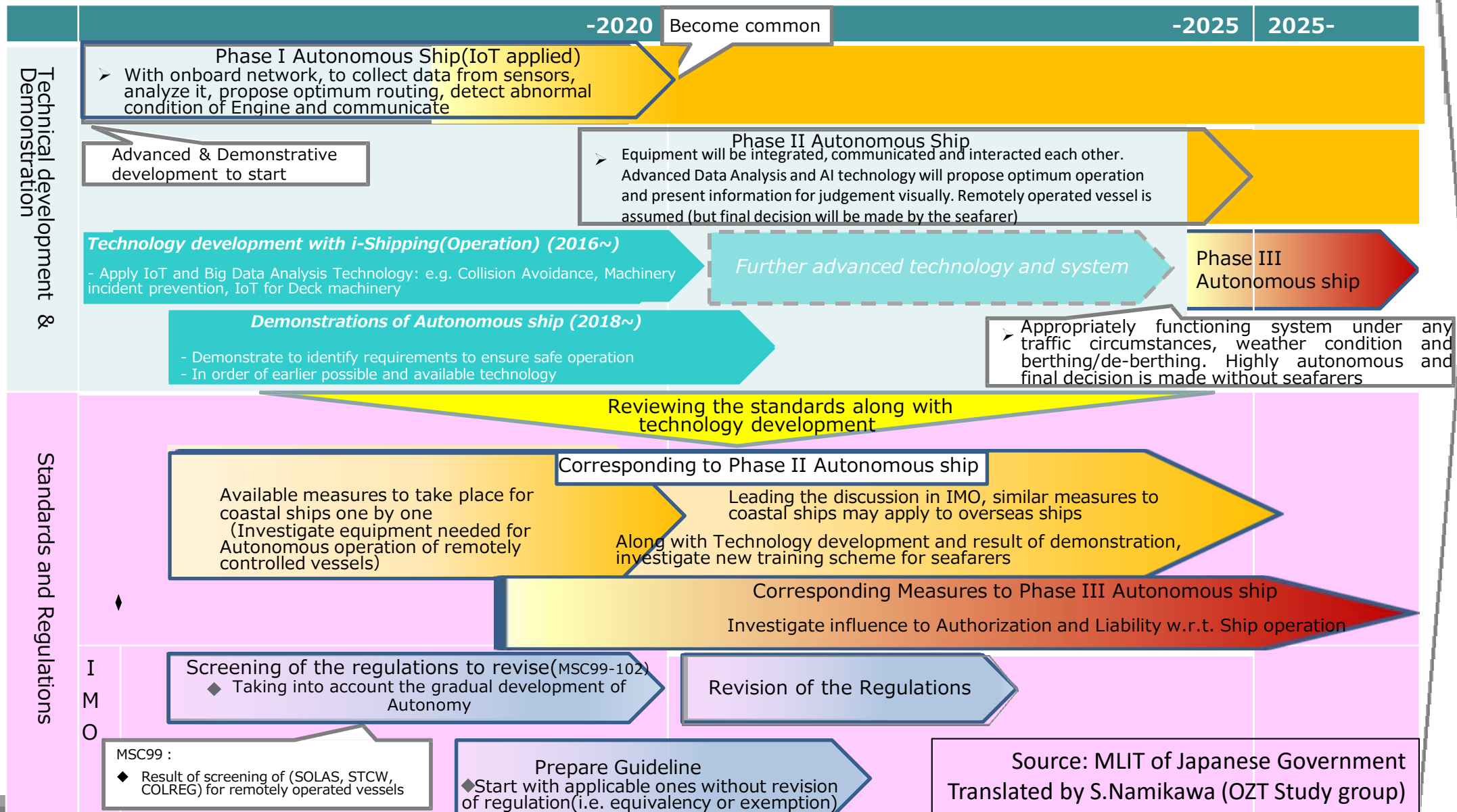


Roadmap to Realize Autonomous ships

- ✓ According to Technology development, take measures step by step while Standard/Regulation should not obstruct it.
- ✓ Phase II Autonomous ship may start development before 2020. To assist technical development and demonstration and applicable legislation to apply coastal vessels first. Similar measures to apply to ocean going ships, leading IMO discussion.
- ✓ Phase III Autonomous ship: Responsibility and liability etc other than technology to be investigated in middle/long term.



- Autonomy level of Autonomous ship may be classified as follows
- Useful to evaluate autonomy level of the vessel and identify the position of each element technology

Autonomy level and consisting Systems

System	Autonomy level	Level 1 (Decision making on board)	Level 2 (Decision making on board and ashore)	Level 3 (Proactive Human intervention)	Level 4 (Monitored by Human)	Level 5 (Perfectly Autonomous)
Navigation/Communication system						
Machinery/Propulsion system						
Fire protection/Safety system						
Cargo handling system						
Berthing/De-berthing system						
Accommodation environmental system						
Cyber Security system						

Source: MLIT of Japanese Government
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