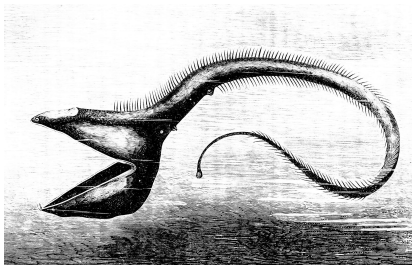


Running MSE analysis with the a4a platform

Management Strategies Evaluation with FLR and a4a
25-29 November 2019, Ispra, Italy,



Ernesto Jardim

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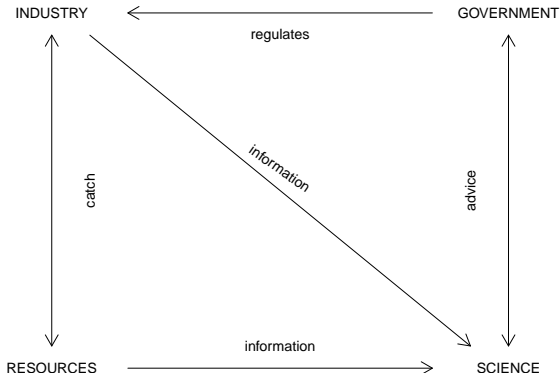
Joint Research Centre
European Commission

Modular MSE

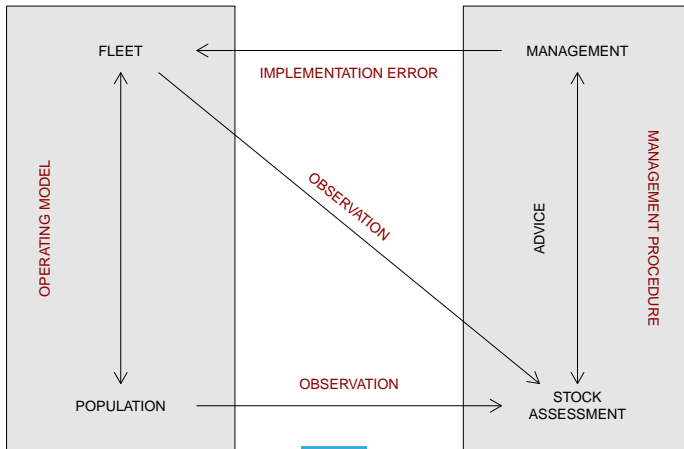
What is a modular MSE and how does it help ?

(hint: think of lego !)

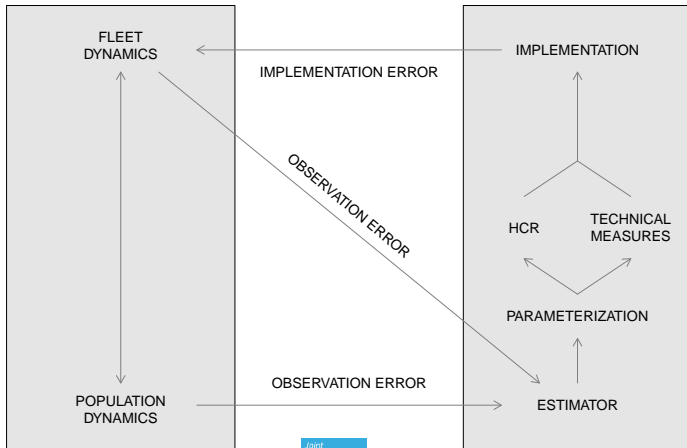
The management cycle



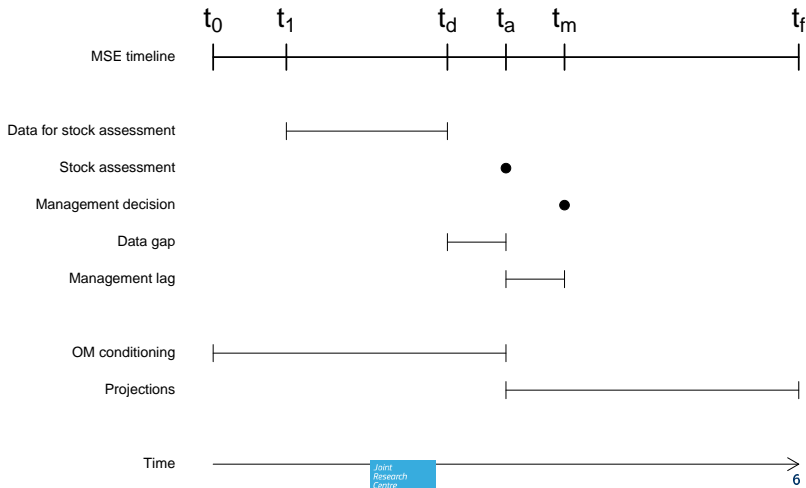
MSE overview



Generalizing and modularizing the a4a MSE



Timeline



Advantages of abstraction

Module	Data rich	Data limited
Observation model	catch-at-age, survey	catch length frequencies
Estimator	statistical catch-at-age	$\bar{L}_{current}$
Parametrization	F_{MSY}	L_{opt}
HCR	$F_{future} = F_{MSY}$	$\delta_{future} = \frac{\bar{L}_{current}}{L_{opt}}$
Technical measures	[MPA (changes $F@age$)]	[MPA (changes \bar{L}_{catch})]
Implementation	$TAC = f(C_{past} HCR)$	$TAC = f(C_{past} \vee E_{past} HCR)$
Implementation error	Uncertainty in catch	Uncertainty in catch

Table: Comparative example of full feedback and data limited MSEs

Comments about modular approach

- Break large complex system into simpler parts,
- Make it simpler to implement and share methods,
- Reduces the current workload,
- Improves readability, replicability, etc,
- Improves communication !

Hands-on !

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