

SEFS Concept Selection

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Abstract

Concept selection is useful at many levels, from the customer application to the technology concept for specific functions. The Pugh matrix is a lightweight decision matrix facilitating early phase concept selections. When the design is crystallizing out, then trade-off analysis provides a more specific insight in the relation between specification and design parameters.

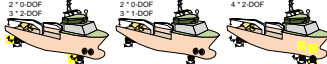
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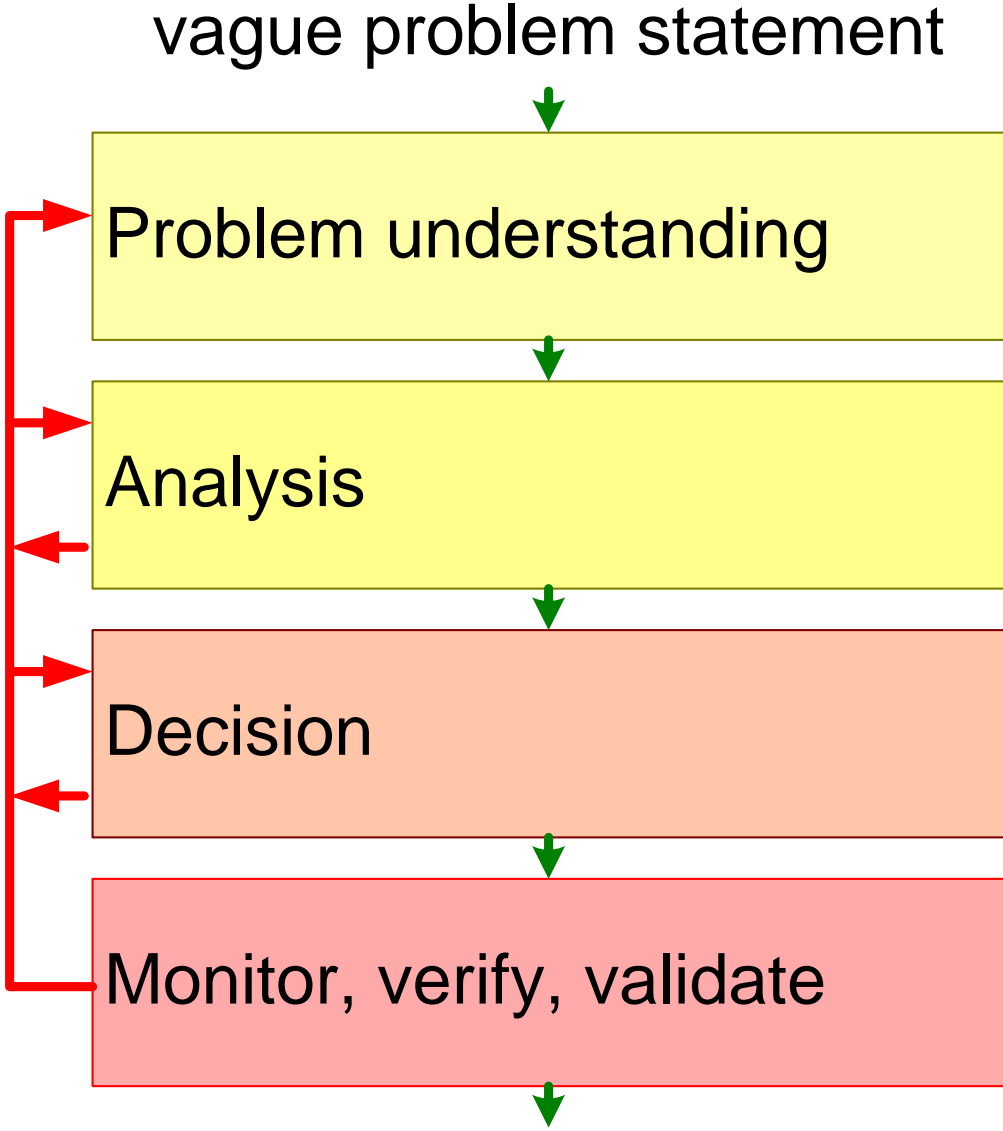
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Manoeuvrability	4	4	5
Energy consumption	5	3	5
Development Cost	3	4	2
Maturity (risk)	3	4	1
Purchasing Cost	3	4	3
Maintenance Cost	2	4	2

Exploration and Analysis Flow of Concepts



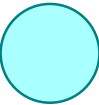

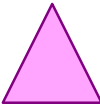
Pugh Matrix: a Light-Weight Decision Matrix

Define at least 3 concepts

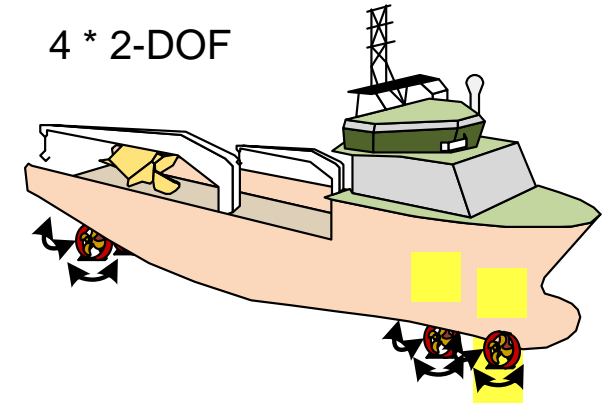
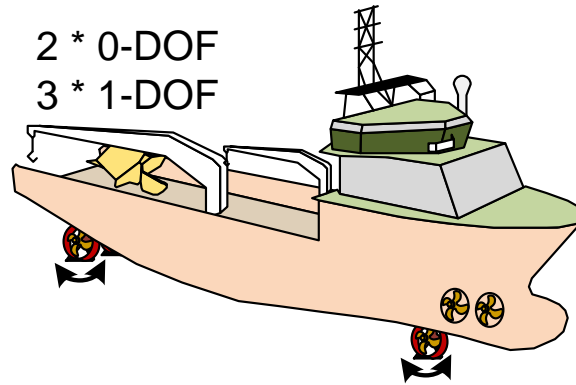
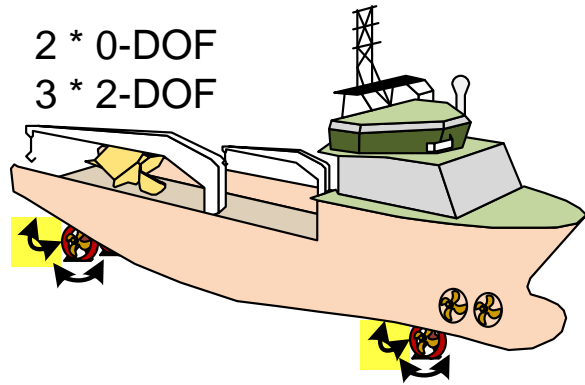
Define 7 to 10 criteria for selection

Score the concepts against the criteria, for example using a scale from 1 to 5: 1 = very poor, 5 = very good

Recommend a concept with a rationale

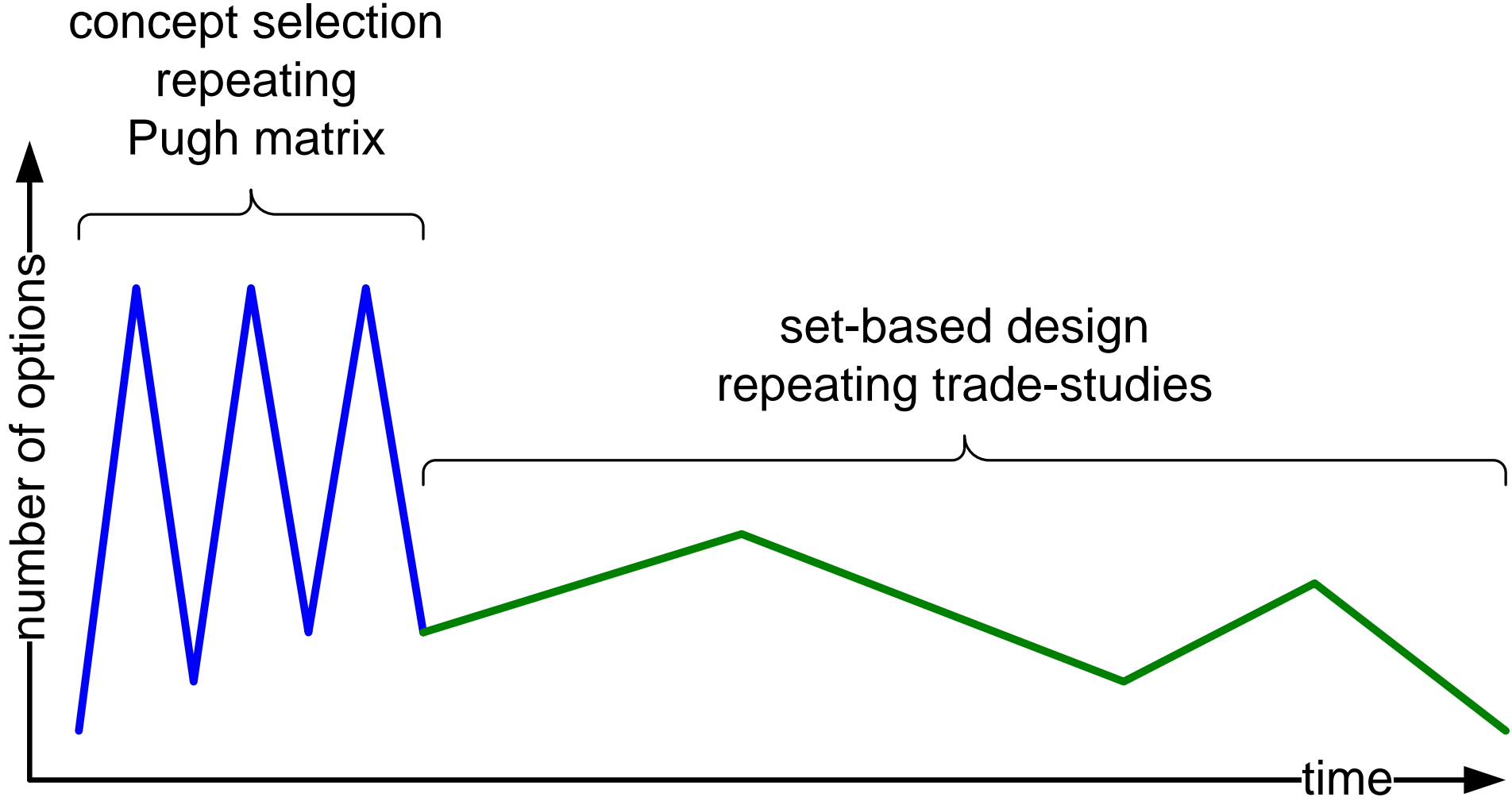
	concept 1 	concept 2 	concept 3 
critterion 1	1	3	5
critterion n	4	4	2
			recommended, because ...

Example of Pugh Matrix



Manoeuvrability	4	4	5
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Repeated Divergence and Convergence



Set-based Design

