



# Knowledge: creation, transfer, adoption

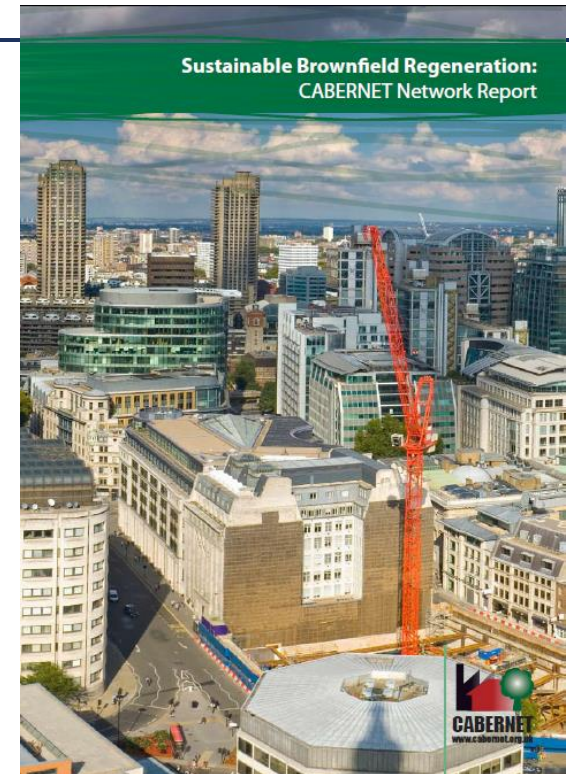
Paul NATHANAIL, @CABERNET4EU

# What is a brownfield?

## Sites that

- ◆ have been affected by former uses of the site or surrounding land;
- ◆ are derelict or underused;
- ◆ are mainly in fully or partly developed urban areas;
- ◆ require intervention to bring them back to beneficial use; and
- ◆ **may** have real or perceived contamination problems.

[www.cabernet.org.uk](http://www.cabernet.org.uk)



CABERNET (2006)

Cabernet: Europe's sustainable brownfield regeneration network

# Cabernet

## Concerted Action on Brownfield & Economic Regeneration



us on so-called the CABERNET was originally redevelopment figure 10).<sup>8</sup>

urban develop- atflows (for the sh inflows (sale the land value) d in a dynamic s. In this context, dicators such as net present values (NPV), future values and internal rates of return (IRR) are generally used. The IRR ( $i_0$ ) is the interest rate, which balances out the sum ( $C_0$ ) of future values (or net present values) of all project cash inflows ( $E_t$ ) and outflows ( $A_t$ ).

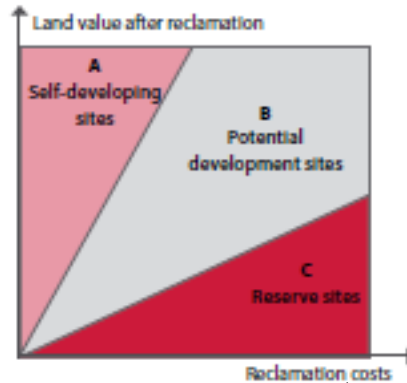
The internal rate of return measures the yield of the capital invested in a project. To evaluate a specific project, the IRR has to be compared with the capital (WACC) of the urban development project.<sup>10</sup>

$$C_0 = \sum_{t=0}^n (E_t - A_t) \cdot (1 + i_0)^{n-t}$$

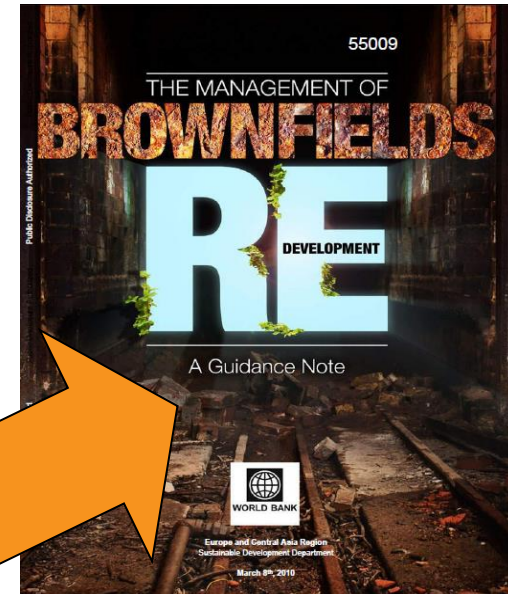
$$\sum_{t=0}^n E_t \cdot (1 + i_0)^{n-t} = \sum_{t=0}^n A_t \cdot (1 + i_0)^{n-t}$$

JESSICA Fund adopts Cabernet ABC Model

Figure 10: CABERNET classification of project types



2010: World Bank adopted the CABERNET definition



# knowledge

**facts, information, and skills** acquired through experience or education; the **theoretical or practical understanding** of a subject.

**awareness or familiarity** gained by experience of a fact or situation.

## knowledge

/ˈnɒlɪdʒ/ 

*noun*

1. facts, information, and skills acquired through experience or education; the theoretical or practical understanding of a subject.  
"a thirst for knowledge"  
*synonyms:* understanding, comprehension, grasp, grip, command, mastery, apprehension; [More](#)
2. awareness or familiarity gained by experience of a fact or situation.  
"the programme had been developed **without his knowledge**"  
*synonyms:* awareness, consciousness, realization, recognition, cognition, apprehension, perception, appreciation; *formal* cognizance  
"he slipped away without my knowledge"

# Knowledge hierarchy

- ◆ Skills
- ◆ Facts
- ◆ Information
- ◆ Understanding
- ◆ Awareness
- ◆ familiarity



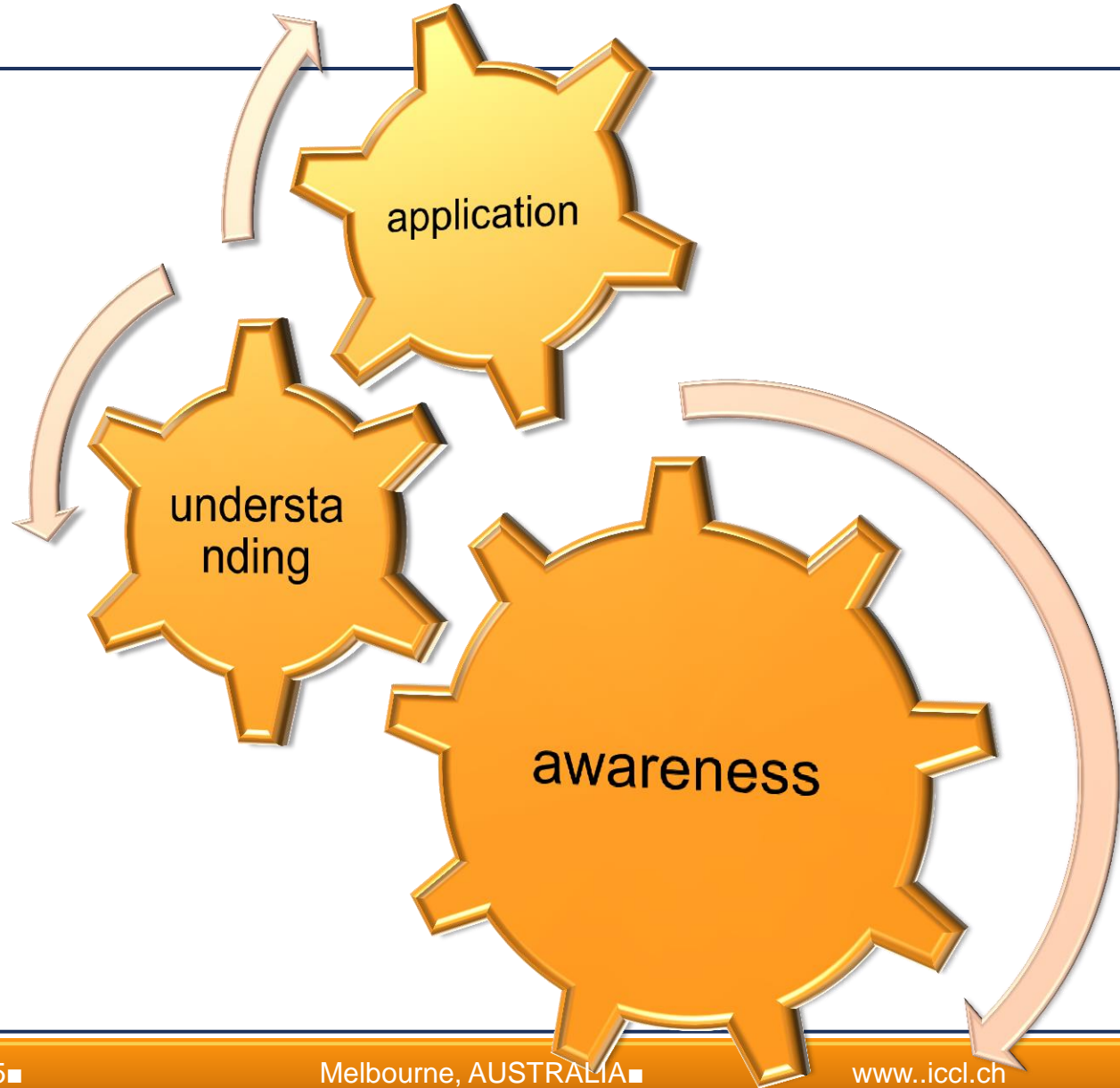
- ◆ Practitioners
- ◆ Regulators
- ◆ Policy makers
- ◆ Developers
- ◆ Citizens

[https://farm5.staticflickr.com/4074/4947839133\\_67569db00e\\_o.jpg](https://farm5.staticflickr.com/4074/4947839133_67569db00e_o.jpg)

# Mainstreaming: from *best* to *good* practice



# Mainstreaming: *all in!*



# Knowledge

*“the only think I know is I know nothing”*

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- ◆ Grasp a fact
- ◆ Understand a process
- ◆ Create a product
- ◆ Critique performance



# Knowledge creation

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- ◆ Think – ‘philosophy’
- ◆ Discuss – expert elicitation; focus groups; working groups; ...
- ◆ Experiment – in silico, in vitro, in vivo
- ◆ Design – system

# Knowledge creation

## Reliability (Meta data)

- ◆ what
- ◆ how
- ◆ Why
- ◆ When
- ◆ By whom
- ◆ Where

## Relevance (use specific)

*Should I use it?*

- ◆ Directly
- ◆ Indirectly
- ◆ Approximation

*Can I use it?*

- ◆ Intellectual Property Rights
- ◆ Licence
- ◆ Caveats on use

# Knowledge transfer

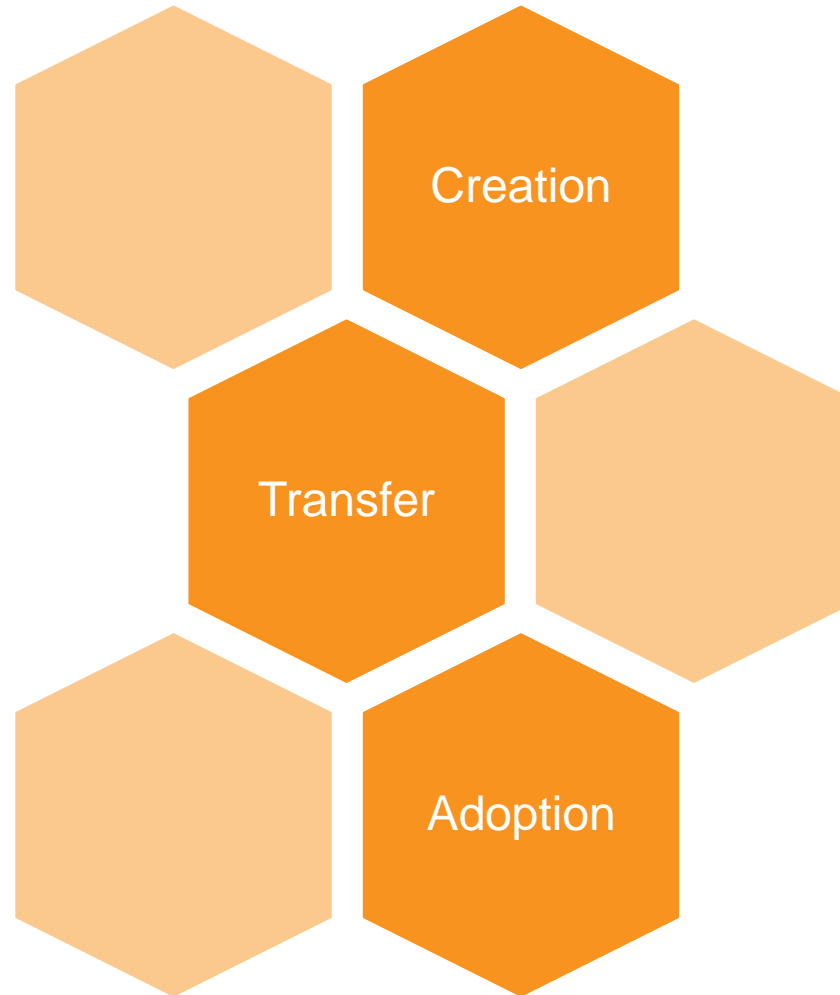
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- ◆ Knowledge has the rare property that I can give it away and still keep it myself
- ◆ Lost in transmission
  - Jargon; ambiguity; translation; inconsistency

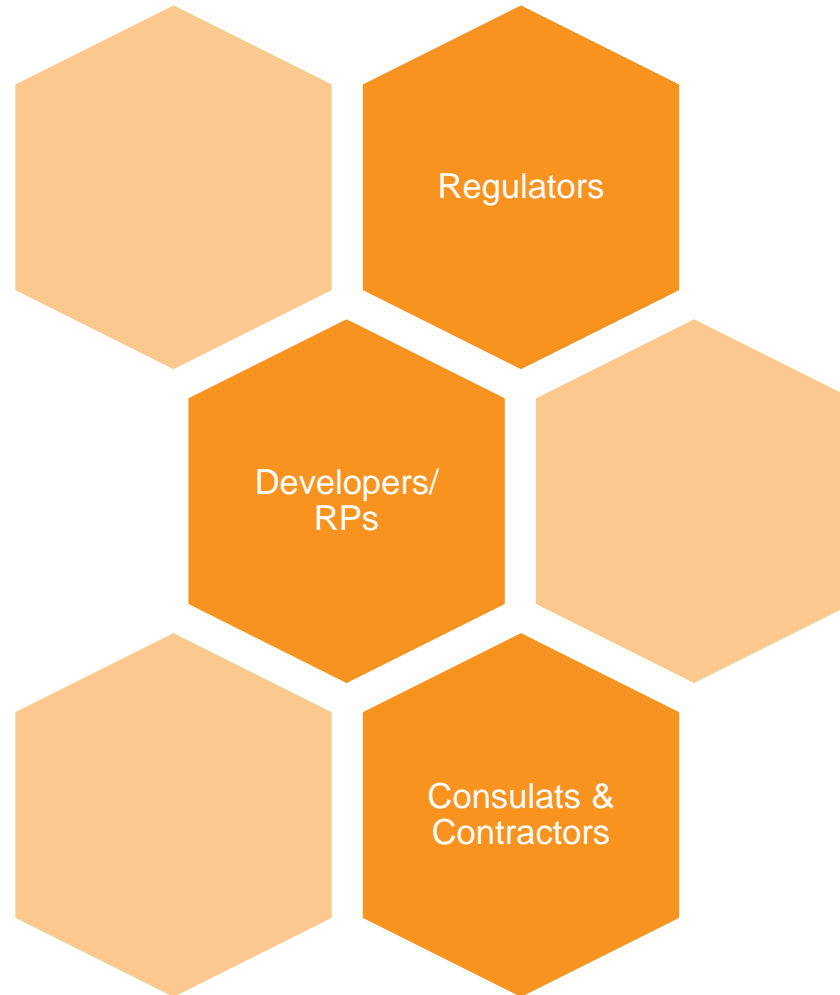
# Knowledge adoption

- ◆ By law
- ◆ By standard
- ◆ By contract
- ◆ By peer pressure
- ◆ By choice
- ◆ By-product

# Who?



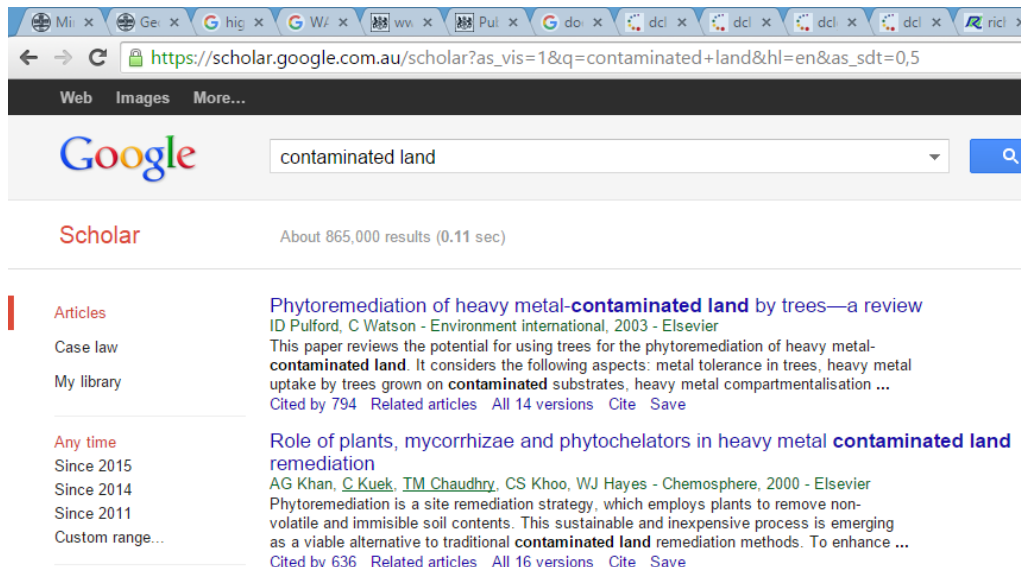
# Who?



# Peer reviewed literature

## Journals

- ◆ Open access vs subscription
- ◆ Online vs hard copy
- ◆ Find 'papers' (articles) using [www.google.com](http://www.google.com) (15,700 results for 2015 alone)
- ◆ Sign up for email alerts for selected Journals



The screenshot shows a web browser window with multiple tabs. The active tab is Google Scholar, displaying a search for "contaminated land". The search results show two articles:

- Articles**
  - Phytoremediation of heavy metal-contaminated land by trees—a review**  
ID Pulford, C Watson - Environment international, 2003 - Elsevier  
This paper reviews the potential for using trees for the phytoremediation of heavy metal-contaminated land. It considers the following aspects: metal tolerance in trees, heavy metal uptake by trees grown on contaminated substrates, heavy metal compartmentalisation ...  
Cited by 794 Related articles All 14 versions Cite Save
- Any time**
  - Role of plants, mycorrhizae and phytochelators in heavy metal contaminated land remediation**  
AG Khan, C Kuek, TM Chaudhry, CS Khoo, WJ Hayes - Chemosphere, 2000 - Elsevier  
Phytoremediation is a site remediation strategy, which employs plants to remove non-volatile and immisible soil contents. This sustainable and inexpensive process is emerging as a viable alternative to traditional contaminated land remediation methods. To enhance ...  
Cited by 636 Related articles All 16 versions Cite Save

# Key journals... *a cornucopia of knowledge*

Environmental Science and Technology

Science of the Total Environment

Contaminant Hydrogeology

Archives of Environmental Contamination and Toxicology

Environmental Geochemistry and Health

Remediation

Environmental Health Perspectives

Journal of Toxicology and Environmental Health

Toxicology

Bioremediation Journal

Risk analysis

Human and Ecological Risk Assessment: An International Journal

... there are *HUNDREDS* of others!!!



# Bed time reading

- ◆ Standards (ANSI, BS, CEN, ISO, ...)
  - Agreed knowledge
  - Quasi-compulsory to follow
  - Dated!
- ◆ Guidance
  - ITRC, CIRIA, CL:AIRE, CRC CARE, ...
- ◆ Text books
  - Someone has gone through the peer reviewed literature and identified the 'good' papers
  - Check out the editors & authors
  - Expensive
  - Dated!

# Online Knowledge Transfer

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## JISCMAIL

- ◆ Email [jiscmail@jiscmail.ac.uk](mailto:jiscmail@jiscmail.ac.uk)  
message: Join contaminated-land-strategies FirstName Surname

## LinkedIn groups

- ◆ contaminated land management (ca 4500 members worldwide)
- ◆ SILC
- ◆ etc etc etc

## Twitter

- ◆ Follow key public authorities; key hashtags; key publications
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# Online Knowledge Transfer

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## ◆ Webinars

- ‘advertorials’
- Free: ALGA (for members)
- ‘Paid for’ training: SuRF, LQM
- MOOCs (Massive open online course):  
<https://www.mooc-list.com>
- Online training:
  - ITRC
  - CIRIA, CLAIRE
  - howtomna.com
  - Uni of Nottingham (online Masters in Contaminated Land)

# Face to Face Knowledge Transfer

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- ◆ International networks
- ◆ Regional networks
  - CLOGs (NWBRF, ELQF, SCLF, NI Brownfield Network, YAHPAC)
  - Regional groups of professional bodies (Geological Society; ICE)
- ◆ Conferences
  - AquaConsoil
  - CleanUp
  - Battelle
  - ... and many more
- ◆ Training
  - Emaq+ Contaminated Land
  - CIRIA
  - LQM

# Knowledge: creation, transfer, adoption

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- ◆ It is not easy
- ◆ It is not impossible
- ◆ It is rewarding
- ◆ It is essential

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