

Break Out Session 1

Area #4 VALUATION

Meeting room: Sycamore

Chair: David Barton (NINA) (Rocky Harris)

Break out session programme

14:15-14:45 Introduction by David N. Barton (NINA) and Discussion by Ole Gravgård Pederssen(Statistics Denmark) (5 minutes)

14:45-15:15 Exercise testing valuation criteria (split into three tables, participants test evaluation criteria in pairs on an ES-valuation method of choice)

15:15-15:30 Coffee Break

15:30-16:10 Discussion of questions by table

16:10-16:25 Break out planetary – tables report main conclusions

16:25-16:30 Chair summary of main points

SEEA Experimental Ecosystem Accounting:

Reflections on ecosystem accounting approaches to valuation - different markets and institutional arrangements for non-market valuation of ecosystem services

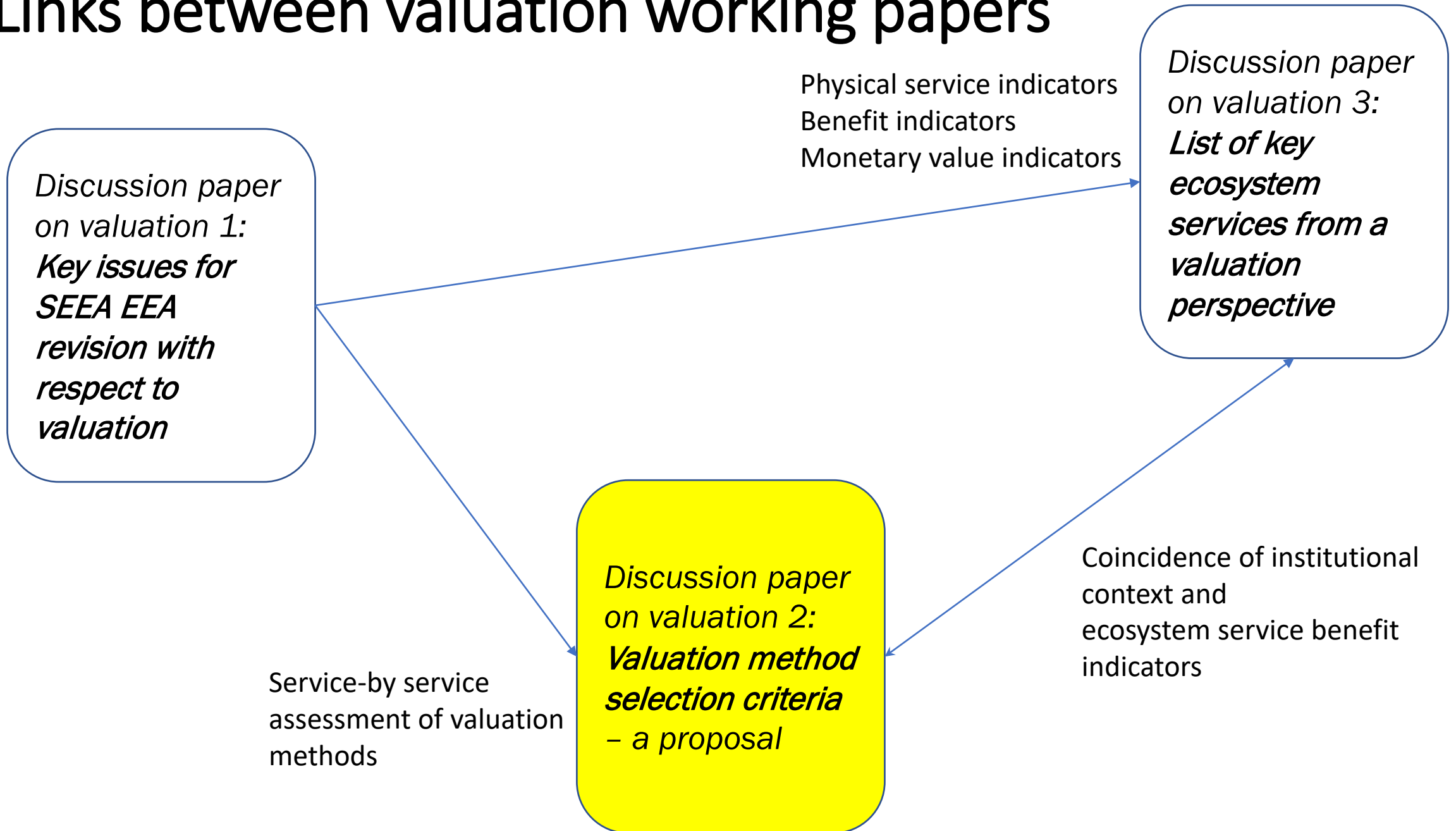
David N. Barton

Norwegian Institute for Nature Research (NINA)

Forum of Experts in SEEA Experimental Ecosystem Accounting 2018

18. June 2018, Glen Cove, NY

Links between valuation working papers



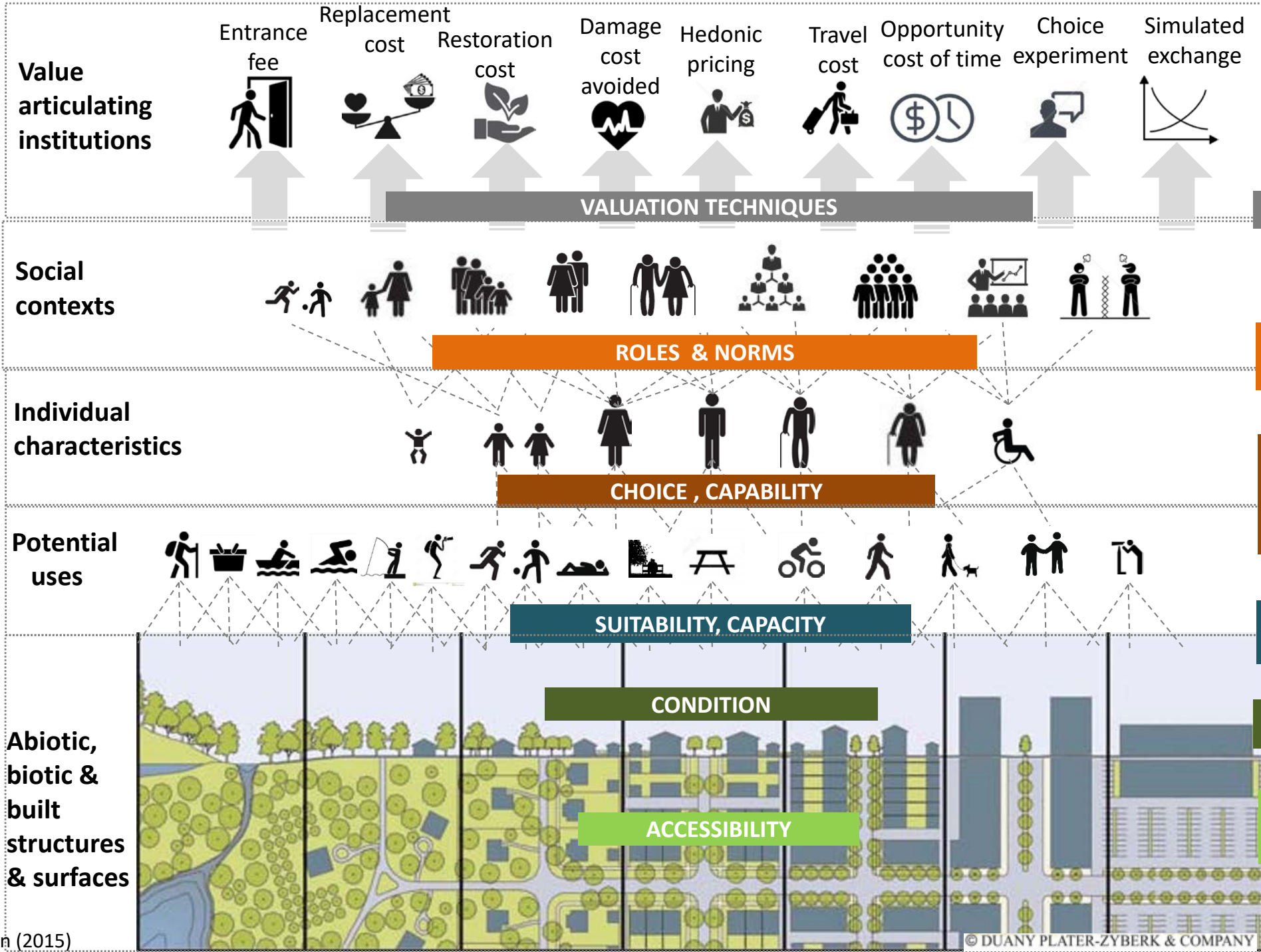
Challenge: Appropriate assumptions concerning institutional arrangements underpinning exchange values:

- «amounts of money that willing buyers pay to acquire something from willing sellers..» (SNA 2008)
- «transactions made voluntarily»
- «accounting makes no judgement on whether institutional settings are appropriate»
- «institutional arrangement which actually realizes a transaction price...could be a market, but need not be»
- «envisaging the **ecosystem as seller** may imply that ecosystems have preferences»
- «a **market-like institutional arrangement** which would facilitate exchange of a [...] service between buyer and seller «
- «...seller - some entity such as the **government on its behalf** - putting a value to a referendum»
- «is the institutional arrangement upon which the value is based **sensible and credible?**»

=> INSTITUTION AND ECOSYSTEM SERVICE CO-DETERMINING CHOICE OF VALUATION METHOD



CULTURAL ECOSYSTEM SERVICE :
 Enabling activities promoting health, recuperation or enjoyment



INSTITUTIONAL CONCERNS....

TRANSACTION?

COMPATIBLE? FAIR?

ACTUAL / HYPOTETICAL PAYMENT? VOLUNTARY?

CREDIBLE SUPPLY - RIVAL?

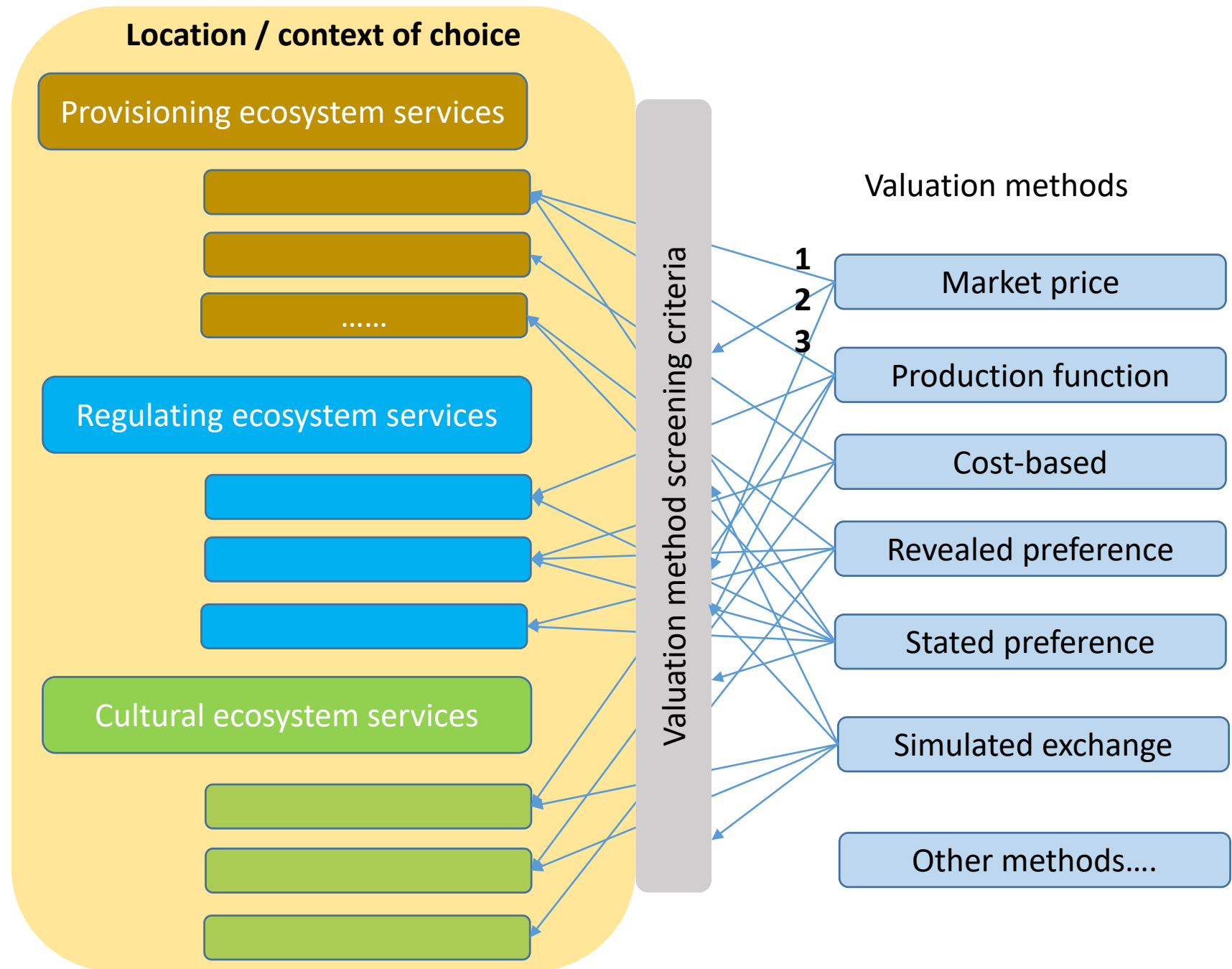
DIFFERENTIABLE?

USE RIGHTS? EXCLUDABLE?

Source: adapted Barton (2015)



Valuation method selection criteria
- **exploring the appropriateness of valuation methods across ES and institutional contexts**



Valuation method screening considerations

Valuation method screening criteria

- Consistency between accounting concepts and methods
- Practical consideration for application
- Institutional capacity to conduct valuation
- Other policy applications of valuation information



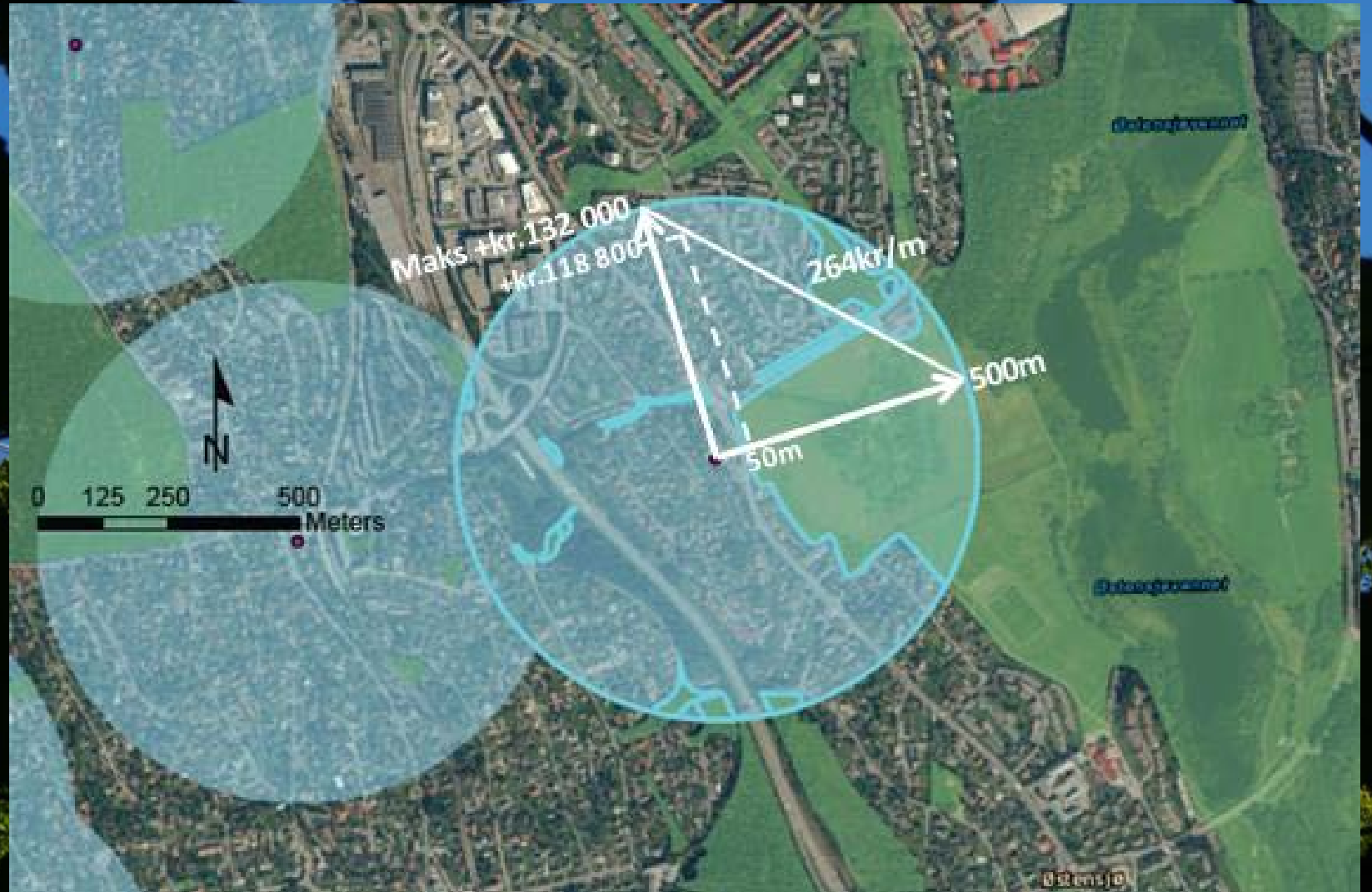
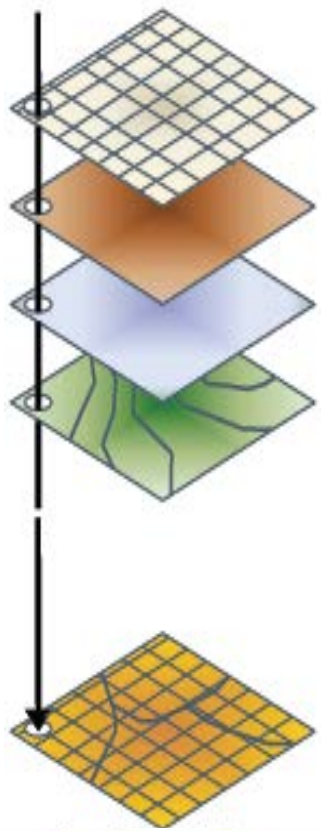
Example: comparison of valuation methods for a specific ecosystem service context

Ecosystem service: Enable local recreation	Method selection criteria:										
Monetary valuation methods (Y)	Production boundary	Double counting	Exchange values	Sensitivity	Institutional compatibility	Significant	Robustness	Accuracy	Technical complexity	Information cost	Other policy applications
1. Unit resource rent/net factors of production											
2. Production function, cost function and profit function											
3. Payments for ecosystem services											
4. Hedonic pricing	0	0	1	1	1	1	0	1	0	0	1
5. Replacement cost	0	1	1	1	0,5	1	1	0,5	1	1	0
6. Damage cost avoided											
7. Averting behaviour											
8. Restoration cost											
9. Travel cost, random utility models											
10. Stated preference (contingent valuation, choice experiments)											
11. Simulated exchange											
12. Value of quality adjusted statistical life											
13. Value of household time	0	1	1	0	0,5	0	1	1	1	1	1

potential methods

Screening scores for comparison across methods: 1=suitable; 0.5=conditional on assumptions; 0=not suitable for SEEA ecosystem accounting.

EXAMPLE: HEDONIC PROPERTY PRICING METHOD



Screening considerations:

1. Consistency accounting concepts with methods

Table 3.1.1	Context:	Ecosystem service: local outdoor recreation Valuation method: Hedonic property pricing	Suitability Score:
Criteria:			
1. Conceptual consistency			
Production boundary? Does the method address ecosystem services that fall inside SNA production boundary?	No. But imputed values of ecosystem services are already included in the rental value of housing in SNA. If included in ecosystem account, housing rental value net of ecosystem services must be computed.		0
Individual services? Is the method able to identify the ecosystem service individually? Double counting? Does the identification of services in the method reduce the likelihood of double <u>counting</u> .	No. Hedonic pricing regression identifies the marginal value of proximity to ecosystem assets, rarely unique services No. Neighbourhood landscape attributes possess a bundle of cultural and regulating services. Double counting can be 'avoided using reclassification of "amenity services"'		0
Exchange values? Does the method use exchange values?	Yes. Real estate market		1
Sensitivity to scarcity? Is the method sensitive to changes in ES supply and demand? Are they average unit or marginal values?	Yes. But real estate markets are also highly sensitive to (virtual) financial markets and speculation Marginal values derived from spatial regression methods.		1
Compatibility of value articulating institution? Are the institutional assumptions of the valuation method compatible with current institutions governing ecosystem use?	Yes. The market is based on voluntary transaction between willing seller and buyer. Degree of compatibility will depend on degree of market regulation. In the extreme case, state ownership, with fixed rental will not be compatible.		1

Screening scores for comparison across methods: 1=suitable; 0.5=conditional on assumptions; 0=not suitable for SEEA ecosystem accounting

Screening considerations:

2. Practical considerations for policy application

Suitability
Score:

2. Practical considerations for application (to policy analysis)	
<p>Significance? Is the method vulnerable to zero or low monetary values? (relative to level of biophysical flows)</p>	<p>Yes. In some urban contexts accessibility to vegetation may have unobservable effects on overall property prices. In complex urban environments many degrees of freedom are used in specifying real estate preferences. Site specific differences may be small, requiring very large datasets.</p>
<p>Robustness? Is the valuation method complex, subject to a large number of data transformations and modelling assumptions? (methods with few data transformation steps and assumptions are more robust)</p>	<p>No. The method is not very robust to specification. Econometric regressions are complex and marginal values are highly sensitive to model specification due to spatial autocorrelation</p>
<p>Accuracy? Can valuation method variance/uncertainty be quantified? (the variance is determined by the size and heterogeneity of the accounting area, but is the method sensitive to this variation?)</p>	<p>Yes. Spatial variation in controlled for statistically for each asset. (individual ecosystem services cannot be identified, though).</p>

0

0

1

Screening scores for comparison across methods: 1=suitable; 0.5=conditional on assumptions; 0=not suitable for SEEA ecosystem accounting

Screening considerations:

3. Institutional capacity

Suitability
Score:

3. Institutional capacity to conduct valuation	
Technical complexity? Does the method require a specialist in a <u>particular software</u> ?	Yes. Requires specialised GIS and econometrics software. Assigning marginal amenity values across a population of households to multiple specific green spaces is an unresolved GIS modelling task.
Information cost? Is the method costly to implement (time to <u>completion</u>)	Yes. Most applications are experimental. Production times could be reduced if standard variables for amenities were applied.
4. Other policy applications? Are the results of the method applicable to many other policy analysis purposes, <u>than</u> those of accounting?	Yes. Can be used to adjust property taxes to account for value-added to private property by public management of public green spaces.

0

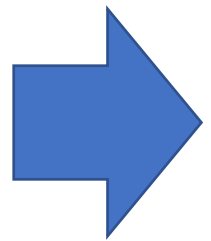
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Questions to proposed criteria for valuation method screening for S EEA EEA

- (i) Clear criteria ?
- (ii) Redundant criteria?
- (iii) Are criteria missing any considerations ?
- (iv) Which criteria are *essential* and which criteria are *supporting considerations* (and why from a theory or implementation point of view)



Do we have clarity about the appropriate considerations in selecting valuation techniques in accounting for a particular service?

Break out session schedule

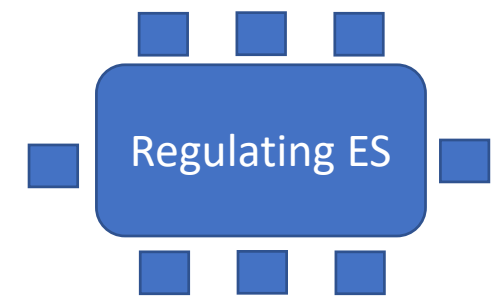
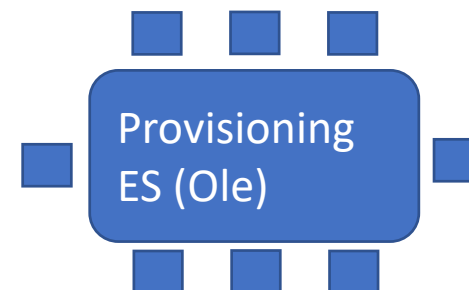
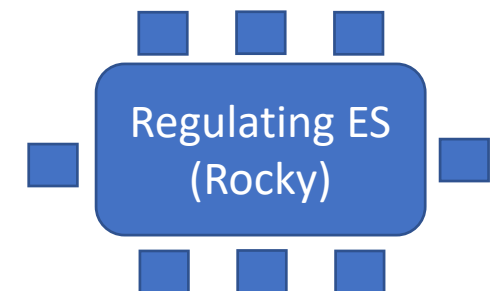
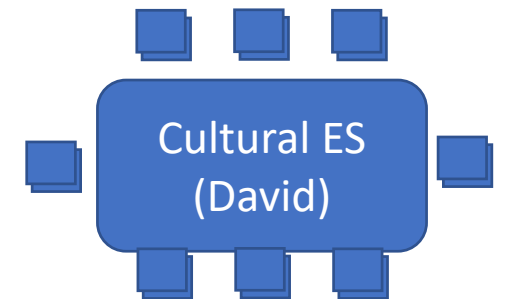
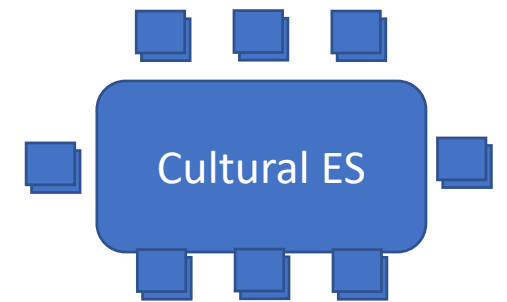
14:15-15:15 Monday

- Introduction by David Barton (NINA) (20 mins)
- Discussant Ole Gravgård Pederssen (Statistics Denmark) (5 minutes)

14:45-15:15 Exercise assessing valuation methods

1. Split into tables by service:
2. At each table **pairs of participants** work through 1-2 ecosystem service–method combination each that they are personally familiar with
3. Use blank tables provided in the Background Note to fill in/make personal notes.

15:15-15:30 Break



Break out session (continued)

15.45-16:30

- Settling (5 minutes)
- Discuss together at each table (35) mins:
 - (i) Clear criteria ? (5 mins)
 - (ii) Redundant criteria? (5 mins)
 - (iii) Criteria missing any considerations ? (5 mins)
 - (iv) which criteria are *essential* and which criteria are *supporting considerations* (and why from a theory or implementation point of view) 5 minutes
- Report from each table (15 mins, 5 minutes each)

Do we have clarity about the appropriate considerations in selecting valuation techniques in accounting for a particular service?

- Conclusions (5 min). Do the criteria work equally well across ecosystem service contexts? Information gaps uncovered. To be taken into next break out session?