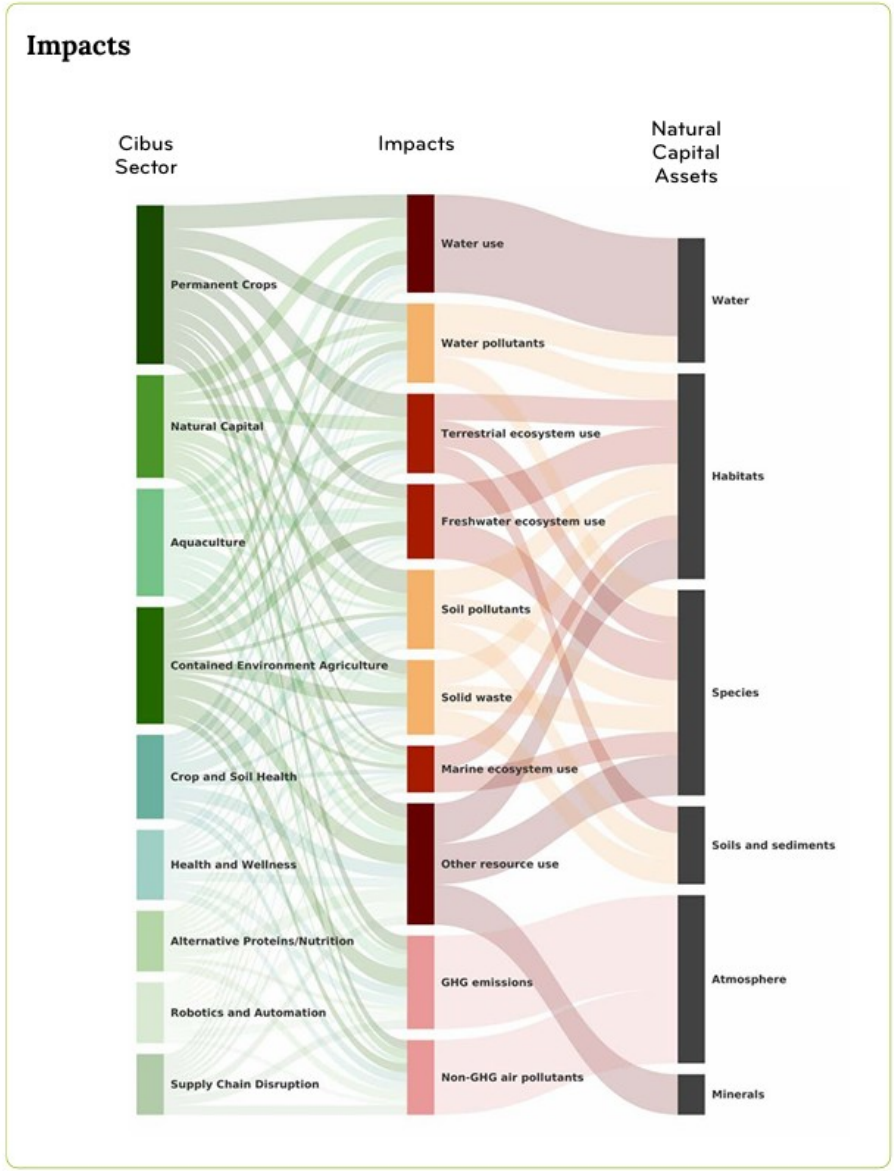
How did Cibus evaluate their impacts and dependencies in plain English?

→ Assessed dependencies upon ecosystem services and impacts on nature using **sector-based analysis** and combining this with qualitative assessment of ecosystem service vulnerability at client locations (from the Locate step).

Evaluate case study- Cibus Ca

How did Cibus evaluate their impa and dependencies?





Results

To visualise the results, we used a Sankey diagram to understand the distribution of dependencies and impacts across Cibus' investment strategy. The thickness of the line of flows between each stage corresponds to the level of materiality.

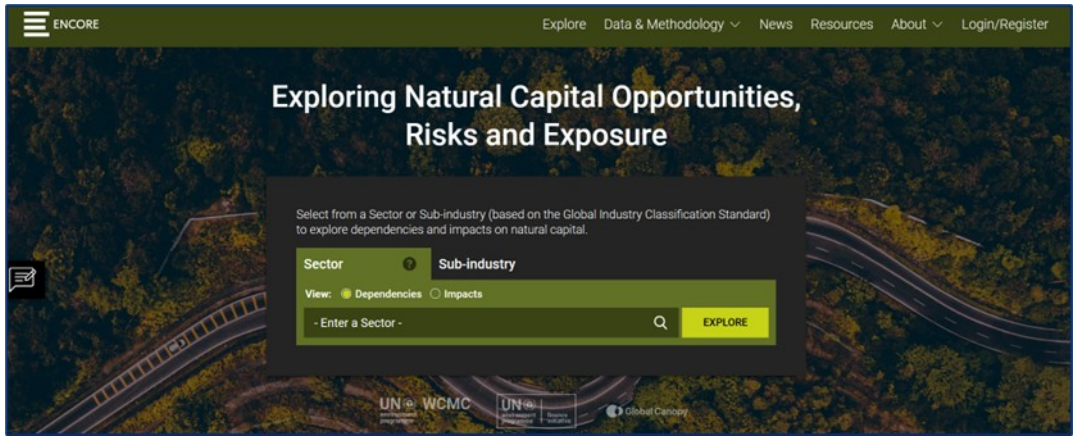
Evaluate case study- Cibus Capital

How did Cibus evaluate their impacts and dependencies?

Results	The Summer Berry Company	Amaretto Almonds	Withcott Seedlings	Prunus Nuts
Key Nature Dependencies	• Surface water • Ground water • Climate regulation • Pollination • Disease control • Pest control	• Surface water • Ground water • Climate regulation • Pollination • Pest control	• Surface water • Ground water • Water quality • Climate regulation • Genetic materials	• Surface water • Ground water • Climate regulation • Pollination • Mass stabilisation and erosion control
Key Dependencies at Risk	• Surface water • Ground water	• Surface water • Ground water • Climate regulation • Pollination • Pest control	• Surface water • Ground water • Water quality • Climate regulation	• Surface water • Ground water • Climate regulation • Pollination • Mass stabilisation and erosion control

ENCORE

Used in the case studies – what is the ENCORE tool and why is it useful in the evaluate step for financial institutions?



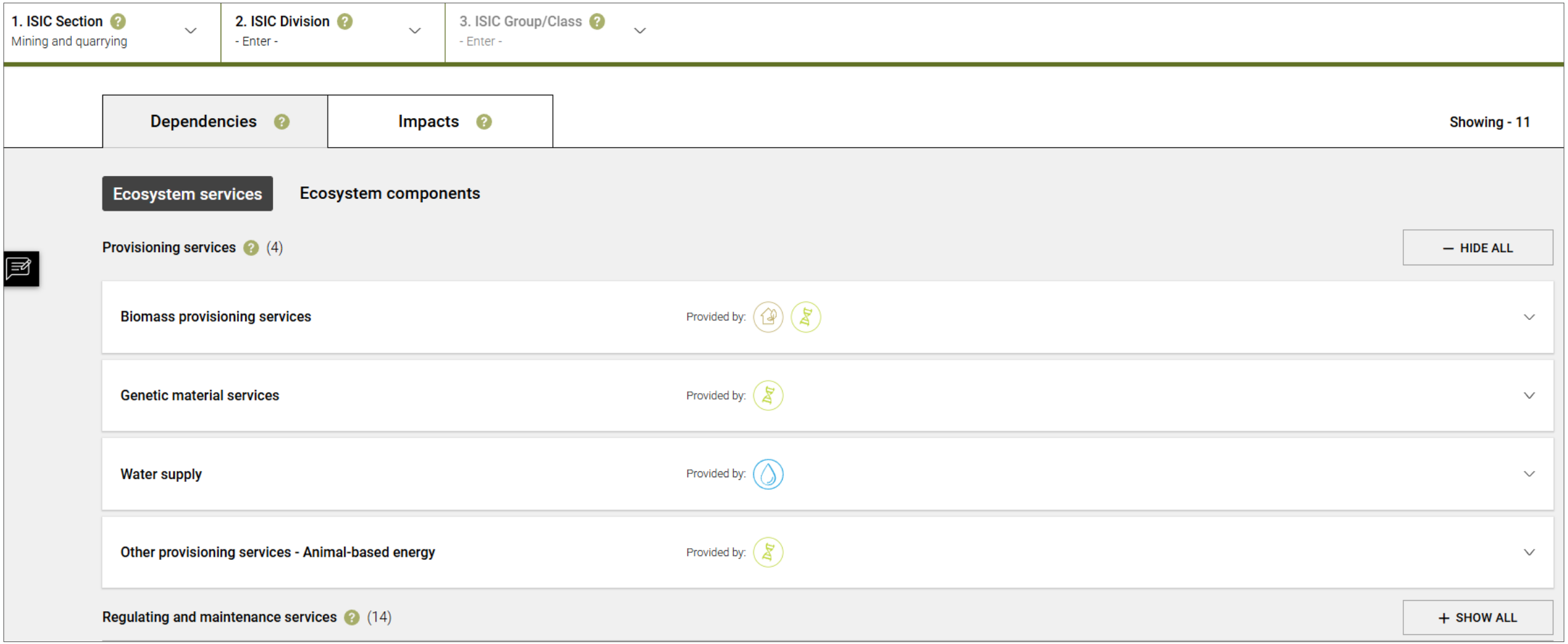
- A database of dependency and impact materiality scores.
- Really useful for portfolio level screening and assessment – and the evaluate step.

How were the ENCORE scores calculated?

- *Dependency and impact materiality scores were produced through literature reviews (scientific journals, peer-reviewed papers, key document searches, and grey literature) and then reviewed by industry experts.*

ENCORE

Used in the case studies – what is the ENCORE tool and why is it useful in the evaluate step for financial institutions?



ENCORE

Used in the case studies – what is the ENCORE tool and why is it useful in the evaluate step for financial institutions?

Generation and release of solid waste
Activity generates and releases solid waste. Example metrics include volume of waste by classification (i.e., nonhazardous, hazardous, and radioactive), by specific material constituents (e.g., lead, plastic), or by disposal method (e.g., landfill, incineration, recycling, specialist processing).

ISIC Groups/Classes		
Mining of iron ores	VH	**Very high materiality rating** Mining and quarrying can generate large volumes of solid waste. The exact types of solid waste produced will vary, but these can include heavy metals released in ore heaps. This can lead to leaching, which negatively impacts habitat condition and land contamination.
Mining of non-ferrous metal ores	H	**High materiality rating** Mining and quarrying can generate large volumes of solid waste. The exact types of solid waste produced will vary, but these can include heavy metals released in ore heaps. This can lead to leaching, which negatively impacts habitat condition and land contamination.
Extraction of natural gas	M	**Medium materiality rating** Fossil fuel energy production can generate solid waste. The exact type of waste will vary but can include drill cuttings, other metals and discharge. Solid waste treatment and disposal can lead to habitat degradation and land contamination.
Mining and quarrying n.e.c.	M	**Medium materiality rating** Mining and quarrying can generate large volumes of solid waste. The exact types of solid waste produced will vary, but these can include heavy metals released in ore heaps. This can lead to leaching, which negatively impacts habitat condition and land contamination.
Mining of hard coal	M	**Medium materiality rating** Mining and quarrying can generate large volumes of solid waste. The exact types of solid waste produced will vary, but these can include heavy metals released in ore heaps. This can lead to leaching, which negatively impacts habitat condition and land contamination.
Mining of lignite	M	**Medium materiality rating** Mining and quarrying can generate large volumes of solid waste. The exact types of solid waste produced will vary, but these can include heavy metals released in ore heaps. This can lead to leaching, which negatively impacts habitat condition and land contamination.
Support activities for other mining and quarrying	M	**Medium materiality rating** Support activities to mining and quarrying may generate solid waste. The exact type of waste will vary but can include drill cuttings, other metals and discharge. This can lead to adverse environmental impacts such as habitat degradation or land contamination.
Extraction of crude petroleum	L	**Low materiality rating** Fossil fuel energy production can generate solid waste. The exact type of waste will vary but can include drill cuttings, other metals and discharge. Solid waste treatment and disposal can lead to habitat degradation and land contamination.
Quarrying of stone, sand and clay	L	**Low materiality rating** Quarrying processes lead to creation of large volumes of solid waste. The exact types of solid waste produced will vary, but these can include non-product outputs such as glass, metal, plastic, paper and cardboard, wood, rubber and leather.
Support activities for petroleum and natural gas extraction	L	**Low materiality rating** Support activities for petroleum and natural gas extraction may generate solid waste. The exact type of waste will vary but can include drill cuttings, other metals and discharge. Solid waste treatment and disposal can lead to habitat degradation and land contamination.

Climate Risk Services

Thank you!

Building a climate-smart, net zero and nature-positive future together.

www.climateriskservices.com