

NATURAL CAPITAL IN THEORY AND PRACTICE



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Valuing Nature Programme Business School
8th March 2017

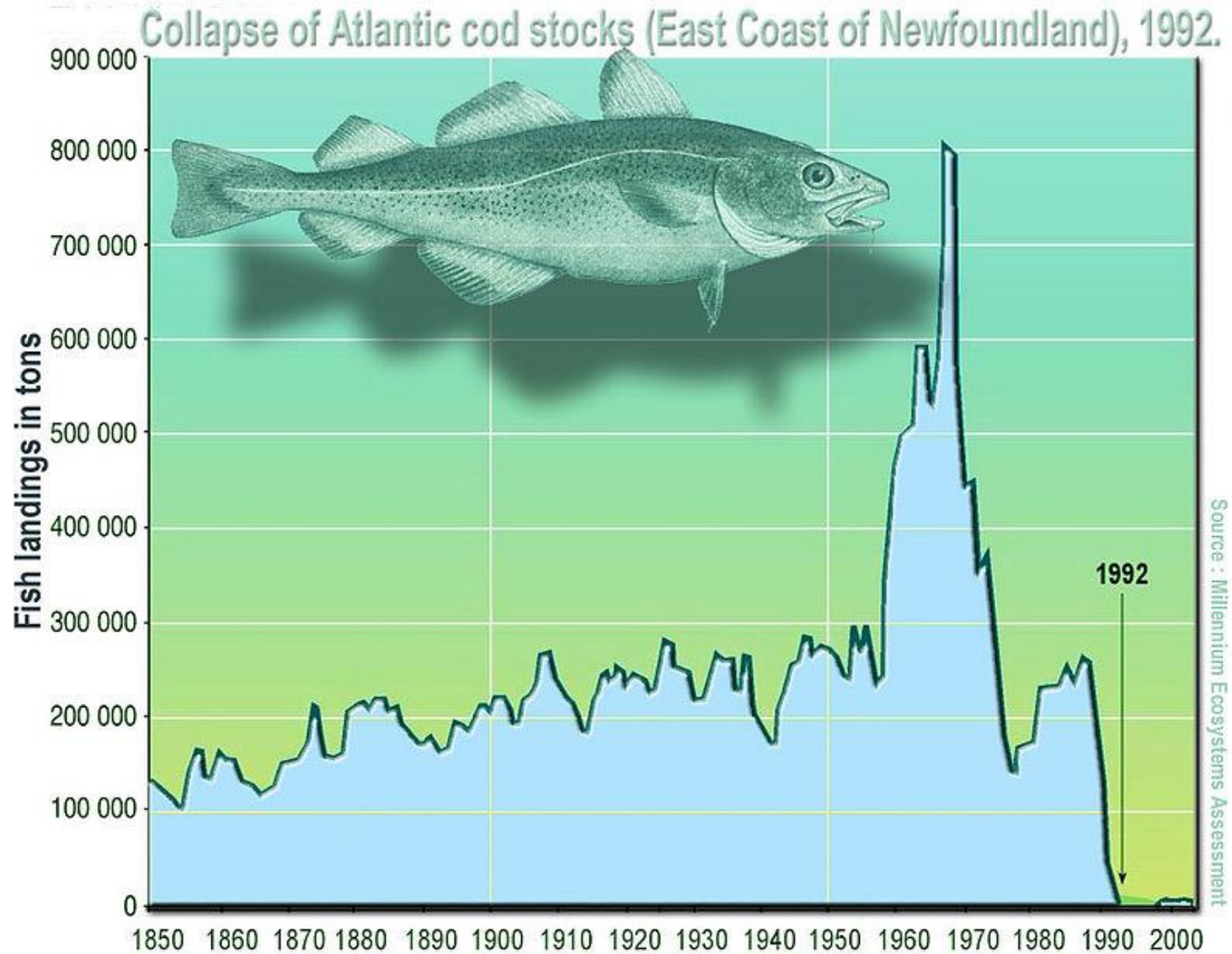
WHAT IS NATURAL CAPITAL?



The elements of nature that directly and indirectly produce value or benefits to people, including ecosystems, species, freshwater, land, minerals, the air and oceans, as well as natural processes and functions

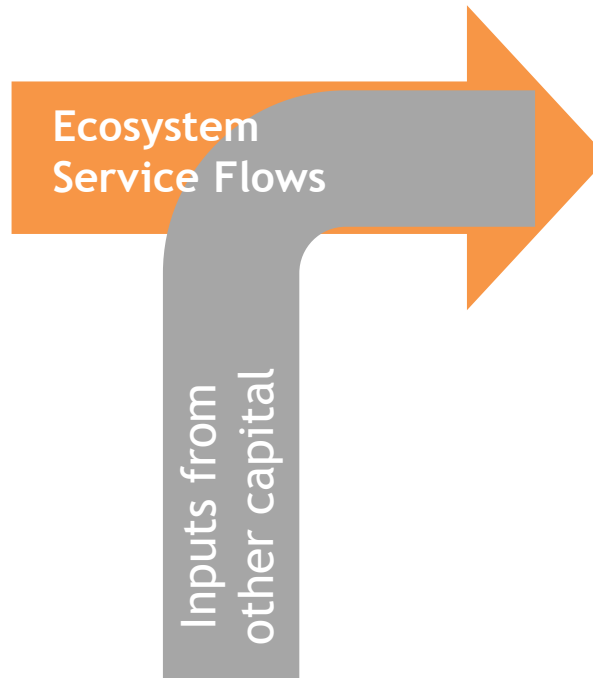
Natural Capital Committee (2014)

WHAT IS NATURAL CAPITAL?



WHY IS NATURAL CAPITAL DIFFERENT?

Natural capital stocks

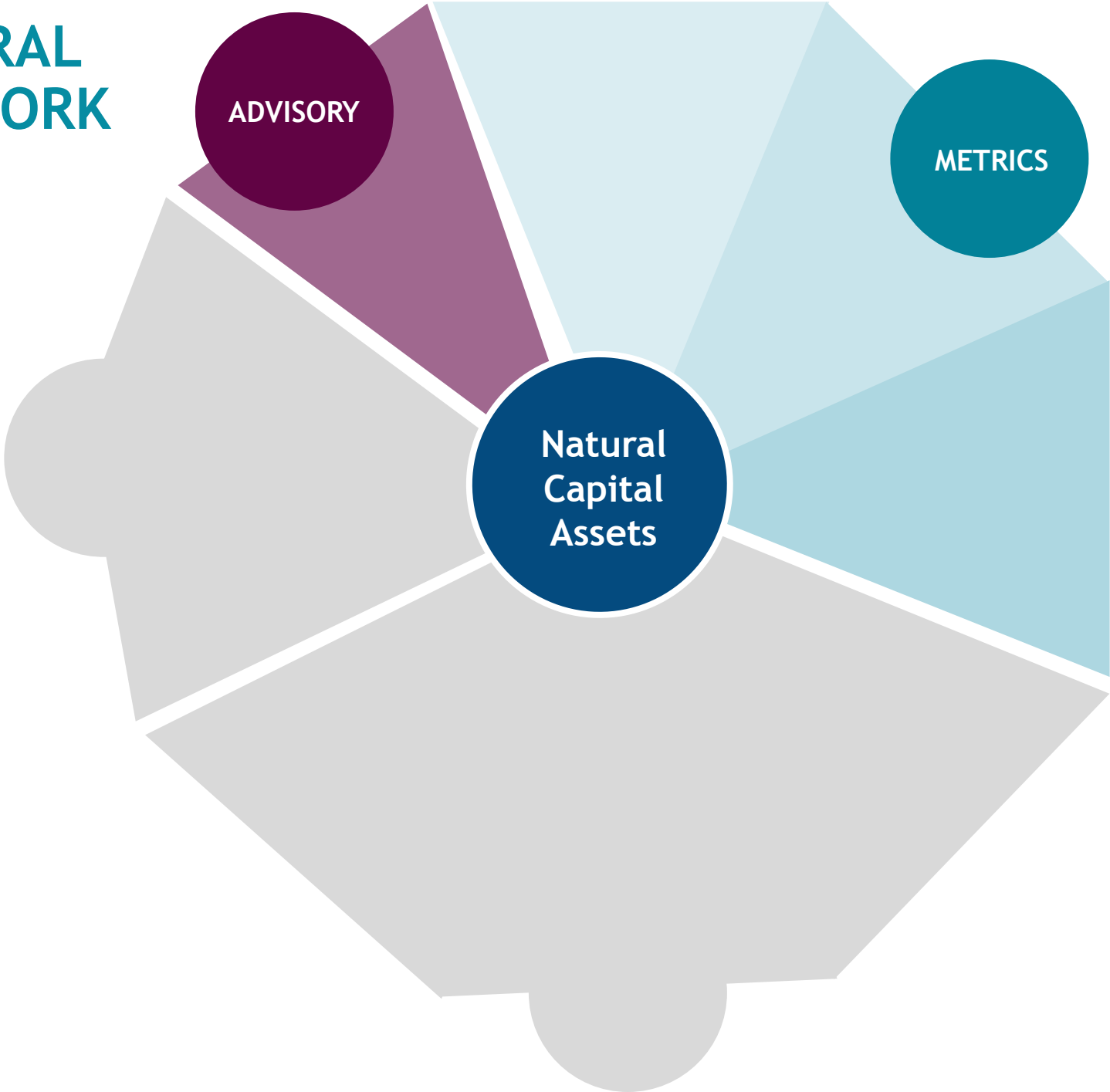


Benefit flows



USING THE NATURAL CAPITAL FRAMEWORK

1. Understanding



USING THE NATURAL CAPITAL FRAMEWORK

What do we
have?

*Stocks of
natural capital
assets*

*e.g. woodland
area (hectares)*

*woodland
condition (SSSI
status, access
points)*

What does
it produce?

*Flows of
ecosystem
services*

*e.g. timber
produced (m³)
or recreational
visits (number)*

What is that
worth?

*Natural capital
benefits
(private + external)*

i.e. £GBP

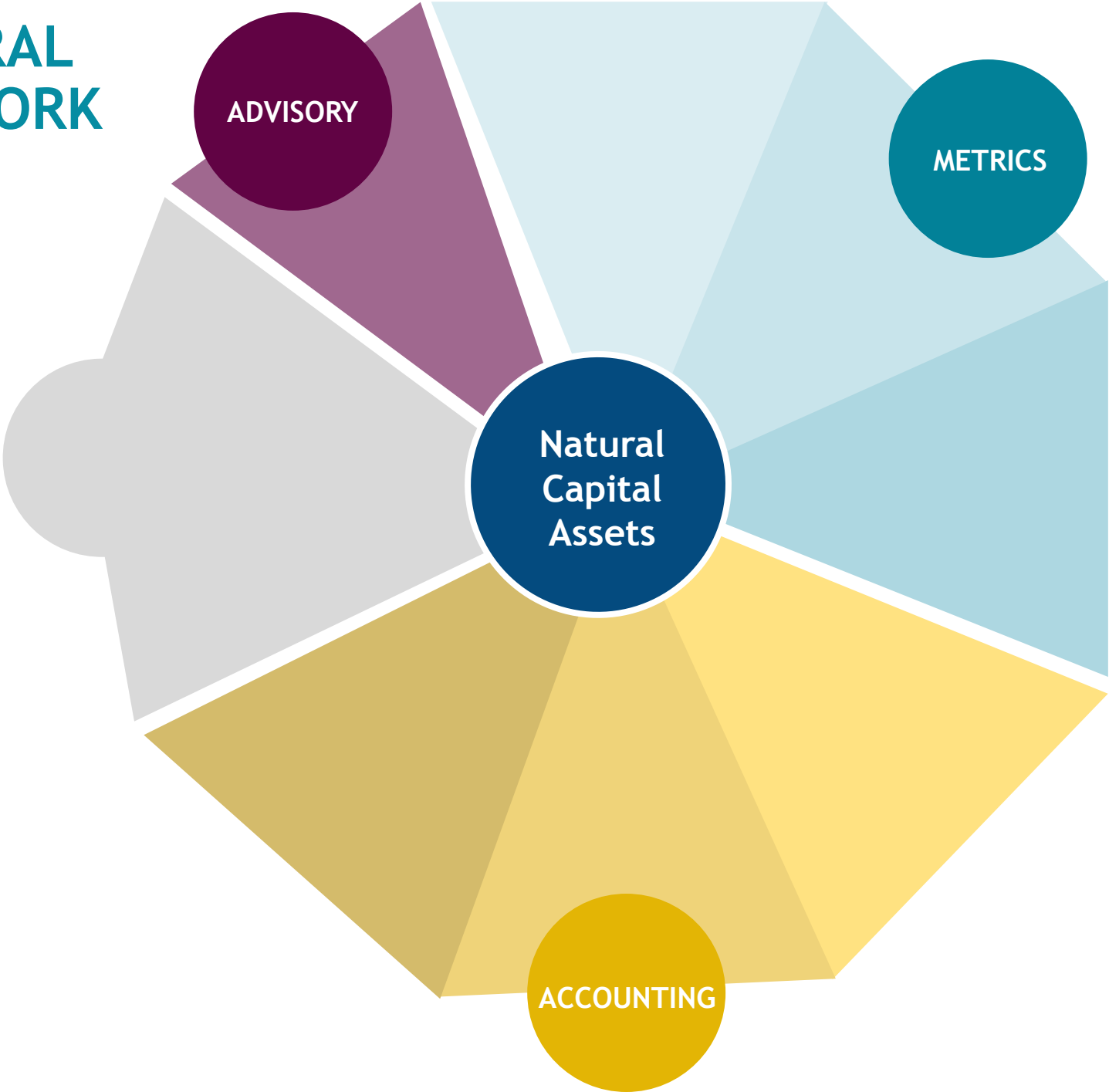
What does it cost to
maintain these benefits?

*Natural capital
maintenance costs
(private + external)*

i.e. £GBP

USING THE NATURAL CAPITAL FRAMEWORK

- 1. Understanding
- 2. Accounting



ACCOUNTING FOR NATURAL CAPITAL

- Conventional financial accounts reflect the value of natural capital assets to the extent that they produce a financial income or incur a cost
- Purpose of corporate natural capital accounting (CNCA) is to enable better decisions to be made by organisations about the management of natural capital
 - Natural Capital Committee priority to develop methodology for CNCA
 - Private (and quasi-private) sector organisations are responsible for a large proportion of England's natural capital assets (approx. 2/3 land is privately owned)

ACCOUNTING FOR NATURAL CAPITAL

Conventional physical assets



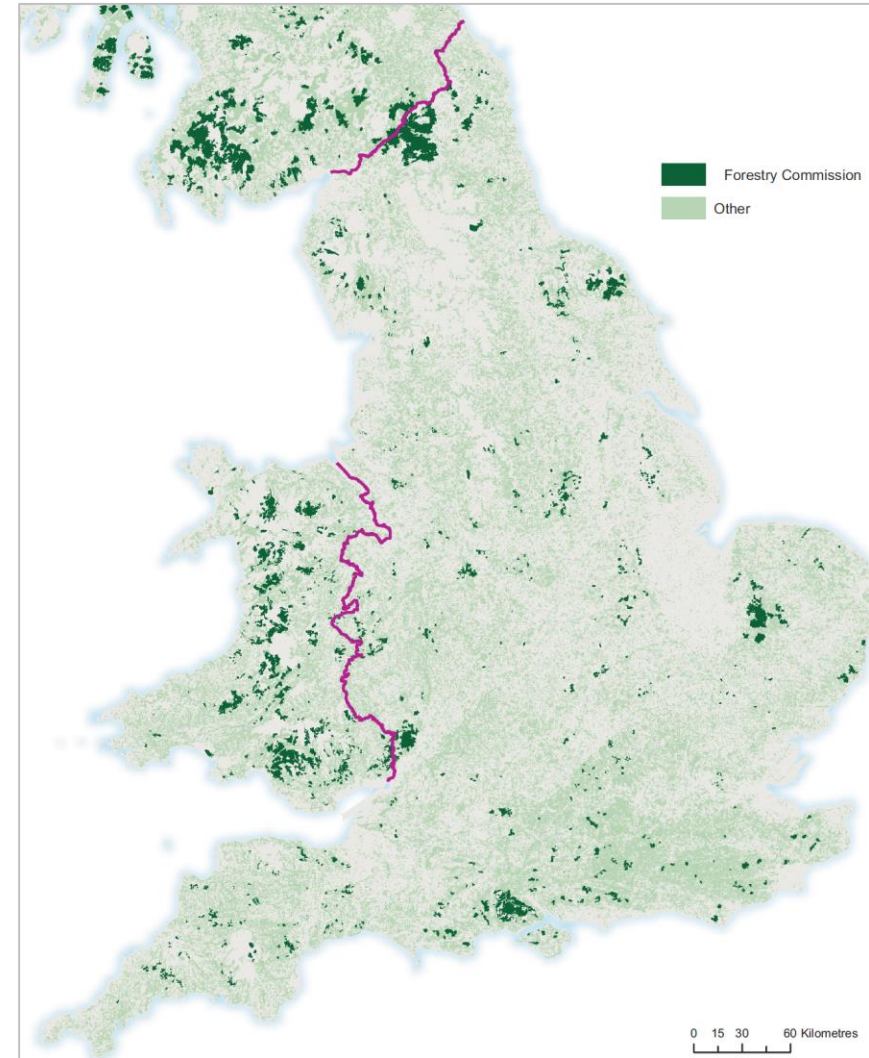
- Benefits to the company (revenue streams)
- Benefits at a single, local, scale
- Depreciate in value over finite lifetime
- Exclusively owned and controlled by the organisation for entirety of useful life

Natural capital assets



- Benefits to the company and wider society
- Benefits at multiple scales (local, regional, global)
- Without intervention value may decline or remain stable
- Value may tend to appreciate over an infinite lifetime
- Often only partially 'owned' or controlled (e.g. certain use rights) for a defined period of time

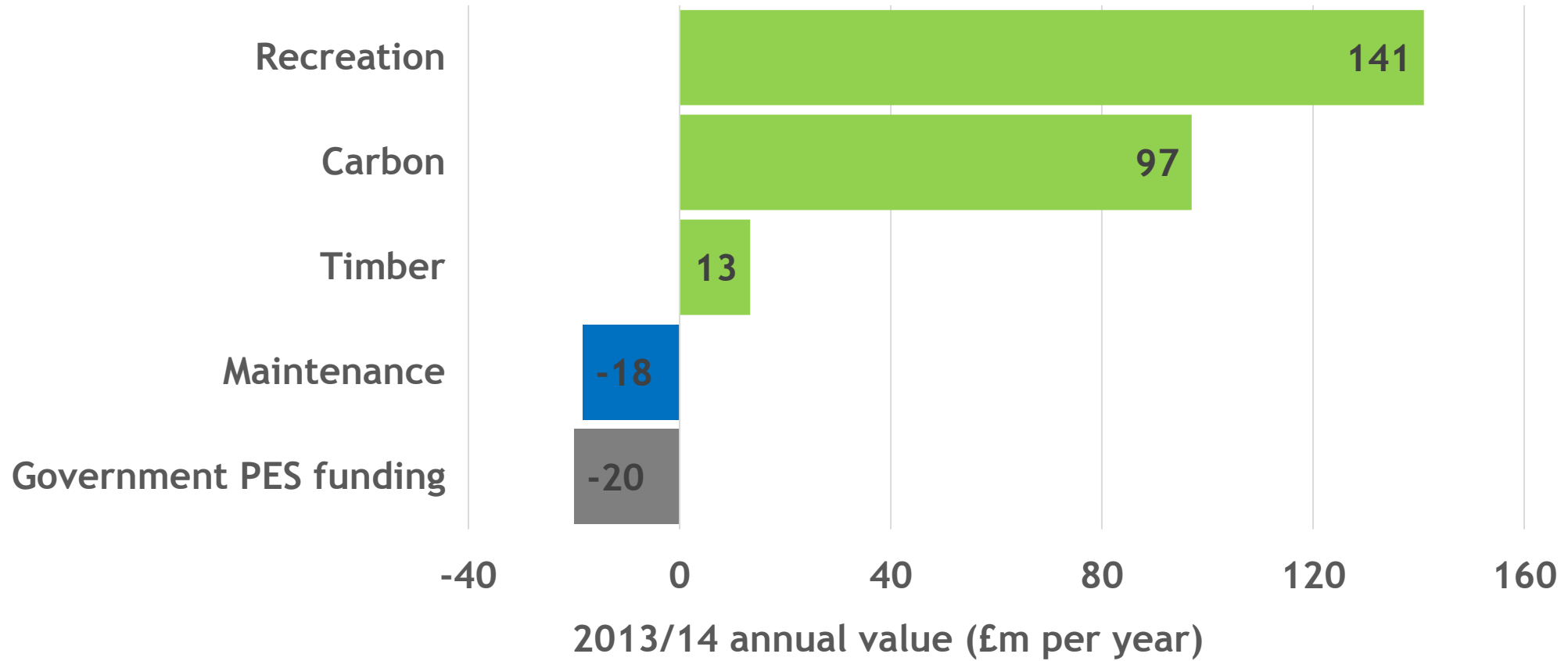
ACCOUNTING FOR NATURAL CAPITAL



Source: NFI 2012

ACCOUNTING FOR NATURAL CAPITAL

At 31st March 2016



ACCOUNTING FOR NATURAL CAPITAL

At 31st March 2016

	Private	External	Total	Financial
Assets	£m	£m	£m	£m
Baseline	400	11,600	12,000	1,200
Gain/Loss	-200	200	20	-
Addition/Disposal	-	-	-	-
Revaluation	100	-	100	100
Gross Asset Value	200	11,900	12,100	1,300

ACCOUNTING FOR NATURAL CAPITAL

At 31st March 2016

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Assets	£m	£m	£m	£m
Baseline	400	11,600	12,000	1,200
Gain/Loss	-200	200	20	-
Addition/Disposal	-	-	-	-
Revaluation	100	-	100	100
Gross Asset Value	200	11,900	12,100	1,300
Liabilities	£m	£m	£m	£m
Legal	-100	-	-100	Nil
Other	-500	-30	-500	Nil
Total Maintenance	-600	-30	-600	
Total Net Natural Capital Assets			11,500	

ACCOUNTING FOR NATURAL CAPITAL

1. The long-term value of natural capital assets
 - ⇒ Assess future flows of costs and benefits to monitor sustainability of natural capital
2. Both private and external values
 - ⇒ Capture 'full' value associated with natural capital
3. Changes in natural capital
 - ⇒ Measures change in value over time, relative to an 'opening value'
4. Changes in value, by cause
 - ⇒ Quantity, quality, beneficiaries, and internal/external factors

ACCOUNTING FOR NATURAL CAPITAL

Captured in financial reporting

	Aesthetics	Clean Air	Clean Water	Energy	Climate Regulation	Fibre (timber)	Food	Hazard Protection (flooding)	Recreation	Wildlife
Woodland	○	●		●	●	●		○	●	○
Grassland	○				○				●	○
Mountains, moors & heath	○				●				●	○
Enclosed farmland	○						●			
Freshwater	○		○					○		○
Urban	○	●						○	●	○
Coastal margins	○				○					○

Initial natural capital account

	Aesthetics	Clean Air	Clean Water	Energy	Climate Regulation	Fibre (timber)	Food	Hazard Protection (flooding)	Recreation	Wildlife
Woodland	○	●		●	●	●		○	●	○
Grassland	○				○				●	○
Mountain, moors & heath	○				●				●	○
Enclosed farmland	○						●			
Freshwater	○		○					○		○
Urban	○	●						○	●	○
Coastal margins	○				○					○

- Significant service flow by habitat
- Potentially significant service flow by habitat

	Included in account
	Partly included in account

ACCOUNTING FOR NATURAL CAPITAL



Natural capital asset register

Physical flow account

Monetary account

Maintenance cost account

Natural capital stock	Indicator	Units	Reference year (2008)	Reporting year (1) (2014)	Source	Notes
Accounting unit: Farmland						
	Area of farmland	Hectares	117	117	1	-
	Years since organic conversion began	Years	2	6	1	-
	Years since full organic					

Accounting unit by	Ecosystem Service Flow by Accounting unit	Indicator	Units	Reference year (2008)	Reporting year (1) (2014)	Years from reporting year*				Source	Notes
						1-5	6-15	16-50	51-86		
Climate regulation											
Farmland	Whole Estate	Value per tonne carbon	£ (2014) /tonne carbon	56.01	59.18	64.46	72.39	202.21	330.86 (years 51-86)	DECC (2013)	Values converted to 2014 prices using ONS GDP deflator
Whole Estate	Farmland	Total value of carbon stored	£ (2014) mn	9.03	12.9	Estimate	Stock value

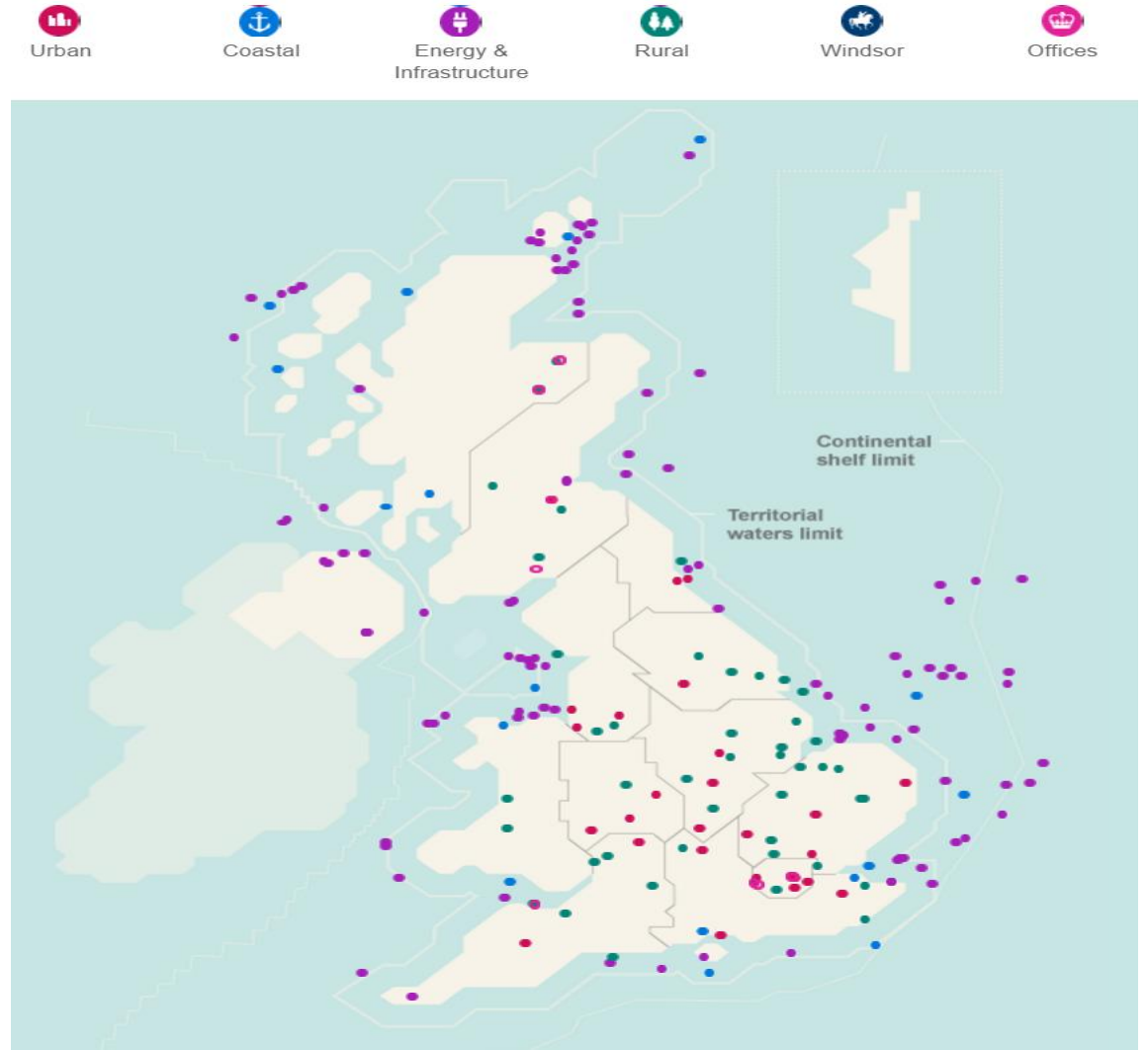
Accounting unit by	Ecosystem Service	Indicator	Units	Reference year (2008)	Reporting year (1) (2014)	Years from reporting year*				Source	
						1-5	6-15	16-50	51-100		
Woodland											
Farmland	Food Provision	Forester's cost	NC Maintenance	£k	70	70	70	70	70	70	Wimpole accounts
		Operating	NC Maintenance	£k	0	0	0	0	0	0	As above
Farmland											
		Fixed cost of the farm	NC Maintenance	£k	30	30	30	30	30	30	As above
		Operating	NC Maintenance	£k	140	140	140	140	140	140	As above
Whole Estate											
		Visitor and management	NC Maintenance	£k	25	25	25	25	25	25	As above
		Operating	NC Maintenance	£k	215	215	215	215	215	215	As above

Sources:

- Natural Capital Accounting Framework (2014)
- Natural Capital Accounting Framework (2014)
- OCIS Public Goods Data Collection (undated)
- Burton (2004) The Soil Resource

Notes: * Forecast based on current condition being maintained.

ACCOUNTING FOR NATURAL CAPITAL



ACCOUNTING FOR NATURAL CAPITAL



The Windsor Estate

- Approx. 6,400 ha of parkland, woodland
- Oaks, beeches, rare insect species

Land management

- Managed for public enjoyment
- Statutory duty to maintain character as a Royal Park
- Management cost offset by income from property, agriculture and visitors

Services supported by natural capital

- Agriculture
- Forestry
- Biomass energy
- Climate regulation
- Recreation
- Amenity

ACCOUNTING FOR NATURAL CAPITAL



	Ecosystem services									
	Aesthetics	Clean Air	Clean Water	Energy	Equable climate	Fibre	Food	Hazard protection	Recreation	Wildlife
Scope of financial account										
Gardens	●	○	○	○	○	-	-	○	●	○
Agriculture	-	-	○	○	○	○	●	-	-	○
Parkland	●	-	○	○	○	-	●	○	●	●
Woodland	●	●	●	○	●	●	-	●	●	●
Scope of natural capital account										
Gardens	●	○	○	○	○	-	-	○	●	○
Agriculture	-	-	○	○	○	○	●	-	-	○
Parkland	●	-	○	○	○	-	●	○	●	●
Woodland	●	●	●	○	●	●	-	●	●	●

- Significant ecosystem service flow by habitat
- Potential but not significant ecosystem service flow
- No ecosystem service flow by habitat

	Included in account
	Partly included in account
	Not included in account

ACCOUNTING FOR NATURAL CAPITAL

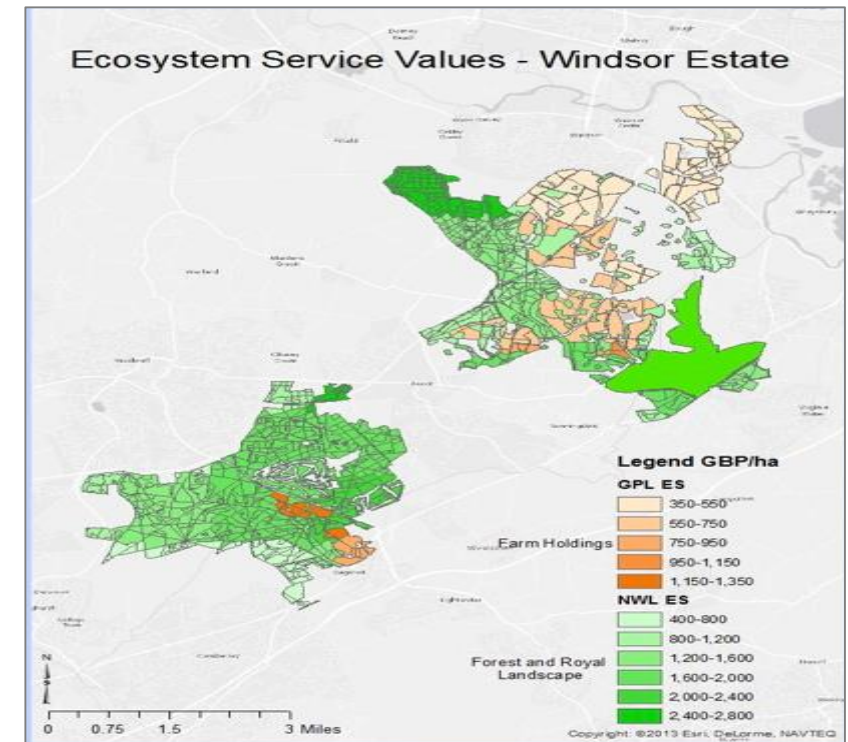


Annual value (gross)		
Agriculture	£0.1m	Rent
Timber	£0.8m	Income
Air quality	£0.4m	External
Carbon sequestration	<£0.1m	External
Recreation	£3.9m	Income & external
Amenity	£0.6m	External

- ⇒ Private values based on reported income
- ⇒ External values estimated from ecosystem service valuation model

Liabilities	Annual value	
Legal obligations	<£0.1m	SSSIs, public access, biodiversity
Other maintenance	£0.2m	e.g. woodland management

- ⇒ Natural capital maintenance costs



ACCOUNTING FOR NATURAL CAPITAL



	Private	External	Total
Assets	£m	£m	£m
Baseline	3.3	49.0	52.3
Gain/Loss	-	-	-
Addition/Disposal	-	-	-
Revaluation	-	-	-
Gross Asset Value	3.3	49.0	52.3

ACCOUNTING FOR NATURAL CAPITAL



	Private	External	Total
Assets	£m	£m	£m
Baseline	3.3	49.0	52.3
Gain/Loss	-	-	-
Addition/Disposal	-	-	-
Revaluation	-	-	-
Gross Asset Value	3.3	49.0	52.3
Liabilities	£m	£m	£m
Legal	(0.3)	-	(0.3)
Other	(6.4)	-	(6.4)
Total Maintenance	(6.7)		(6.7)
Total Net Natural Capital Assets			45.6

- Liabilities: (£6.7m)
- Assets: £52.3m
 - ⇒ Private: £3.3m
 - ⇒ External £49.0m
- Net private assets: (£3.4m)
- Net natural capital: £45.6m

ACCOUNTING FOR NATURAL CAPITAL

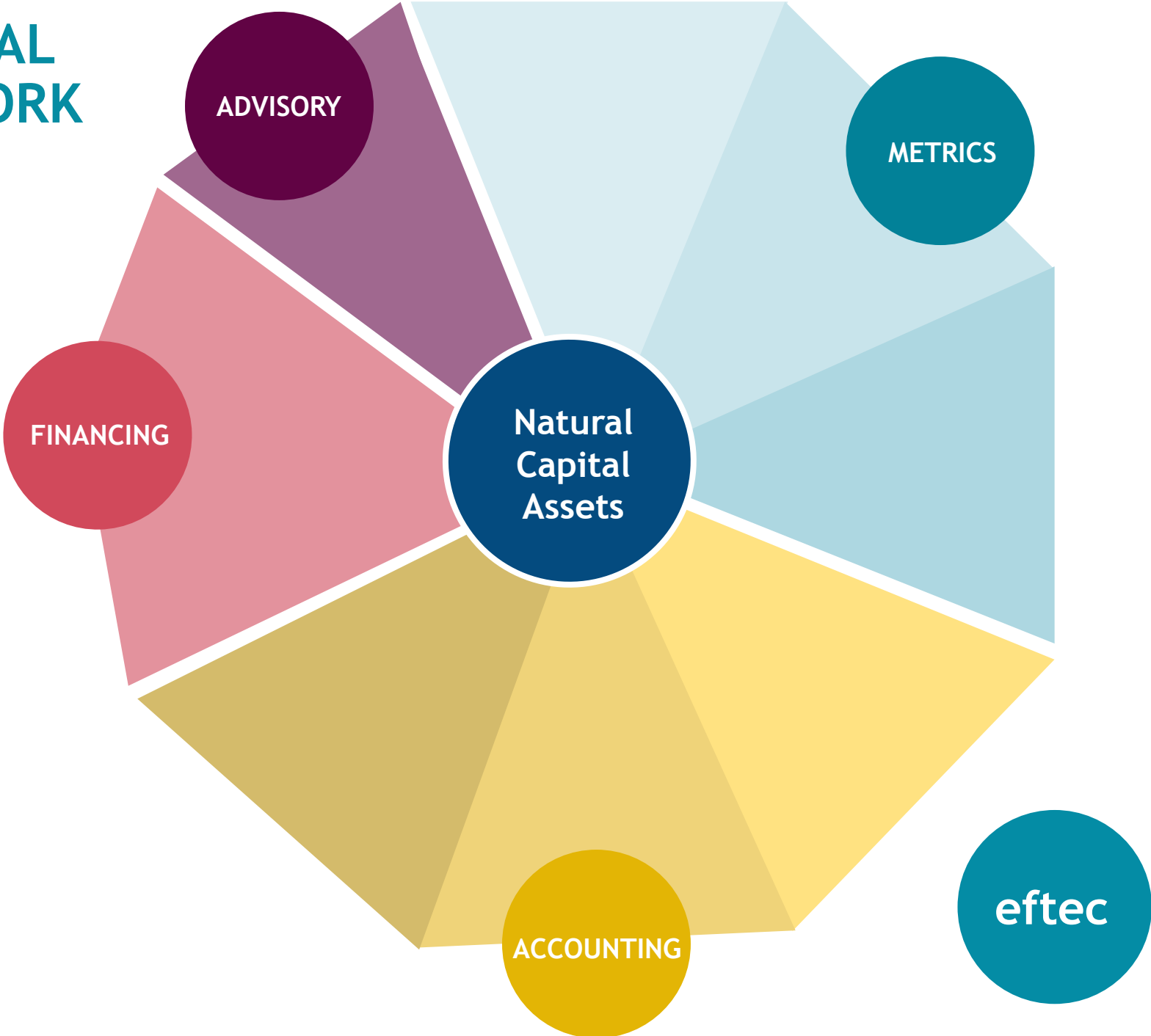
- Pilot account shows significant net benefit that the Windsor Estate delivers
 - ⇒ Explicit demonstration of the wider value that is generated
 - ⇒ Supports continuing long-term management to sustain benefits
- Business uses of CNCA framework being further explored The Crown Estate
 - ⇒ Communicate the total contribution of its assets
 - ⇒ Inform budgetary discussion and allocation of resources across the organisation
 - ⇒ Assessing performance, engaging staff and priority-setting

ACCOUNTING FOR NATURAL CAPITAL

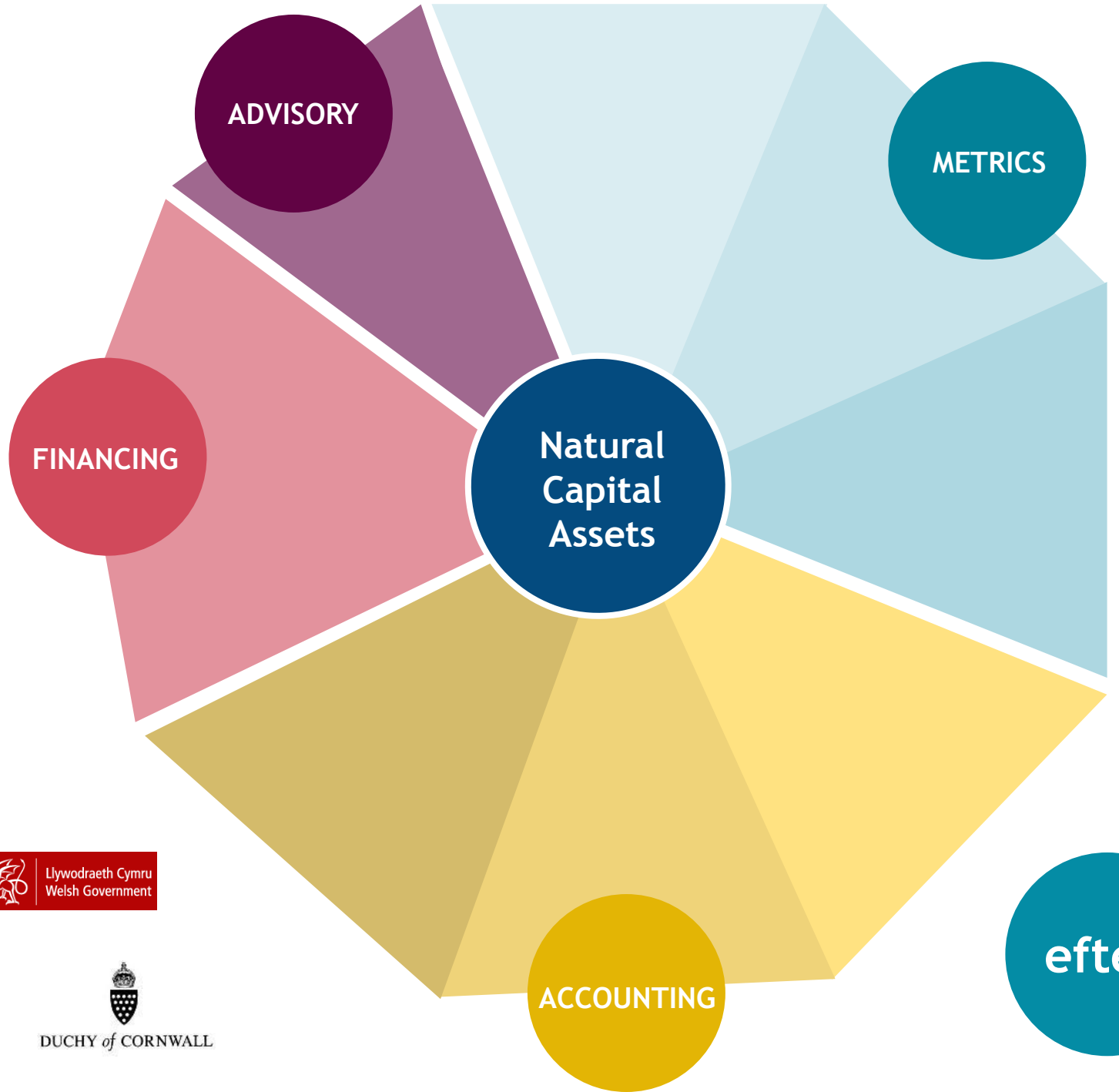
1. Long-term business strategy
 - ⇒ Identify risks of not maintaining natural capital
 - ⇒ Identify opportunity for generating new revenue streams (e.g. funding for maintaining natural assets or new markets)
2. Management and decision-making
 - ⇒ Investment planning (e.g. physical capital, appraising impacts, prioritising maintenance)
3. Reporting
 - ⇒ Demonstrate health and performance of natural capital to stakeholders
4. Governance
 - ⇒ Support environmental and social responsibility objectives

USING THE NATURAL CAPITAL FRAMEWORK

- 1. Understanding
- 2. Accounting
- 3. Financing



WHO DOES THIS?



METRICS

FINANCING

Natural Capital Assets

ADVISORY

ACCOUNTING

eftec

CONTACT

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