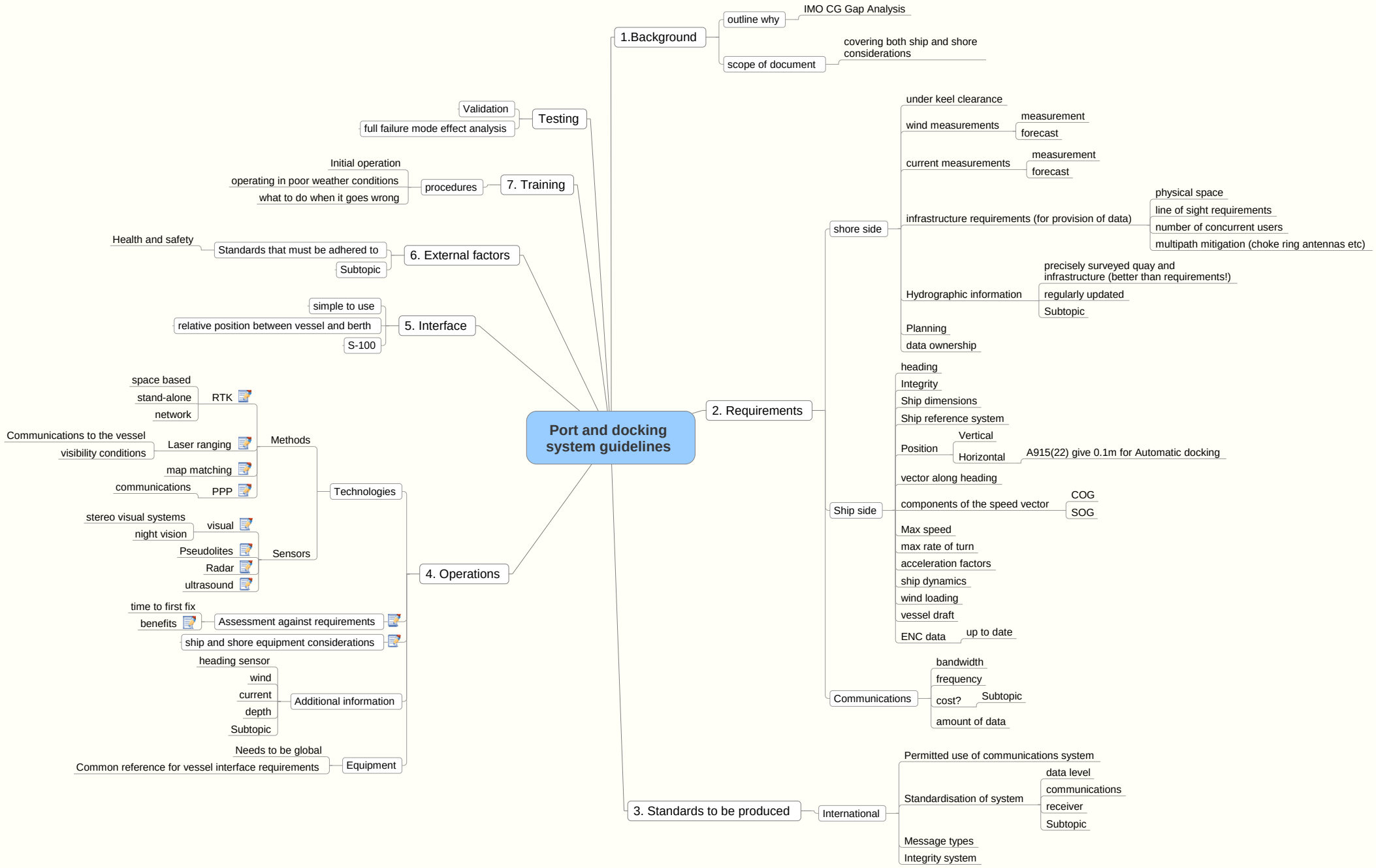
Port and docking system guidelines
1.Background
outline why
IMO CG Gap Analysis
scope of document
covering both ship and shore considerations
2. Requirements
shore side
under keel clearance
wind measurements
measurement
forecast
current measurements
measurement
forecast
infrastructure requirements (for provision of data)
physical space
line of sight requirements
number of concurrent users
multipath mitigation (choke ring antennas etc)
Hydrographic information
precisely surveyed quay and infrastructure (better than requirements!)
regularly updated
Subtopic
Planning
data ownership
Ship side
heading
Integrity
Ship dimensions
Ship reference system
Position
Vertical
Horizontal
A915(22) give 0.1m for Automatic docking
vector along heading
components of the speed vector
COG
SOG
Max speed
max rate of turn
acceleration factors
ship dynamics
wind loading
vessel draft
ENC data
up to date
Communications
bandwidth
frequency
cost?
Subtopic
amount of data
3. Standards to be produced
International
Permitted use of communications system
Standardisation of system
data level
communications
receiver
Subtopic
Message types
Integrity system
4. Operations
Technologies
Methods
space based
stand-alone
network
RTK
Communications to the vessel
visibility conditions
Laser ranging
map matching
communications
PPP
Sensors
stereo visual systems
night vision
visual
Pseudolites
Radar
ultrasound
time to first fix
benefits
Assessment against requirements
ship and shore equipment considerations
Additional information
heading sensor
wind
current
depth
Subtopic
Needs to be global
Common reference for vessel interface requirements
Equipment
5. Interface
simple to use
relative position between vessel and berth
S-100
6. External factors
Health and safety
Standards that must be adhered to
Subtopic
7. Training
procedures
Initial operation
operating in poor weather conditions
what to do when it goes wrong
Testing
Validation
full failure mode effect analysis