



海丝港口国际合作论坛
MARITIME SILK ROAD PORT
INTERNATIONAL COOPERATION FORUM

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CONFIDENTIAL

Improvement of Port Logistics Industry in the Era of the 4th Industrial Revolution(4IR) in Korea

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- I. The Influence of the 4th IR on Ports***

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» Driving Force

1 Demographic dynamics

- *old-age dependency ratio is increasing → working age population is decreasing*

2 Globalization & future markets

- *BRIC's and emerging markets' consumer expenditure is increasing → worldwide exports continue to grow fast*

3 Scarcity of resources

- *expand energy, water, food demand → reduce consumption, reuse and recycle materials, produce renewables much more, import from major supply countries*

4 Climate change & ecosystem at risk

- *optimize production and logistics as they have the greatest potential for reducing CO2 emissions*

5 Dynamic technology & innovation

- *overcome global challenges of diseases, environmental problem, resource shortage → accelerate technology diffusion globally and drive economic growth*

6 Global knowledge society

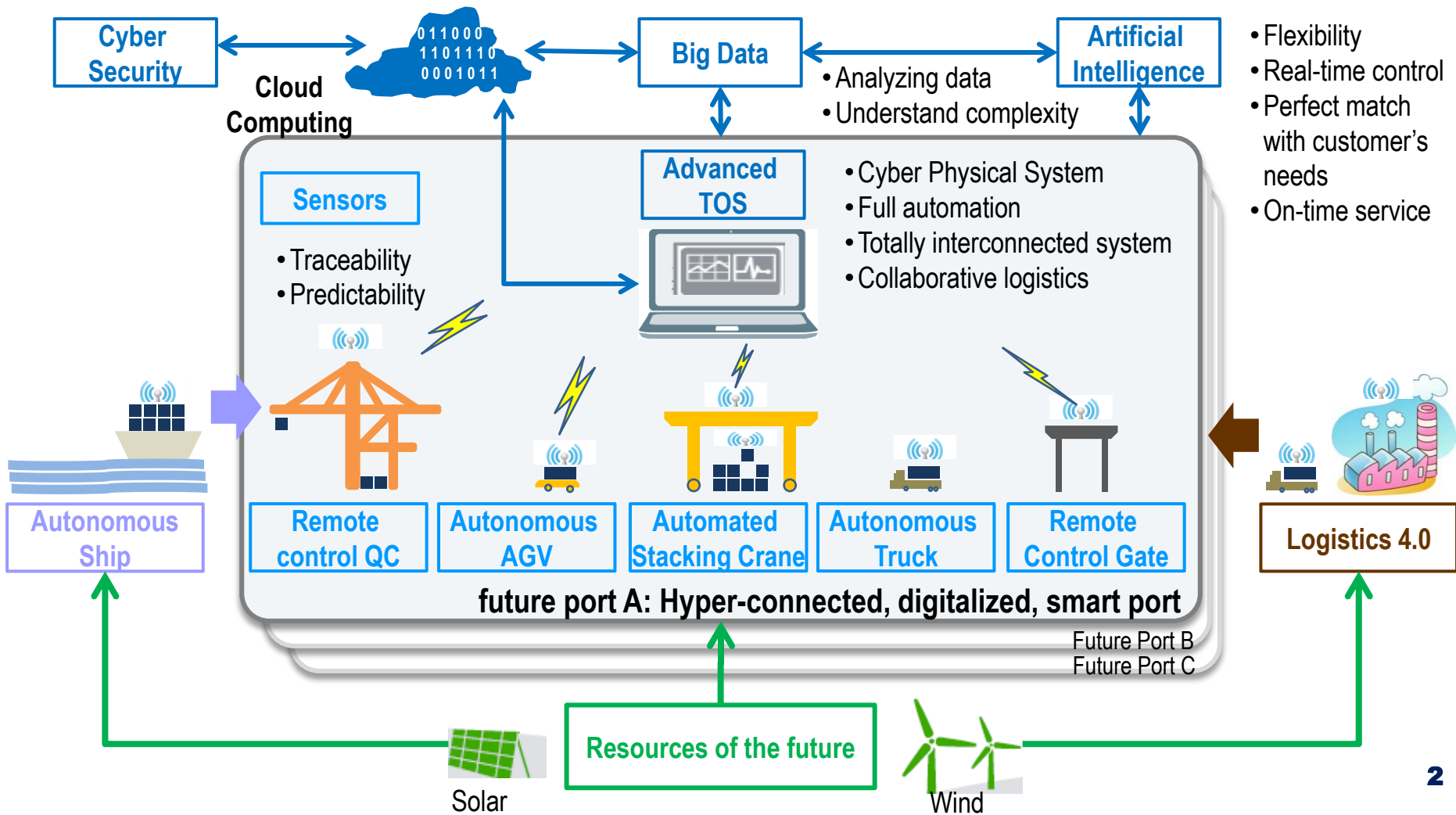
- *face difficulty in filling higher-level qualified talented job → narrow the gender gap, foster online education for utilizing employees' potential, embrace global hiring strategy*

7 Sustainability & global responsibility

- *Increase consumer demand for sustainably, fair-traded products, sustainable development*

How to solve the complexity of future port ecosystem?

New technologies can be interconnected system, fully integrated supply chain, and perfect coordination among ship, port, inland logistics, manufacturers



» Our approach

Analyze the preparation level of the Korean port compared to the world's highest level in the era of the 4IR



Korean port level compared to
the world best port in
automation, digitalization



Suggest policy direction for
Korean smart port construction

Survey design

Design questionnaires through
literature review, brainstorming
and expert advice

Survey and Analysis

Survey and AHP analysis on
experts of the 4IR technology
and port logistics industry
→ 30 respondents out of 40

Direction of Policy

Derive the policy direction based
on the results of the
questionnaire analysis

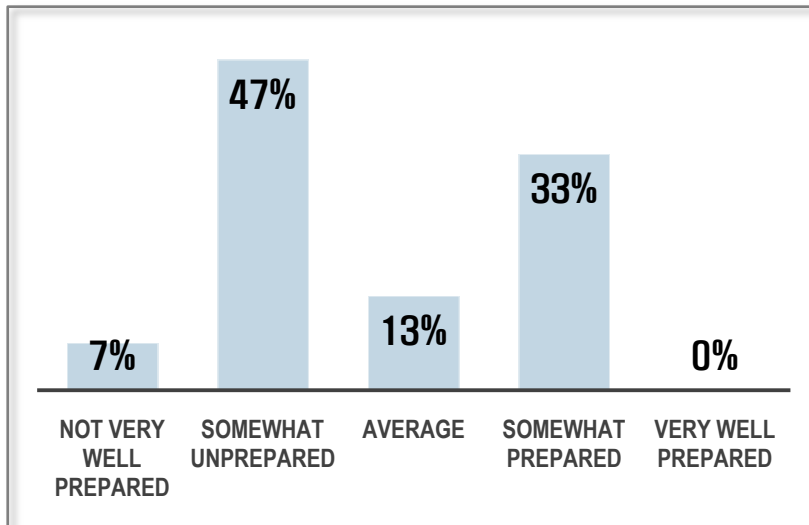
➤ Current status of Korean port in 4IR era

According to the results of the experts' survey, our preparations are insufficient, and especially the interconnection between the port and inland logistics is very poor.

Our Preparations

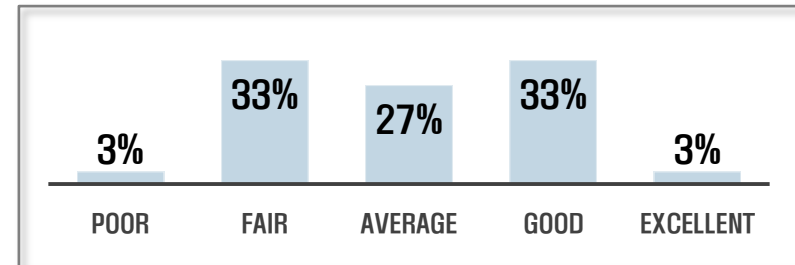
Expert respond:

53%
insufficient



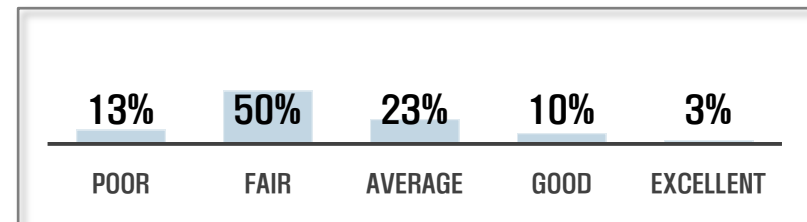
Shipping Link

Expert rating : **36% Poor**



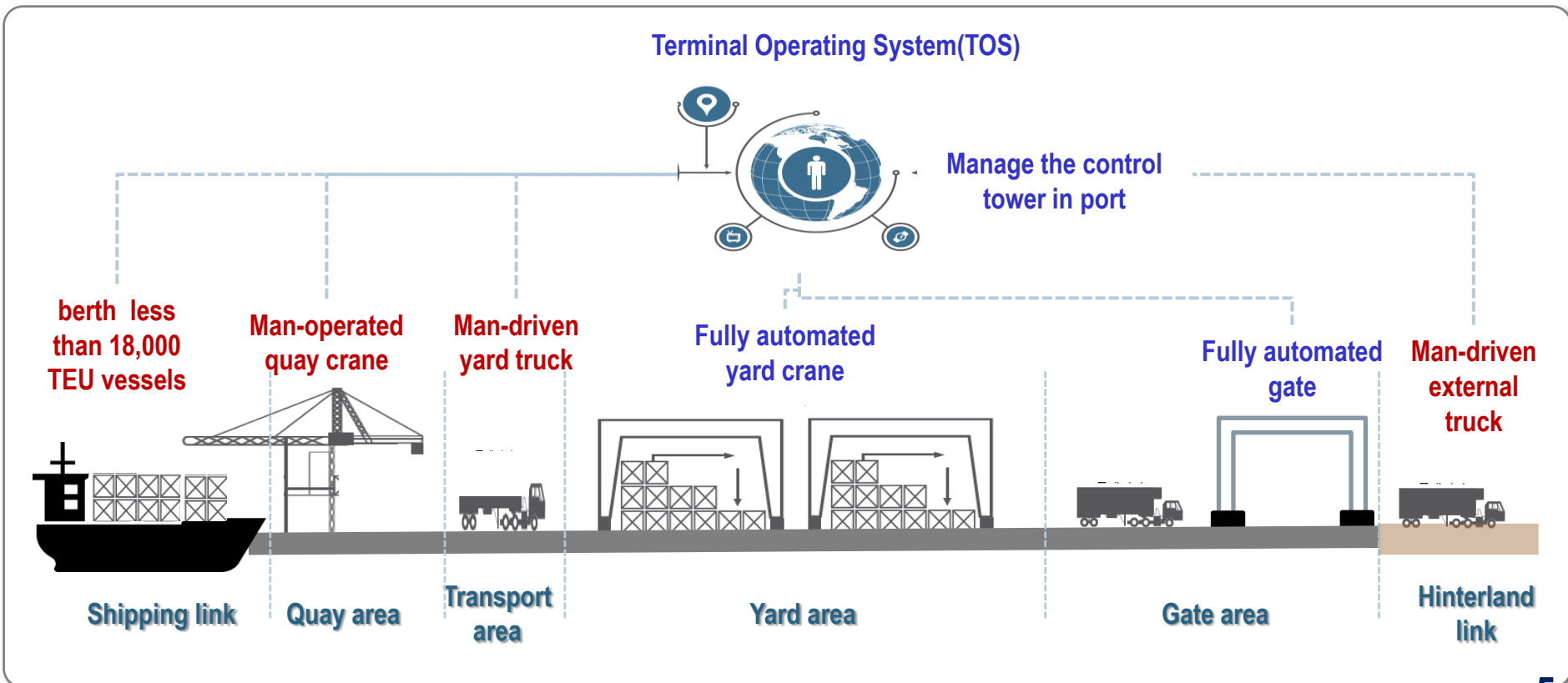
Hinterland Link

Expert rating : **63% Poor**



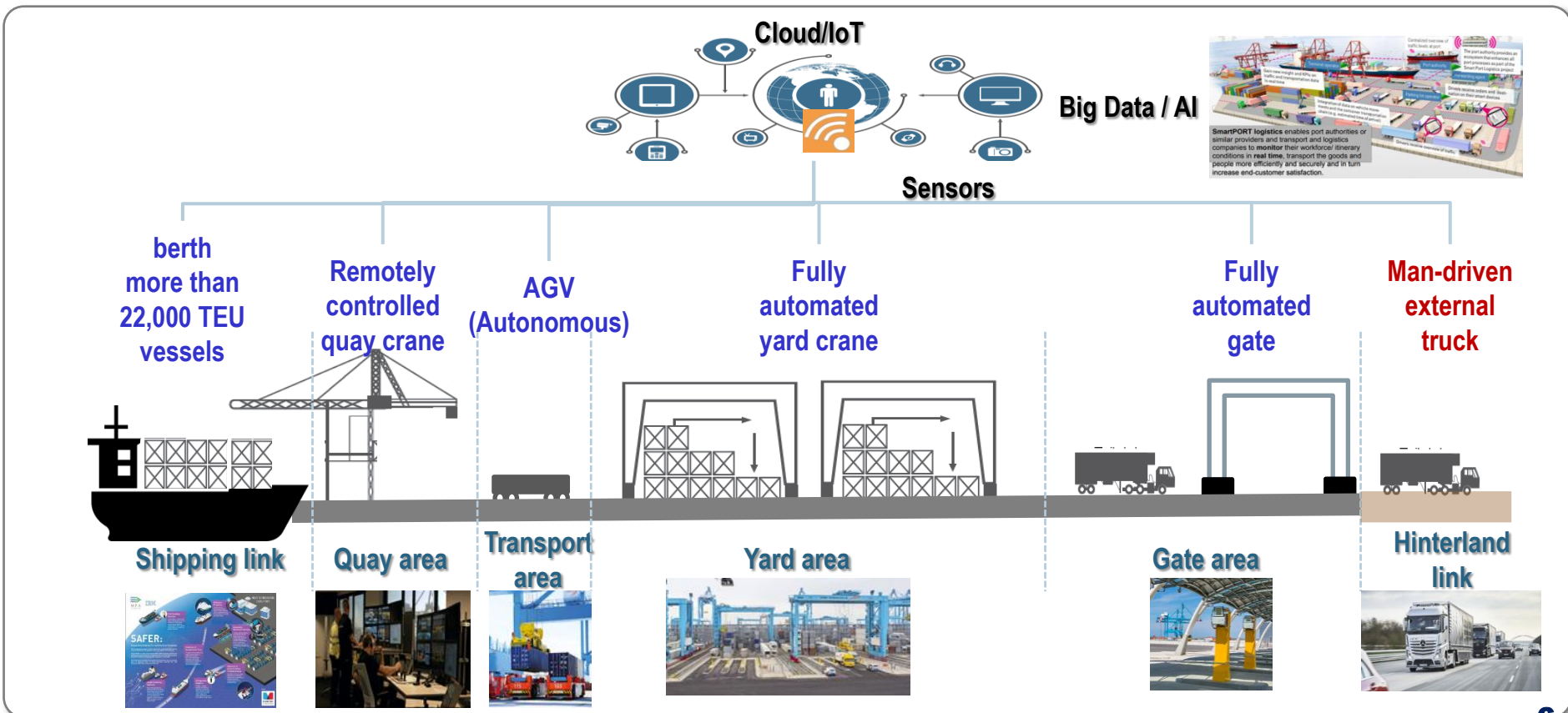
➤ Current level of Korean port

- Unmanned and fully automated in yard and gate area
- Manipulate container in the cabin on the crane in quay area
- Operate man-driven yard truck in transfer area between quay and yard
- Not interconnected and integrated the real-time information among shipping, port, inland logistics



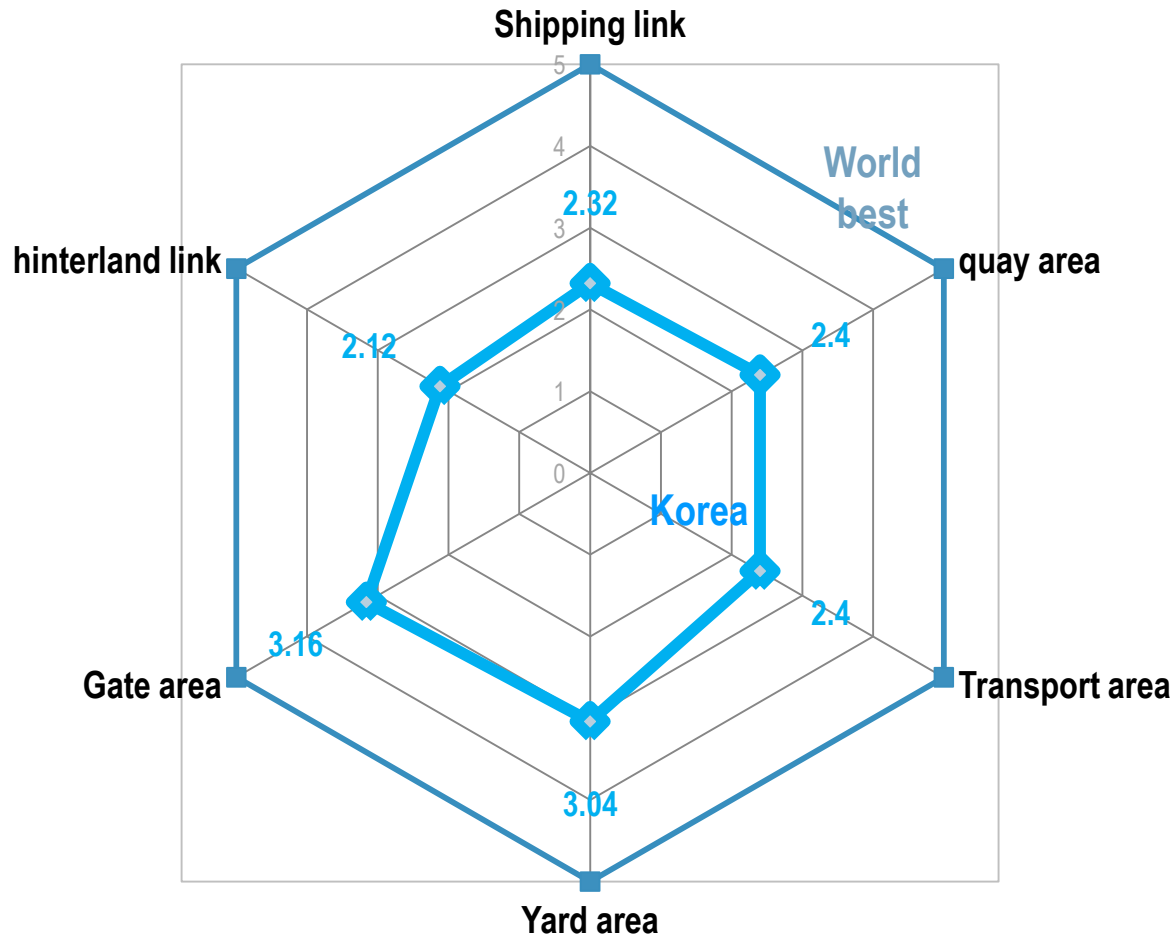
Current best level of world ports

- Unmanned and fully automated in all areas of container terminal(ex. RWG, APMT Maasvlakte II etc.)
- Interconnected and integrated the real-time information based on IoT among shipping, port, inland logistics(ex. Hamburg SmartPort etc.)
- Pilot test autonomous and platooning truck in inland logistics



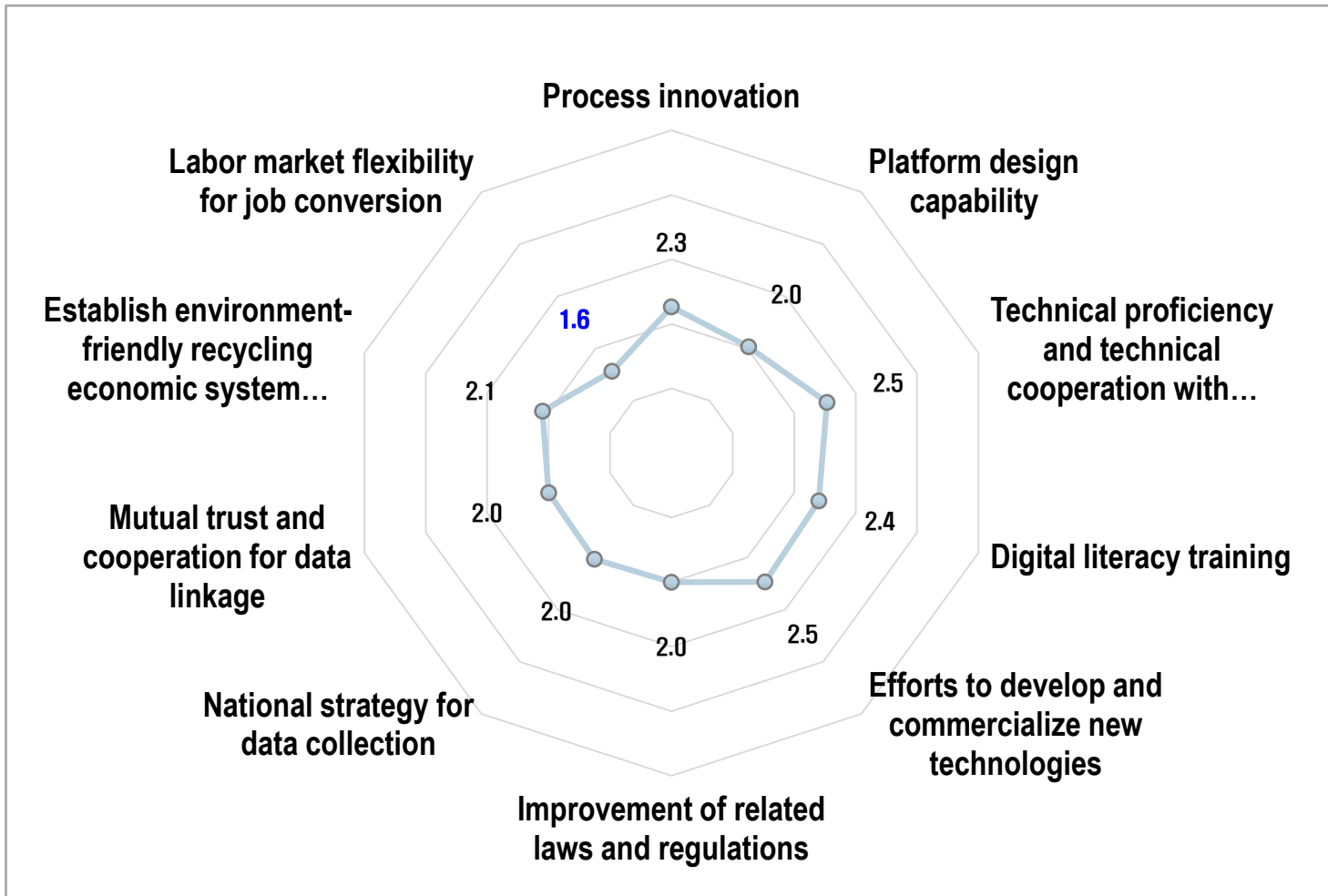
▶▶ Comparing Korean port with the best area in world's ports

- Compared to the world's best port, all except the yard and gate area of Korean port is poor

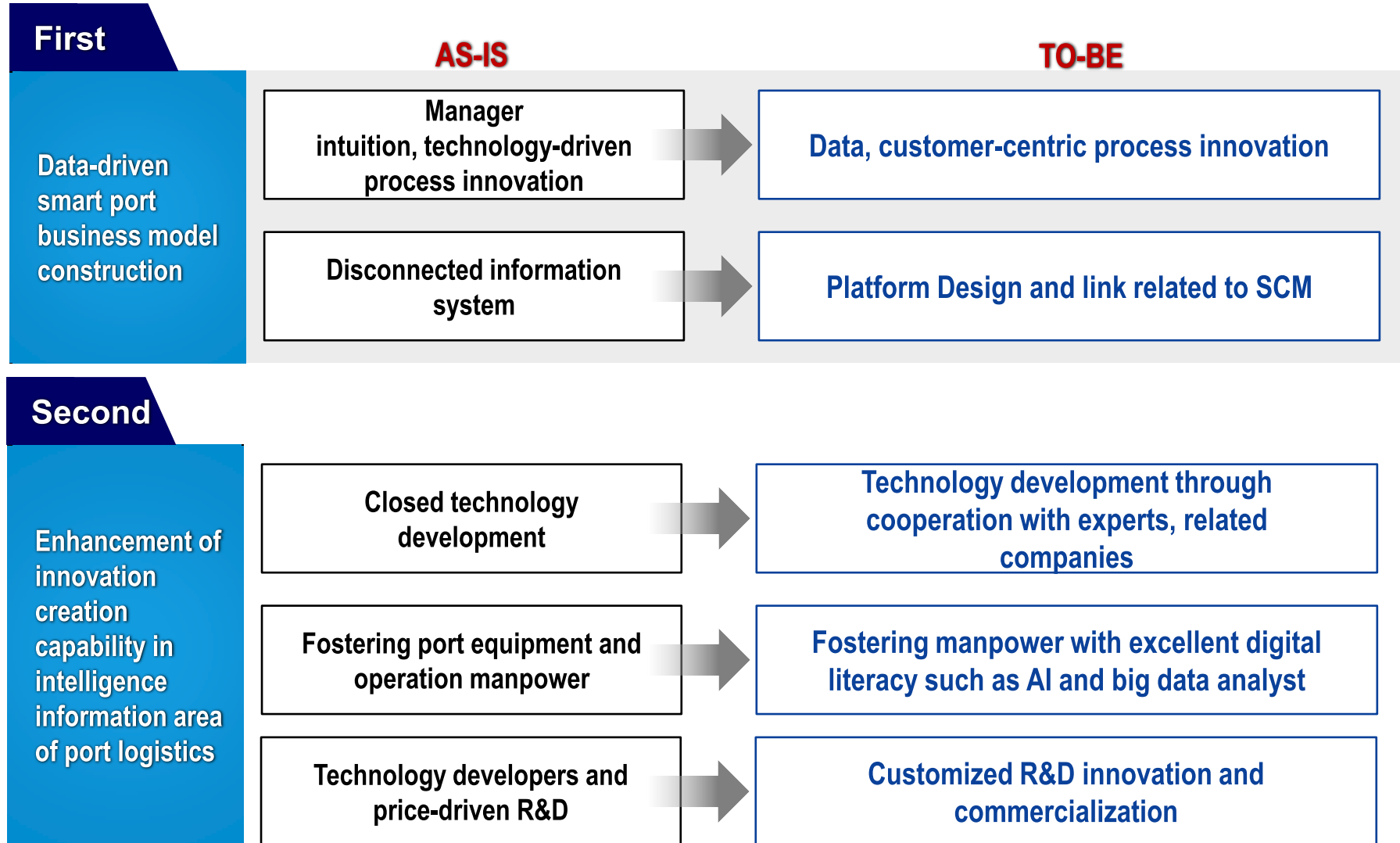


» Cause of difference

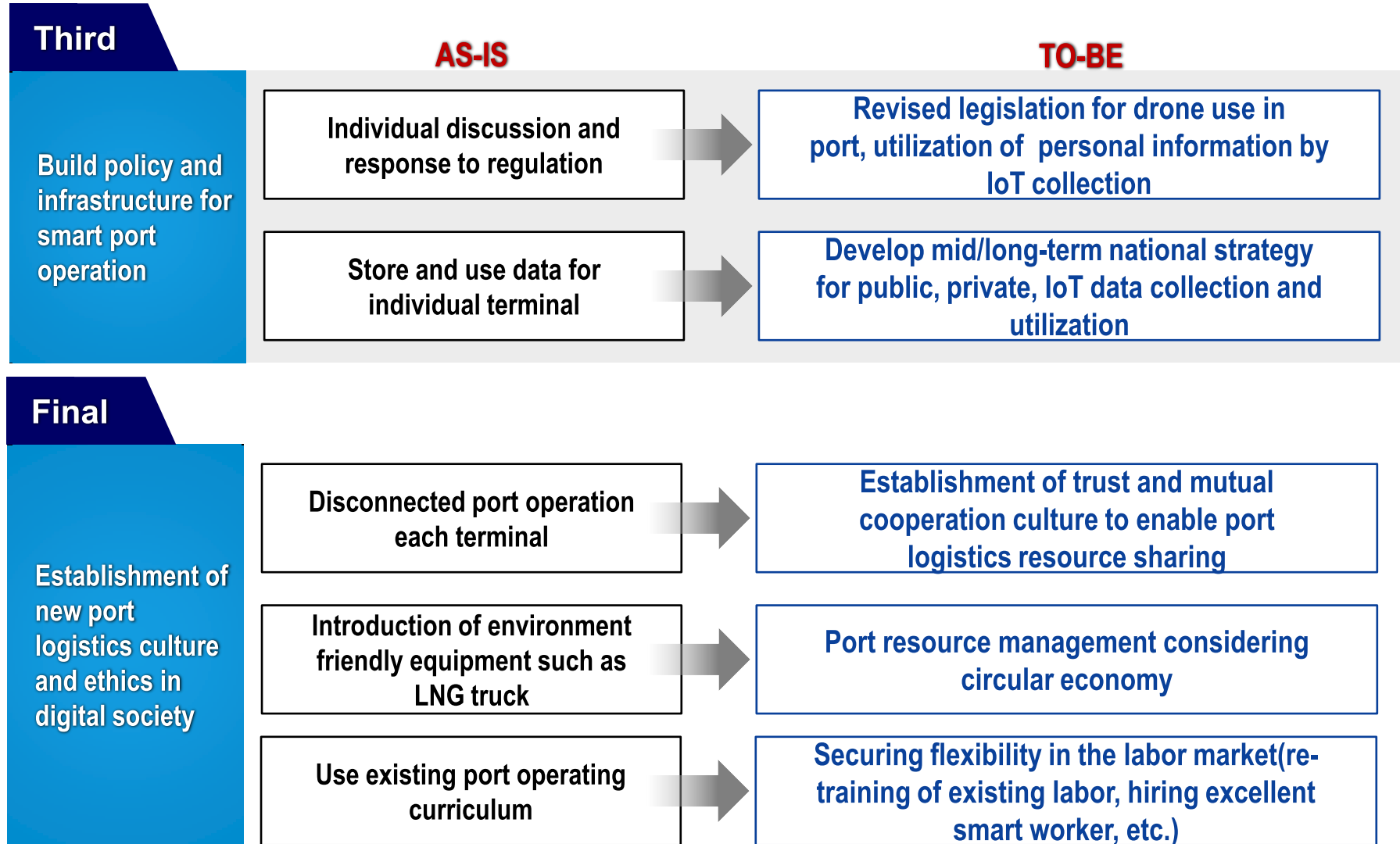
- The reasons why Korea's smart port is late compared to the advanced port are lack of labor market flexibility, legal system maintenance, Big data policy, and platform design capability



Policy suggestion(1/2)



Policy suggestion(1/2)



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