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A STUDY ON THE IMPROVEMENT OF THE WORLD RAILWAY SAFETY PERFORMANCE STANDARD

The most common indicator of comparing international railway safety performance is railway accidents, incidents and fatalities. Internationally, railway safety performance is usually managed through the issuance of an annual report, but accident and incident classification and management standards are different for each country.

In South of Korea, international railway safety performance is evaluated by referring to the annual reports of ERA and UIC. Although the contents of the annual report are highly reliable, there is a limit to accurately comparing the safety performance of the country because the statistics acquisition and classification standards are different from South of Korea.

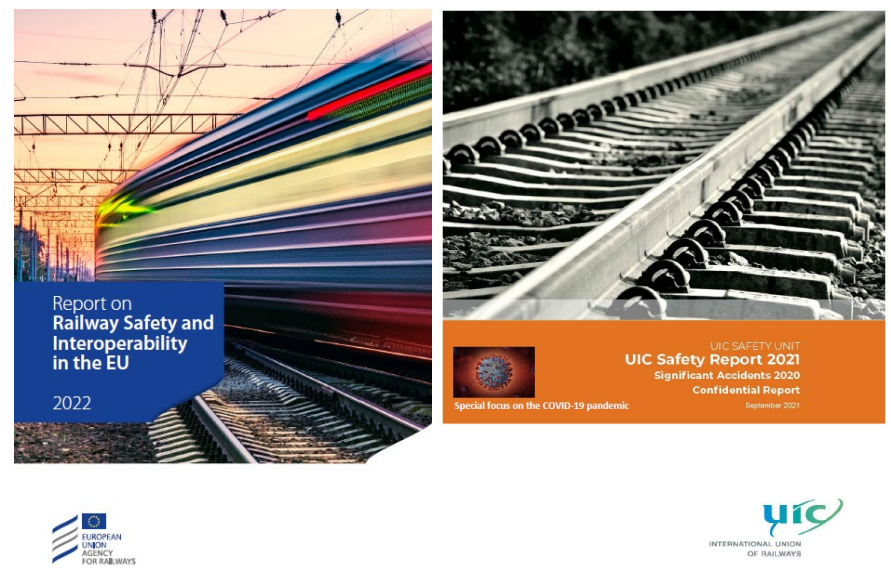

Fig.1 EU, UIC Annual report(Safety)

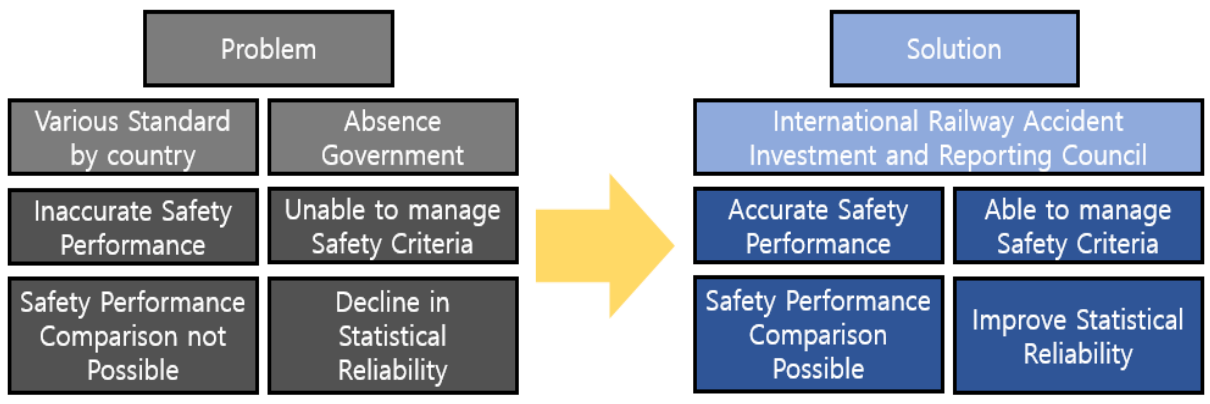

Fig.2 Safety Performance estimation problem and solution

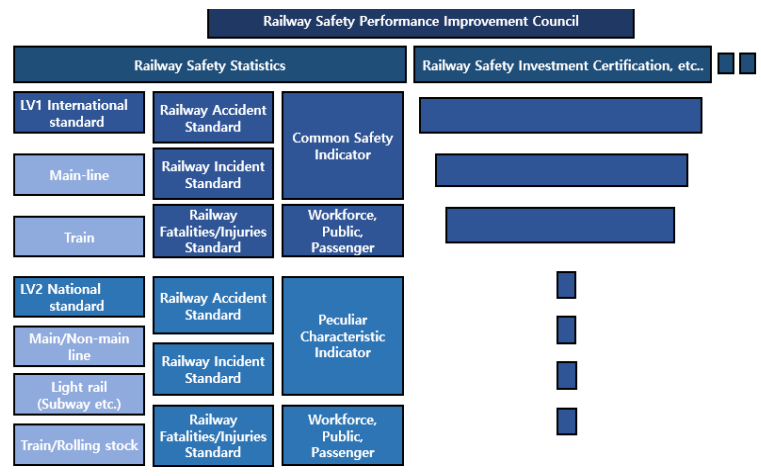

Fig.3 Railway safety performance counsil

In the aviation and marine, regulations and standards are operated as an integrated management system using international organizations.(ICAO, IMO) Railways are not connected to all countries and vary depending on the characteristics of each country, but railway accident and incident data that can compare minimum railway safety performance should be managed according to the integrated standards.

Types of accidents as defined in UIC-SDB	Additional information from UIC-SDB	Types of accidents as defined in EU safety Directive	Republic of Korea	Japan	Canada	US
Derailment of trains		Derailment of Trains	Derailment of Rolling stock	Derailment of Trains	(Main track) Derailment of rolling stock and/or track infrastructure (Non-main-track) Derailment of rolling stock and/or track infrastructure(each car)	Derailments
Train collision with another train		Train collision with another train	Collision of Rolling stock	Train collision with another train or rolling stock	(Main tack) Collision with rolling stock and track infrastructure (Non-main-track) Collision with rolling stock and track infrastructure	Collision: Head on, Rear end, Side, Raking, Broken train
Train collision with an obstacle	Train collision with an obstacle not at LC	Train collision with obstacle not at LC				
	Train collision with an obstacle at LC	LC accident, including accidents involving pedestrians at LC			Collisions/derailments involving track units	
Individual hit by a train	Individual hit by a train at LC		Level crossing accident	Level crossing accident	Level crossing accident	Highway-rail impact
	Individual hit by a train not at LC	Accidents persons caused by rolling stock in motion, with the exception of suicides		Accident against road traffic (exclude lvl crossing)		
Individual falling from a train				Other accidents with casualties	Employee/passenger accidents	RR crossing collision
Fire in rolling stock		Fire in rolling stock	Fire in rolling stock	Fire in train	Fires/Explosions	Fires/violent rupture
Electrocution by overhead line or third rail		Other types of accidents	Fire in Facilities (exclude train, rolling stock)	Electrocution	Trespasser accidents	Obstruction impact
Accident involving dangerous goods			Accident involving dangerous goods	Accident involving Facilities damage	Other accident types	Other impacts
Shunting operations						Other events
Runaway vehicles			Accident involving Facilities damage	Accident caused by Disaster		

Fig.4 International railway accident standard

Currently, international railway safety statistics have limitations in data collected by subject, and it is difficult to present uniform standards. The ERA and UIC railway accident statistics are similarly different. International level and national level railway accident standards are also different between countries. With this reality, enterprise-wide baseline integration work is needed to accurately compare performance.

There is a need for an international movement to establish a committee organization and platform for integrated management of standards, statistics, and performance such as investigation and reporting of international railway accidents. In an effort to improve data reliability and overall safety level by establishing international governance to preemptively standardize railway safety statistics, international efforts are needed to increase safety level by expanding the publicity and universality of global railway safety.

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