

Methods for Valuing Indigenous Knowledge (IK) in Uncertain Times

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Acknowledgement of Country

We acknowledge and celebrate the First Australians on whose traditional lands we meet and work, and whose cultures are among the oldest continuing cultures in human history.

Image: Namadgi National Park.

Photograph by Adrian Brown, Ngunnawal man, Country ranger, ACT Parks and Conservation Service.



A poem for uncertain times?

*Turning and turning in the widening gyre
The falcon cannot hear the falconer;
Things fall apart; the centre cannot hold;
Mere anarchy is loosed upon the world,
The blood-dimmed tide is loosed, and
everywhere
The ceremony of innocence is drowned;
The best lack all conviction, while the
worst
Are full of passionate intensity.*

Source: "The Second Coming" is a poem written by Irish poet W. B. Yeats in 1919, published after the last great pandemic

Project Requirement

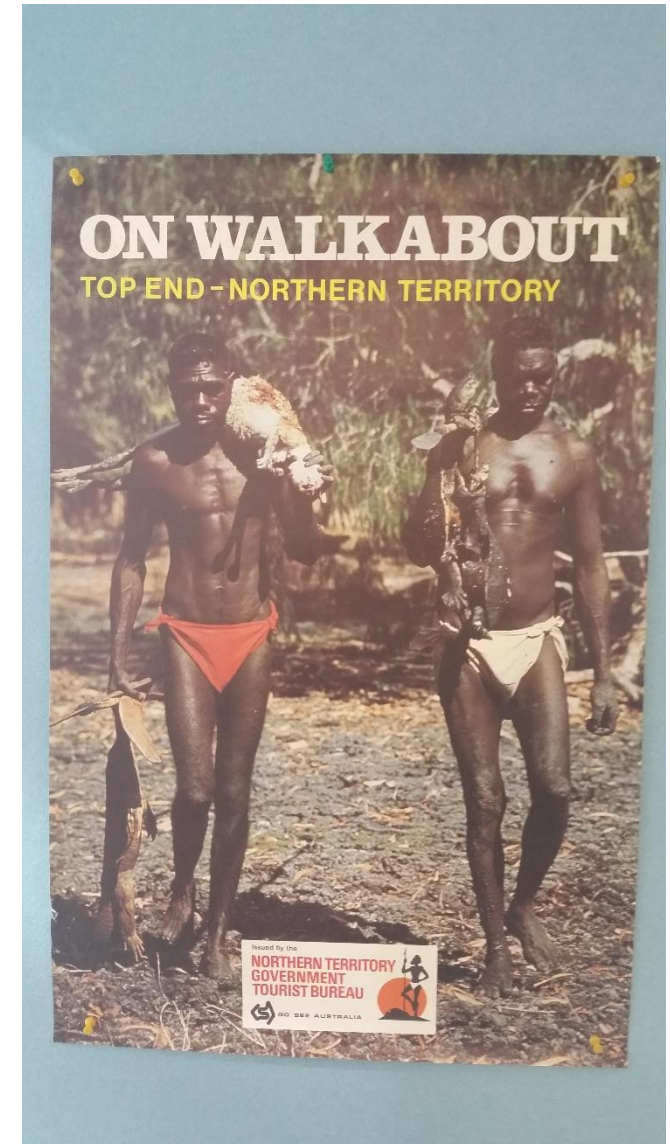


Australian Government
IP Australia

- Indigenous Knowledge (IK) will encompass:
 - Traditional Knowledge – the practices, know-how and skills developed by Indigenous communities, including knowledge about the properties and uses of native genetic resources
 - Traditional Cultural Expressions – traditional artworks, designs, and stories not covered by copyright law
- Review of approaches to market valuation of aspects of IK, with a view to undertaking a quantitative valuation of the current and **potential** market value
- Scoping study of specific sectors, identify possible data sources & methodology for measuring market value
- Sometimes referred to as Indigenous Cultural Intellectual Property (ICIP)

Motivation

- Historical use of Indigenous knowledge without recognition of value (ANTA)
- Timber Creek high court judgement awarded \$2.5 million for economic AND cultural/spiritual loss



ICIP is affected by more than IP Laws



Instruments for the protection of IK

Instruments for the protection of Indigenous Knowledge (IK)

Enforceable instruments

Recognition of IK as intellectual property (IP), including certification and collective trade marks and geographical indicators

Sui generis laws for particular contexts, including access and benefits-sharing agreements

Private contracts and agreements

Actions against misuse of IK under the Australian Consumer Law (ACL), under tort law or in equity

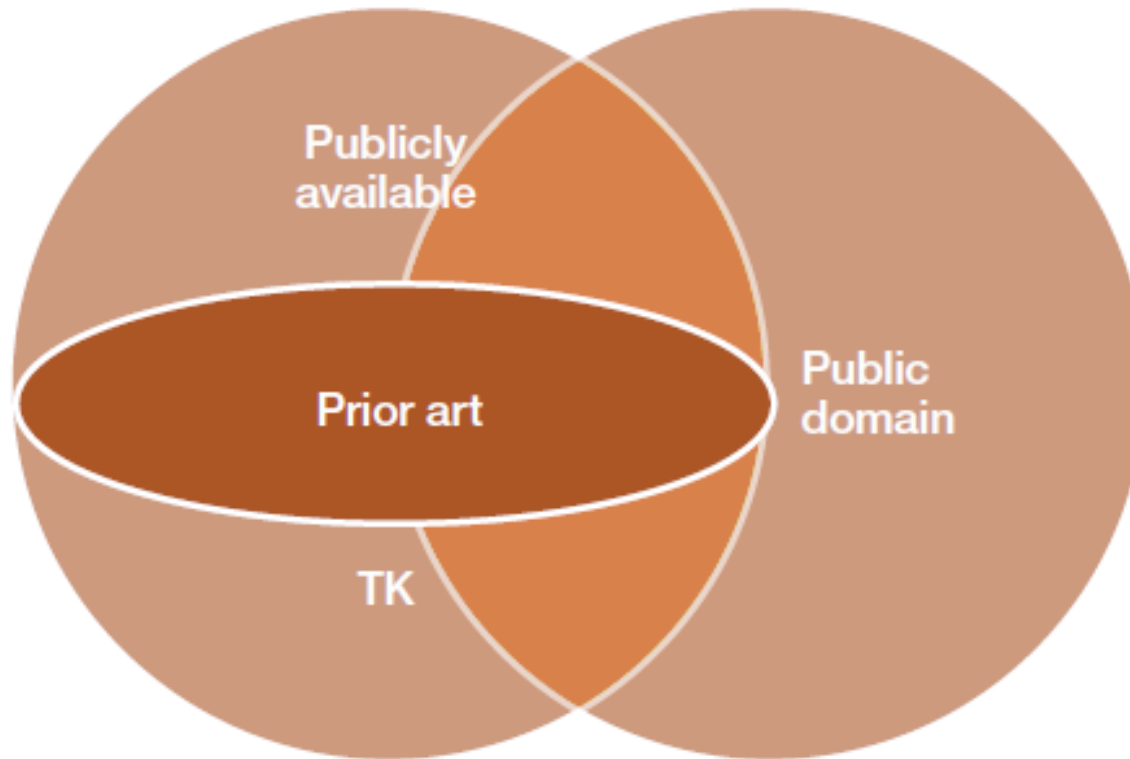
Protocols, standards and guides

Government-supported protocols

Non-government protocols

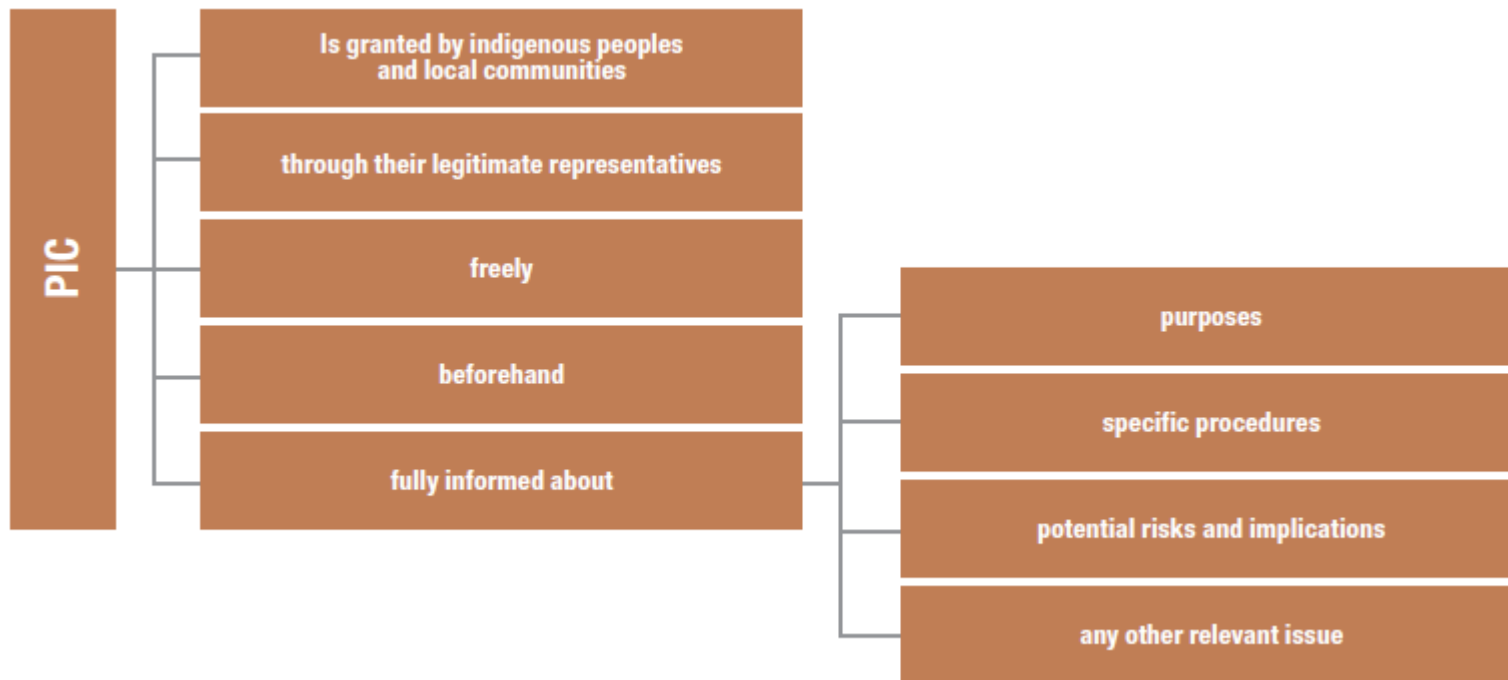
Accountancy Standards

Documenting TK and the public domain

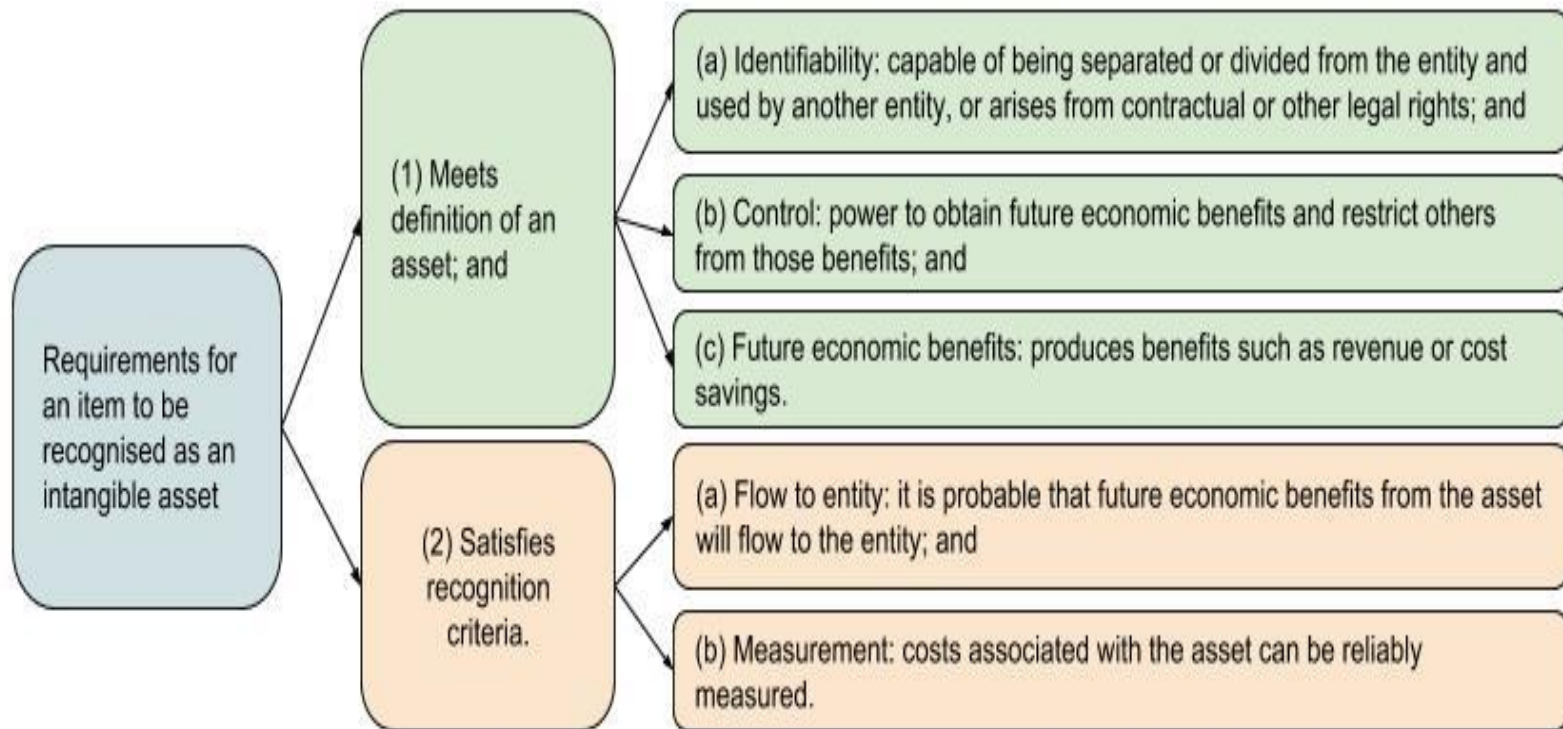


- Documentation of oral traditions entails risks to culture, but provides defensive IP protections and potentially positive IP protection

Prior Informed Consent (PIC) & documentation process



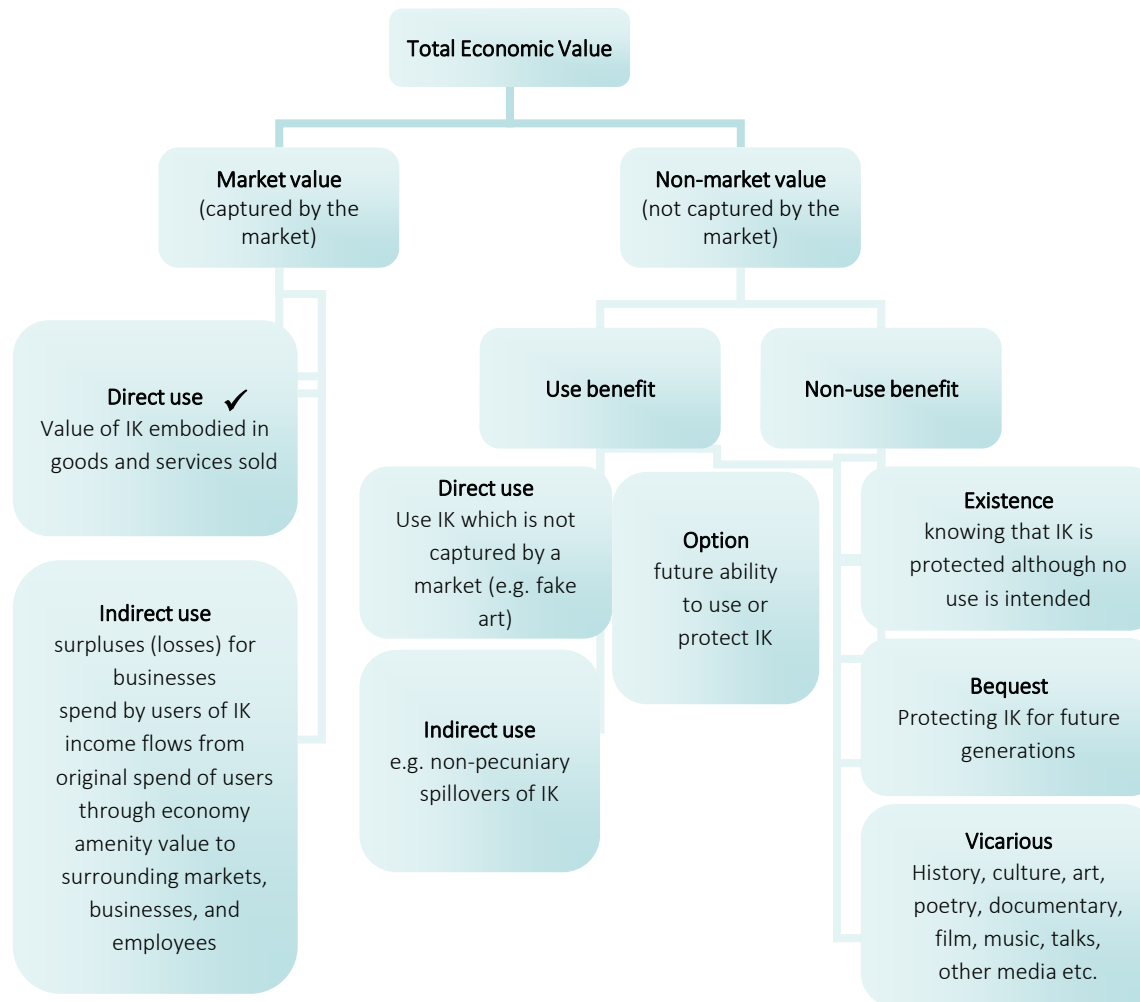
Intangible assets & attribution problem



Characteristics of economic goods and services

	Excludable	Non-excludable
Rivalrous	Private goods	Common goods (Common-pool resources)
	(food, clothing, cars, parking spaces)	(fish stocks, timber, coal)
Non-rivalrous	Club goods	Public goods
	(Native title?; cinemas, private parks, satellite television)	(free-to-air television, air, national defence, public domain knowledge?)

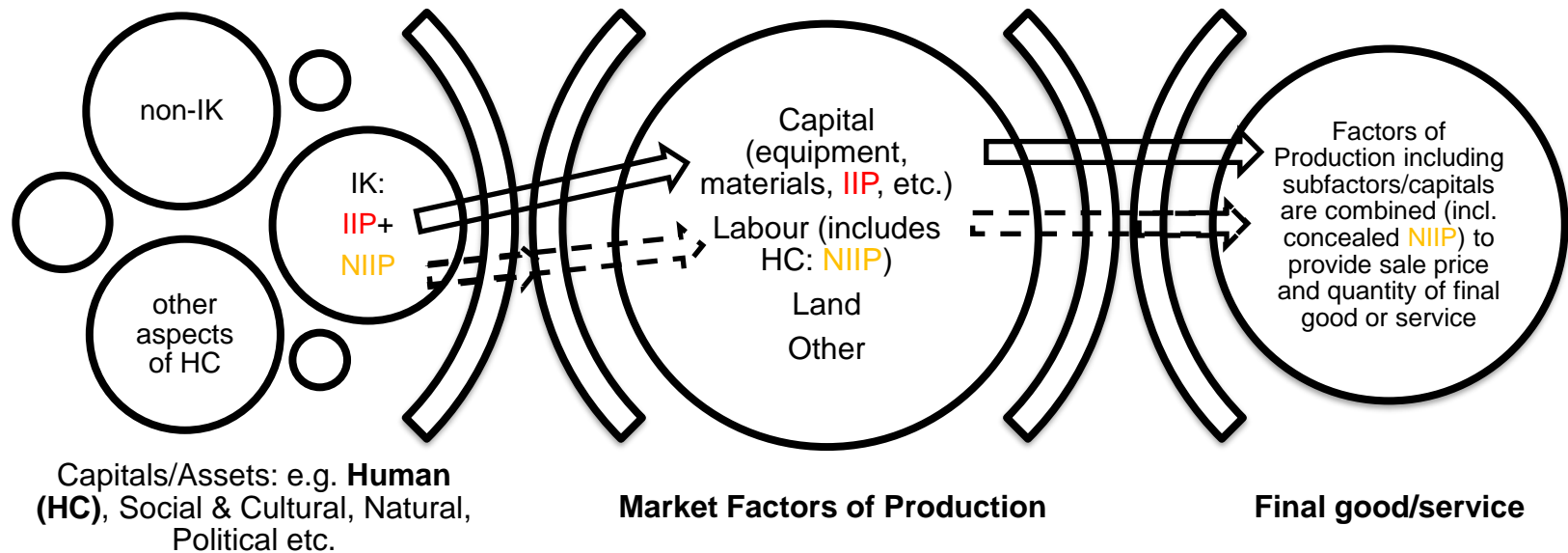
Market and non-market value of IK



Methodological issues for measuring market value of IK

- Market and non-market **values**
- Market and non-market **goods & services**
- **Transactions**
- IK – inherently a **shared good** but:
 - When freely available – **pure public good**
 - When exclusionary mechanism – **club or shared good**
 - When IP instrument used – **private good**
- **Identifiable IP** (e.g. IP instruments) = **IIP**
- **Non-identifiable IP** = **NIIP**

Methodological Issues – IIP and NIIP



Literature Review Approaches



No.	Area of literature	Relevance to the market value of IK
1	Accounting standards related to intangible assets and IK	Could potentially be used to value IK, but significant gaps in current practice, particularly for NIIP .
2	Valuations of the Indigenous business sector	Could be used to provide a market value of IK where the question of attribution is considered by <u>industry</u> and <u>subsector</u> .
3	Valuations of the contribution of IK to a specific sector	Detailed description of value of some industries, but no economy-wide aggregation . Methodology may be able to be extended to a broader approach to capture the value of IK.
4	Valuing other types of intangible capital	Provides background on possible ways to value IK, by reference to other types of intangible capital.
5	Choice modelling of people's willingness to pay (stated preference approaches)	Non-market valuation methods have been used to value private goods prior to being released on the market to set an <i>ideal price point</i> .

Economic size of indigenous (business) sector

Source	Location, population	Approach	Economic value	\$ value, billions	% of Nation	Issues
PwC (2018)	Australia, Indigenous business	GDP Value Add	Income	2.2-6.6 AUD	0.1-0.4%	Incl. non-idig Employees, IBN
Te Puni Kōkiri (2013)	New Zealand, Māori enterprises	GDP Value Add	Production, income & expenditure	11 NZD 16 NZD 18 NZD	6% 8% 11%	Need official statistics as well
		Market	Asset base	43 NZD	6%	Wellbeing broader
		Hsld inc-exp	Net Savings	(4)		
Gulati & Burleton, (2015)	Canada, Aboriginal economy	Total=busin ess+hshlds +Govt	Income	31 CAD	~2%	Includes govt as well

But: Not attribution of IK

Specific sectors: embedded IK

Sector(s)	Author (date)	Region	Methodology	Value (\$ billions, USD)
Genetic & natural resources: medicine & healthcare	Daes (1993)	World	Annual market value - upper bound estimate.	43
Genetic & natural resources	Kate & Laird (2000)	World	All markets for IK: agriculture (55-60%), pharmaceuticals (15-19%), biotechnology (12-15%)	500-800
Genetic & natural resources ag seeds	Posey (1990)	World	International seed industry	15
Traditional rice crop varieties (landraces)	Evenson (1996)	India	Use and value of landraces contribution to India's rice yields	6.1
Bush food	Robins (2007)	Australia	Sum of farm gate and value added (method unclear)	0.014 AUD
	Foster & Bird (2009)	Australia	Farm gate value, 11 native foods	0.00628 AUD
	Clarke (2012)	Australia	Gross value farm gate. 13 native species Value Add could be *5	0.015-0.025 AUD

Specific sectors: embedded IK cont.....

Sector(s)	Author (date)	Region	Methodology	Value (\$ billions, USD)
Arts	Myer (2002)	Australia	Total indigenous arts & crafts: Indigenous individuals receive \$50m	0.2 AUD
	Altman, et al. (2002)	Australia	Indicative only, limitations	0.1-0.3 AUD
	desArt (2007)	Australia	No methodology provided.	0.2-0.5 AUD
	Woodhead & Acker (2014)	Remote areas of Australia	Surveys Art Centres & freelance artists	0.0527 AUD
Herbal pharmaceutical products	Market Research Future (2018)	World	Not provided	5.1
Pharmaceuticals	Principe (1998)	OECD countries	Market value of plant-based medicines sold in 1990 ^a	61

But: Not attribution of IK

Case Studies: Commercial uses

Field	Summary of contribution of IK	IP instruments for protection of IK (conservative IK attribution %)
Natural and genetic resources	IK around the properties and processing of natural and genetic resources widely-used in medicine, cosmetics and food industries .	Plant breeders' rights, patents, requirement for benefits-sharing agreements (Low: 3.3-12.5%)
Healthcare and medicine	IK in production of traditional medicines and use of traditional healing practices .	Patents, trademarks (High: 13.3-20%)
Bush food	IK in production of traditional foods .	Patents, trademarks, copyright (Low: 3.3-12.5% see natural and genetic resources*)
Environmental management and preservation of biodiversity	IK in environmental services delivered by Indigenous and non-Indigenous Peoples.	Patents, trade marks (High: 8.3-28.5%)
Tourism	IK in marketing of goods and services to domestic and international tourists .	Trade marks, copyright (Medium: 11.2-16.8%)
Designs (architecture and construction, fashion, furniture etc.)	IK used in designs in a variety of industries.	Designs, copyright (Low: 1.7-12.5%)
Research and education	IK in research methodologies , or in imparting knowledge to students.	Patents, copyright (Low: 5.7-8.5%)
Culture	IK in traditional and contemporary cultural expressions .	Copyright, trade marks (Low: 1.7-12.5%; see designs & education)

But: no publicly available prices

Conclusions

- Need to understand process by which **IK is transformed** into value in the market (production versus claim on the resources generated)
- **Case studies** may be best where **prices** (& quantity/quality) are available for IP instruments and directly attributable to IK (i.e. **IIP**)
- For **NIIP**, **Attribution problem** remains but....
 - could be addressed through **case analysis** within key sectors then transferred across industries (more funding and research) OR
 - **Choice modelling or stated preference approaches (demand) and business specific accounting questioning (supply)** to tie down attribution problem for specific cases
- IK is a **mixed good** – can be **pure public** where freely shared, **club** with restrictions and **private** with IP instruments
- **Diverse set of instruments/institutions** preferred to capture complex nature of goods made with IK
- **Dual valuation approach:** micro and macro (connected by meiso) recommended

Production/valuation in intercultural market

- Tension between Indigenous axiology & a western based economic system
 - Separability of factors versus joint production
 - Agents with different beliefs work in markets all the time
 - Unless all factors of production held within an organization where people share same beliefs, need to ensure incentives are coordinated in market
 - All factors need adequate rate of return to ensure supplied and maintained
 - If not, that factor could be withheld. This is what gives capitalist power in they are patient with alternative means that allows them to be the residual claimant on profits
 - Attribution of value to IK intrinsically difficult and not fully 'determined' & hence focus on scope of potential value-add

Renewed Indigenous Institutions

- At the risk of stating the obvious ...
 - Indigenous economic self-determination must be **Indigenous**
 - **First Nations literally ‘Leading the Way’**
 - **Tulo Centre of Indigenous Economics**
 - **Alliance for Renewing Indigenous Economies**
 - Pragmatism and minimising transaction costs?
 - All legal and political institutions need to support Indigenous autonomy and the freedom to chose an Indigenous future

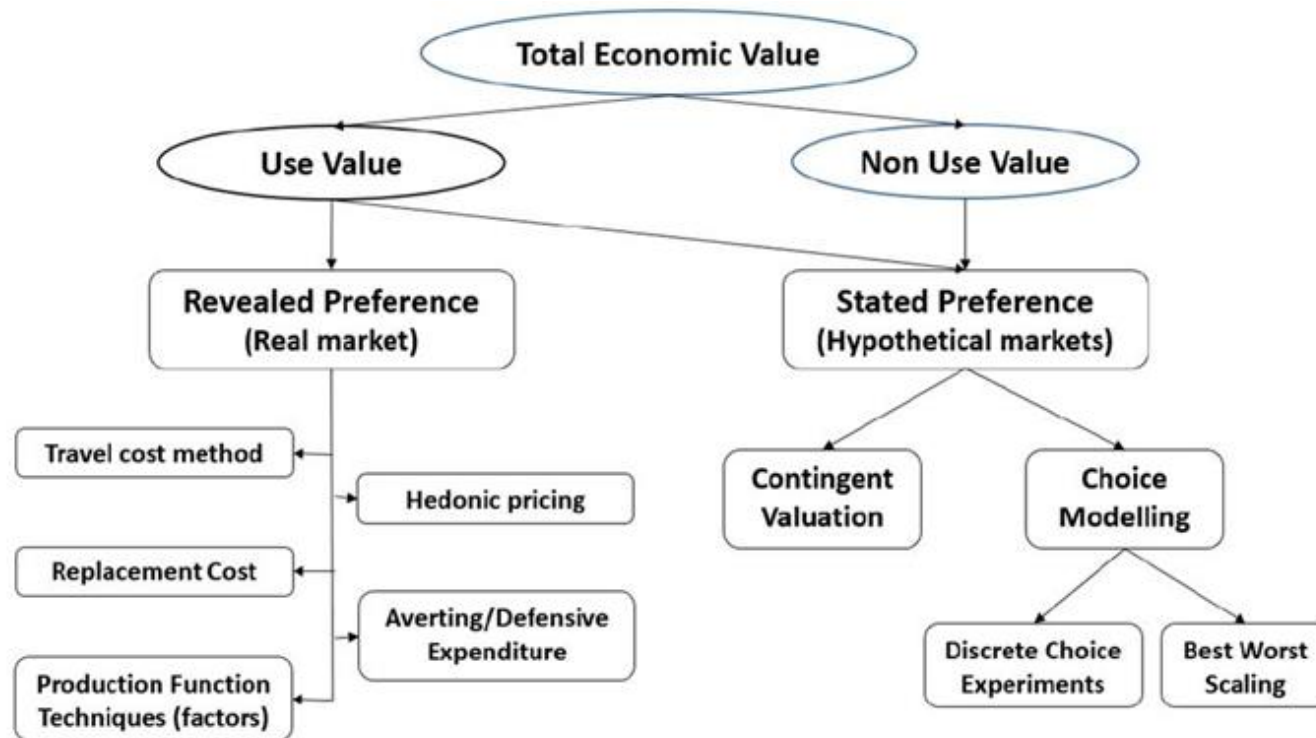
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Thank you

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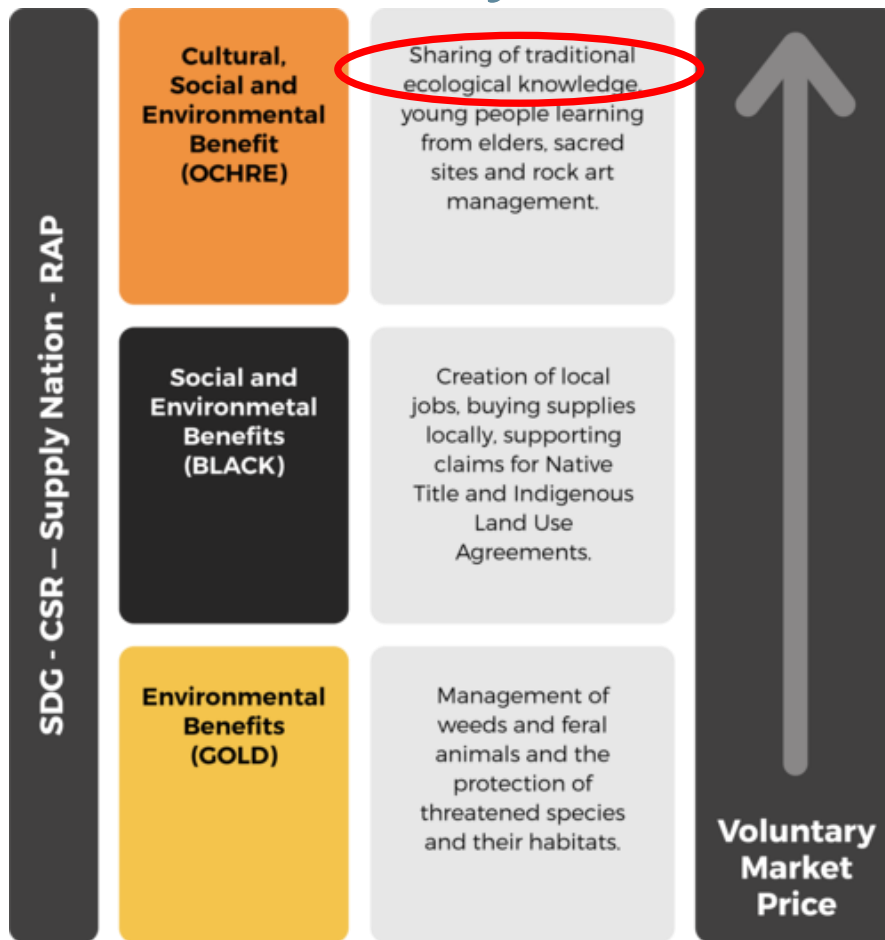
Environmental Management & Biodiversity Protection



Choice modelling (CM) & non-market valuation

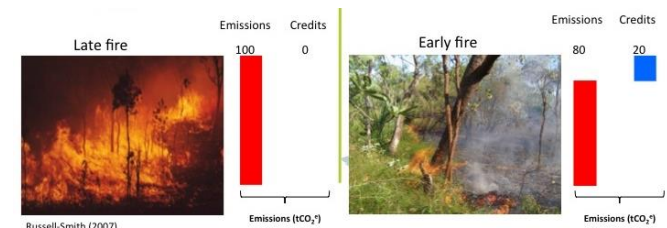
- CM: Stated preference technique
 - Originally developed to value goods before they were released to the market to provide an indication of price
 - Ideal in this sense for valuing IK in markets
 - BUT also developed to value goods not traded in markets – to separate out the value captured by specific attributes of a good
 - IK could be part of this
- Revealed preference techniques
 - hedonic pricing or travel cost could also be used
 - to isolate IK as an attribution to the final price of goods and services that are traded in markets
- These methods have their limitations in Indigenous settings but....
 - have the clear advantage of providing a number (versus \$0)
 - which can be tested for validity and reliability
 - Have become more sophisticated in recent decades

Environmental Management & Biodiversity Protection



Aboriginal Carbon Foundation (AbCF):
Reducing Carbon Building Communities Fund

Trades Australian Carbon Credit Units with **environmental**, social and **cultural values**



Bundle of rights associated with various property right positions

	Owner	Proprietor	Claimant	Authorised User
Access and Withdrawal	X	X	X	X
Management	X	X	X	
Exclusion	X	X		
Alienation	X			

- Property rights in Indigenous culture are communal in nature with many claimants or authorised users. Ostrom identified eight "design principles" of stable local common pool resource management based on societies diverse institutional arrangements for managing natural resources effectively: clearly designed principles adapted to local conditions, with **effective monitoring, sanctions against appropriators, mechanisms for conflict resolution**, community self-determination & multiple layered organisation with local CPR base

Attribution question example

Box 5.1: Example of set of questions provided in an interview or survey for a particular type of good or service

a. What is the **main good or service** you provide through your business?

..... (please state)

b. What is the **typical unit** of this good or service?

..... (please state)

c. How many units are typically sold **per year**?

..... (please state)

d. What is the typical **unit price** of this good or service when it is sold in the market?

..... (please state)

e. What **percentage of contribution** do you believe that IK makes to the **final good's price**? (Please circle your best guess at the percentage)

0-10% 21-30% 41-50% 61-70% 91-100%

11-20% 31-40% 51-60% 71-80% 81-90%

f. What **percentage of contribution** do you believe that IK makes to the **final good's quantity** sold?

(Please circle your best guess at the percentage)

0-10% 21-30% 41-50% 61-70% 91-100%

11-20% 31-40% 51-60% 71-80% 81-90%

g. Please indicate the **value** and/or **percentage** that the following inputs provide in producing a unit of the main good or service that you provide through your business?

Input	\$ cost/unit	Percentage of cost/unit
Labour		
- IK & skills (i.e. not covered by an IP instrument)		
- Other knowledge & skills (which may include scientific knowledge)		
- Other labour factors		
Land		
Capital – equipment, tools, machinery, assets etc.		
- Non IK Equipment etc.		
- IK equipment e.g. identifiable IK e.g. IP instruments containing IK		
Finance		
Other factors not included above (Please state)		