Running MSE analysis with the a4a platform

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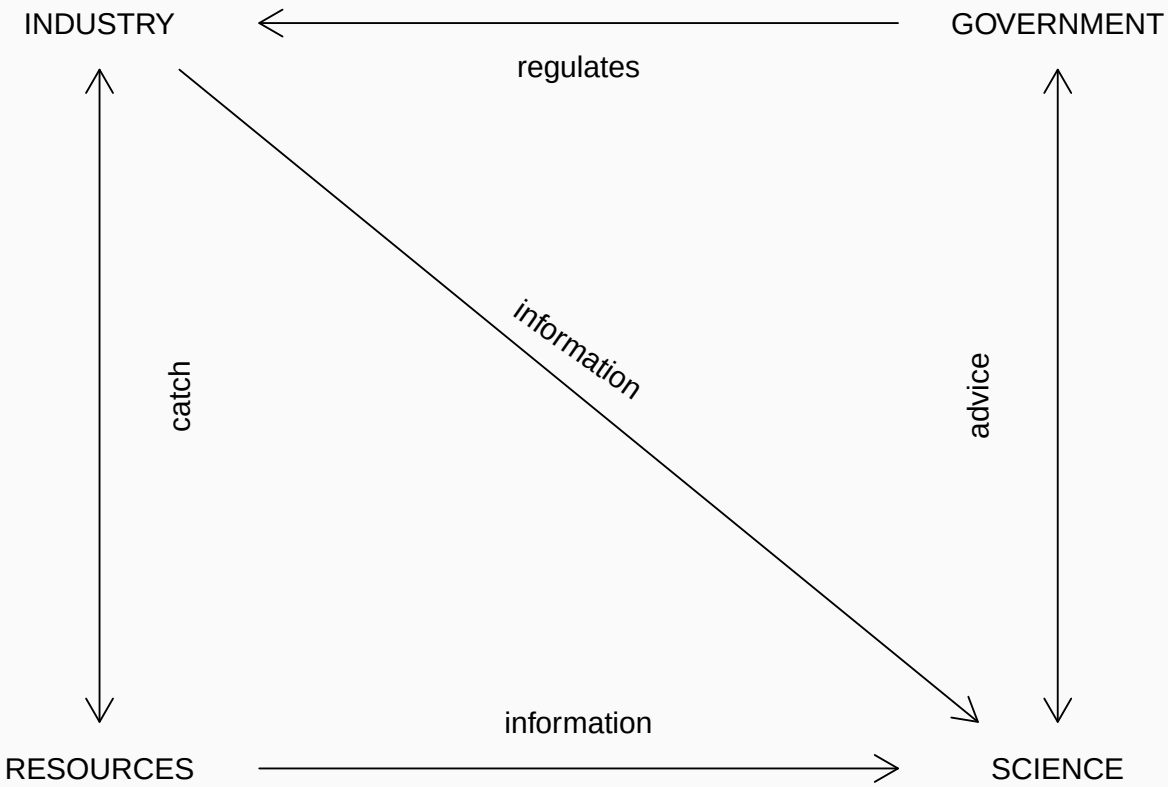
Modular MSE

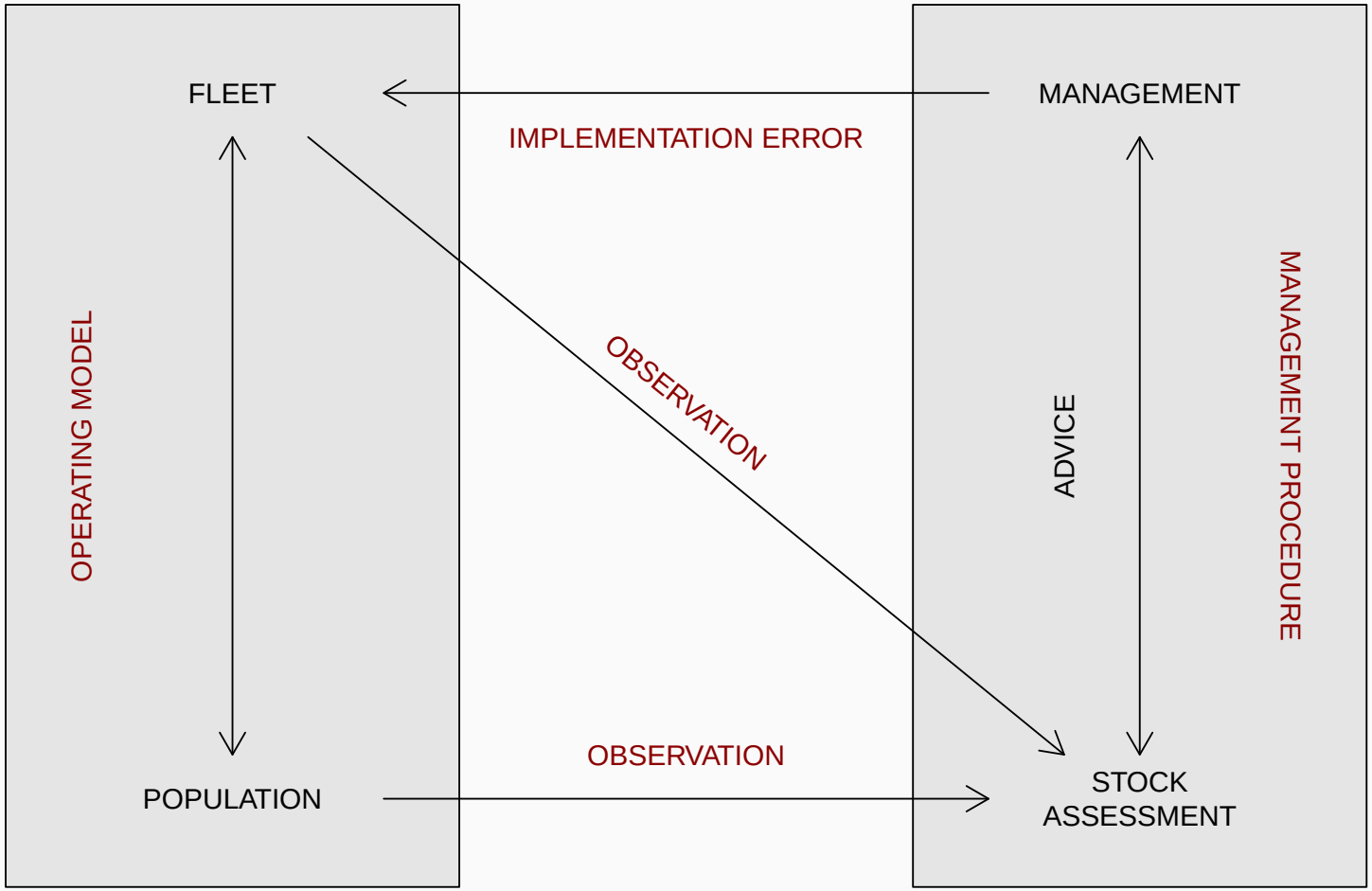
What is a modular MSE and how does it help ?

(hint: think of lego !)

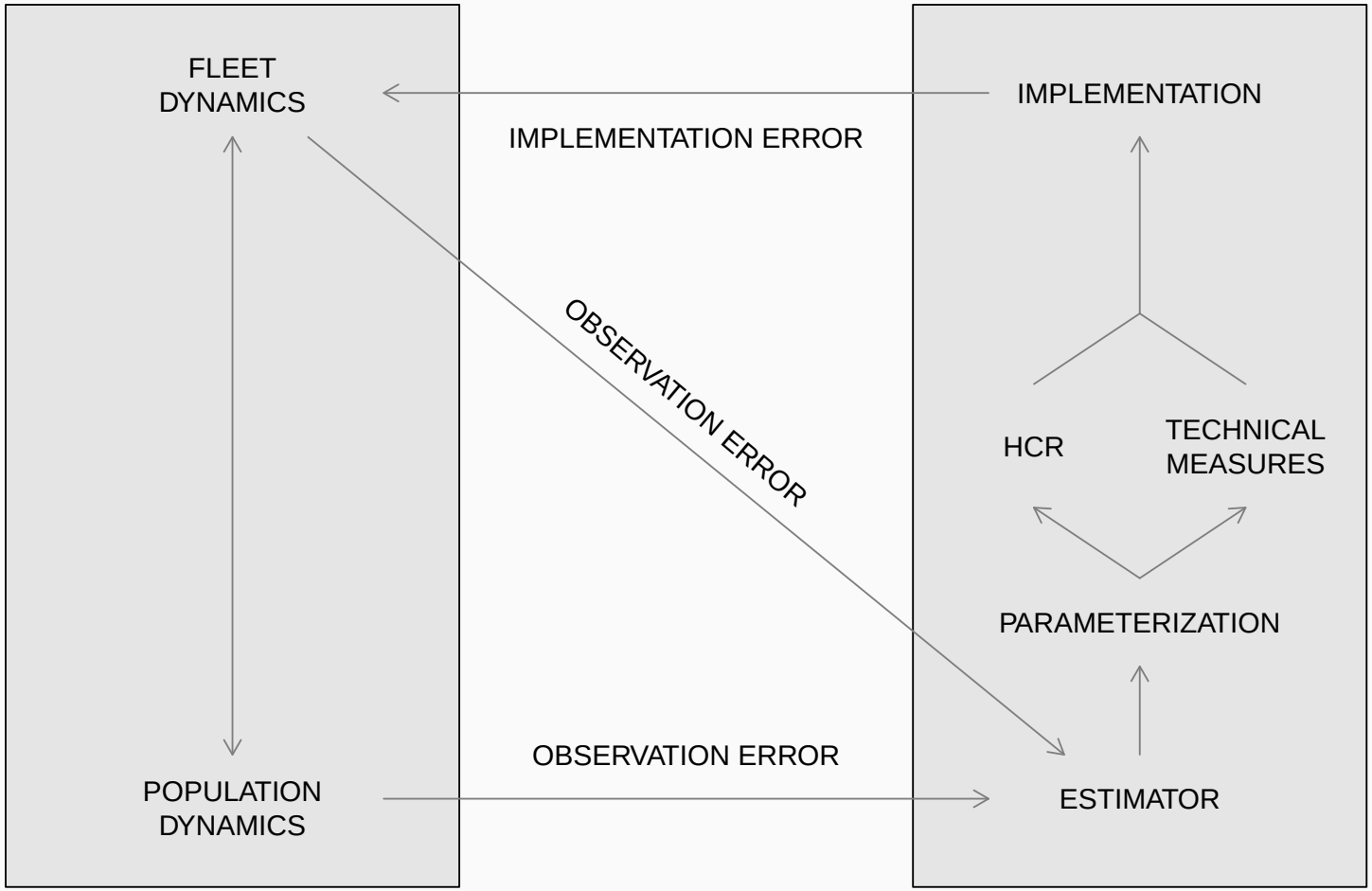
The management cycle



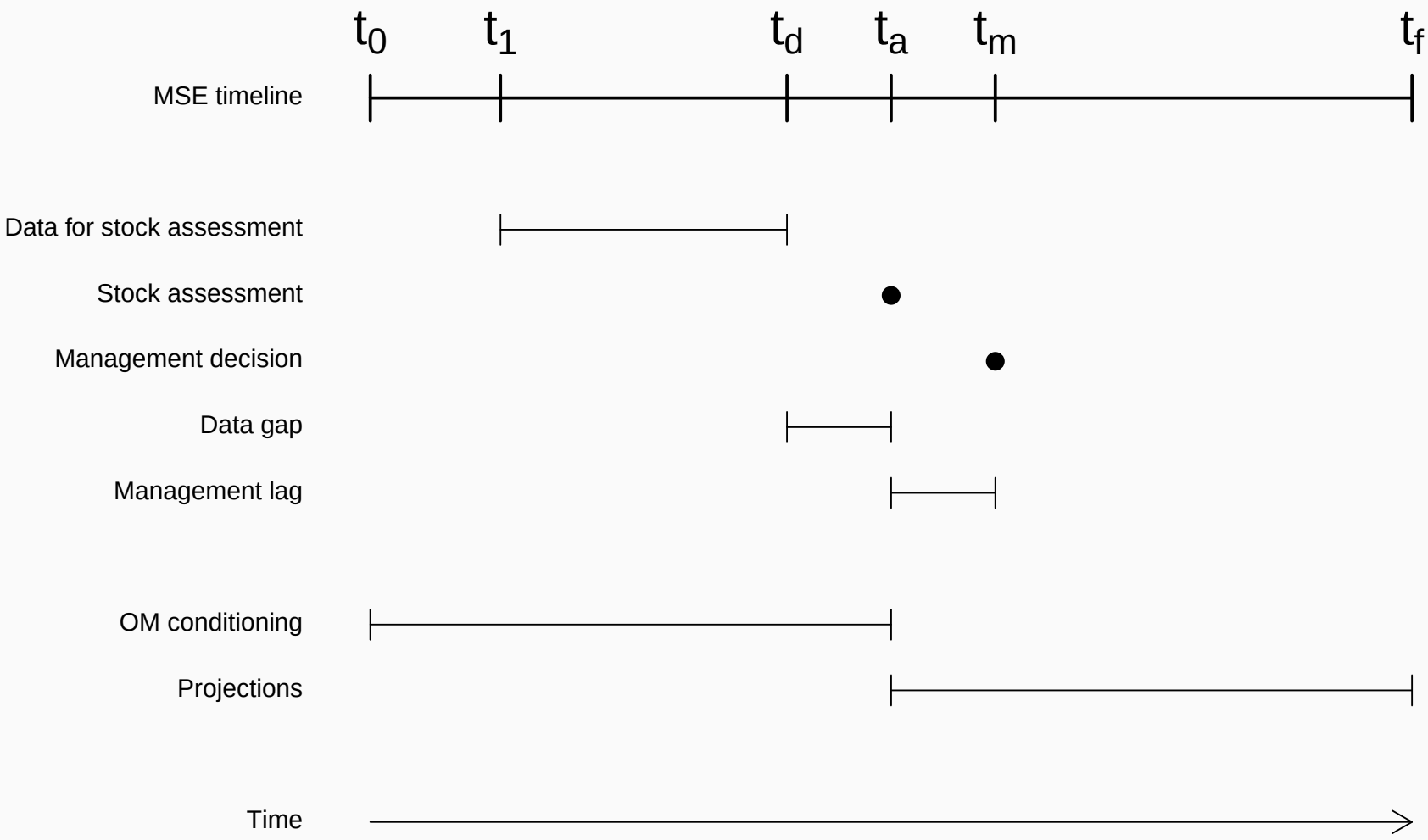
MSE overview



Generalizing and modularizing the a4a MSE



Timeline


t_0
t_1
t_d
t_a
t_m
t_f
MSE timeline
Data for stock assessment
Stock assessment
Management decision
Data gap
Management lag
OM conditioning
Projections
Time

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 1: 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 !