

MT



Manoeuvring Capability others

DWT, L, B, Speed, ...

Area with initial probability

t, X, Y, P

Dynamic

Probability index

Heatmap

Highest probability

Leo van Breda Autonomous shipping JIP

Other vessels summarized and separate

Predicted capability envelope



Simulate

CS

Situation Awareness

Decision making

Test with Seafarers using tool

Advise crew using tool

Possible decisions

VHF & AIS

Protocols

Communication

In practice

Talk with seafarers

Regulations & Education

Shared

Mental model

Model of thoughtproces, with general considerations

Validate by testing tool

Master & other crew

Information available at bridge

Instruments

Parameters

Usage

Regulations

Implementation

In practice based on seafarers

Where is what ship (closest point of approach)?

No implementation Only specific cases

Iterate map for every timestep

course, speed

Safe motion parameters

Regulations

Well-clear

Marin

COLREGs Local

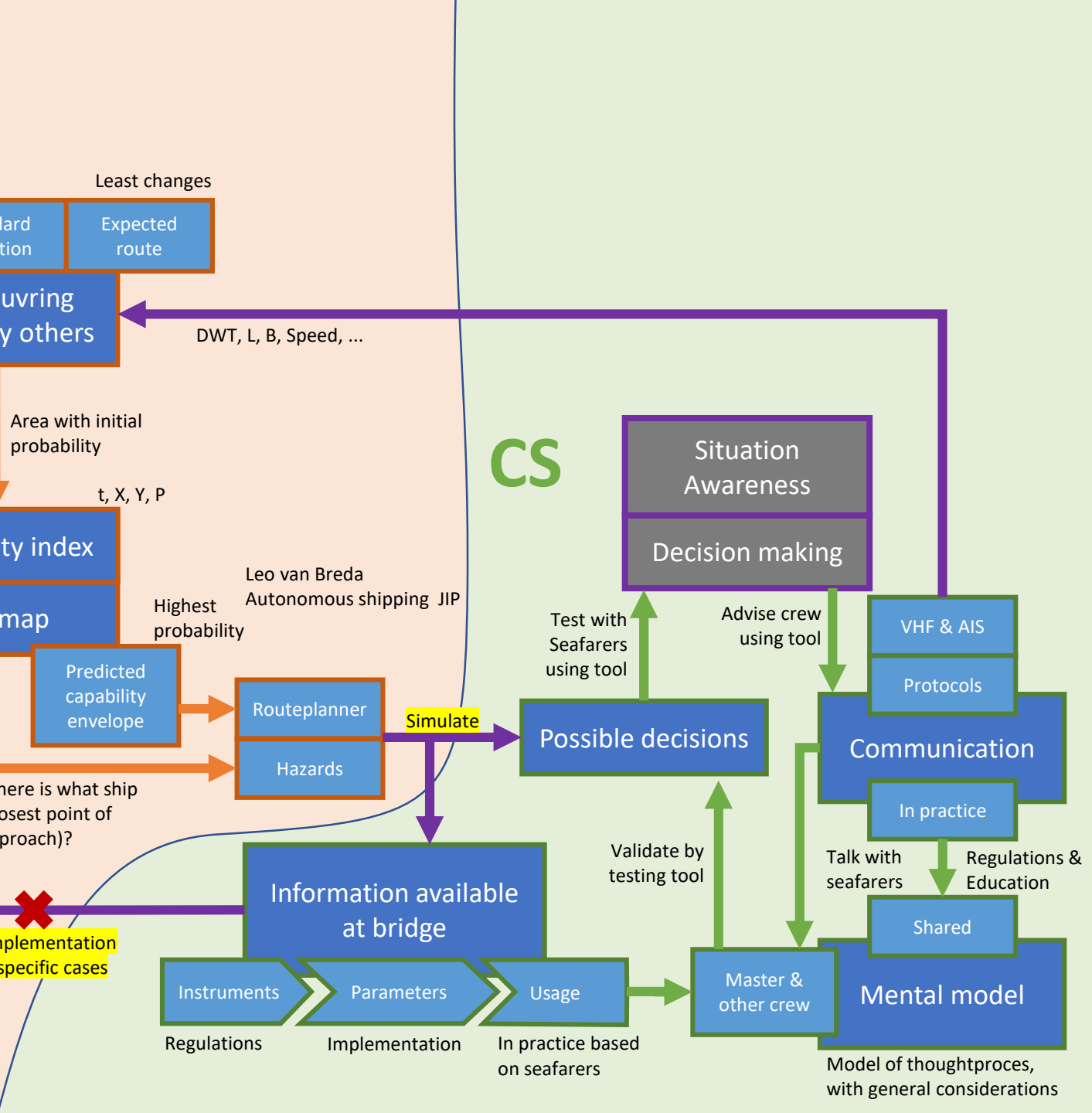
Filter situation

TSS

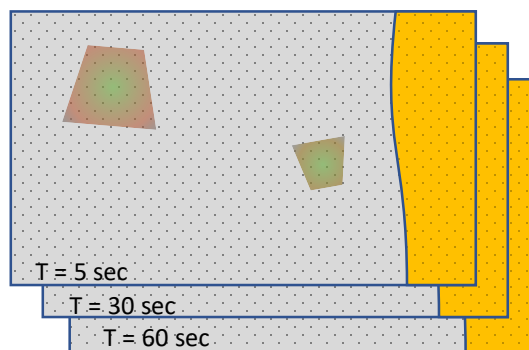
Map/radar

Static objects

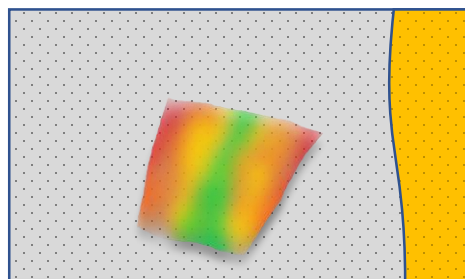
Filter low probabilities



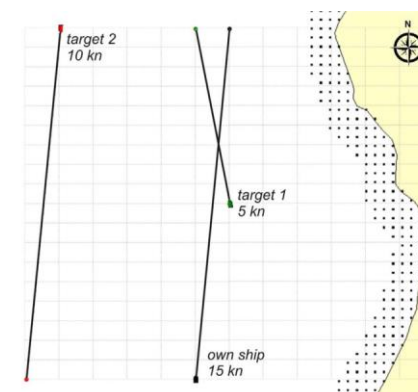
Heatmap others



Heatmap own vessel



Safe motion parameters



Traffic Separation Scheme

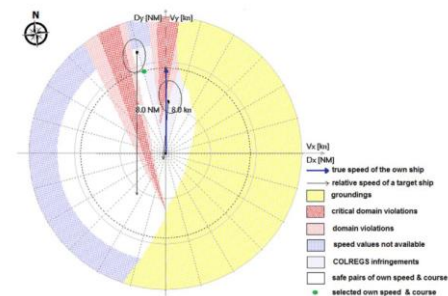
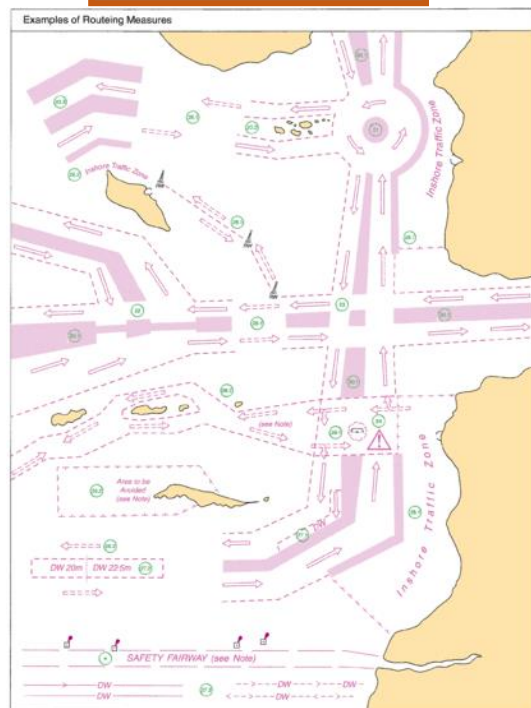


Fig. 9. The display view for scenario 1.