



**5th International Transportation Systems**

**Performance Measurement and Data Conference, TRB**

**June 1-2, 2015, Denver, Colorado**

**Breakout Session**

***State of the Practice***

# **Target Setting for Transit** **in Japanese Experience**

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# Contents

- **Target setting for transit performance measures**
  - Which indicators are developed and how to set the target?
  - What is the current problem in Japanese cases
- 1. **Performance Based Mgt of Public Transit at National level**
- 2. **Safety PMs for Railway Stations Platforms**
- 3. **Three ways to set target of transit performance**
- 4. **Lessons and Summery**



# 1. Performance Based Mgt of Public Transit by National Gov.

- **ICE: Index of Comfortable and Easeful public transportation**
  - Started from 2004
  - Sought other measures than congestion rate, which used from 1970's
  - Major railway co. and bus operators have to report their performances to the government every year
- **49 Performance Measures (4 categories)**
  - Easeful, Comforts, Intelligibility, Safety
  - 11 measures had first priority
  - **9 are reported annually**, the others are not used



# ICE: Index of Comfortable and Easeful public transportation

- **Easeful**
  - Congestion rate during peak time
  - % of stations have barrier-free route
  - % of low floor vehicles (bus fleets without steps)
- **Comforts**
  - % of air-conditioned vehicles





# ICE: Index of Comfortable and Easeful public transportation (cont.)

- **Intelligibility**

- % of platforms have LED (Light-Emitting Diode) display
- % of stations have LED display
- % of vehicles have LED display

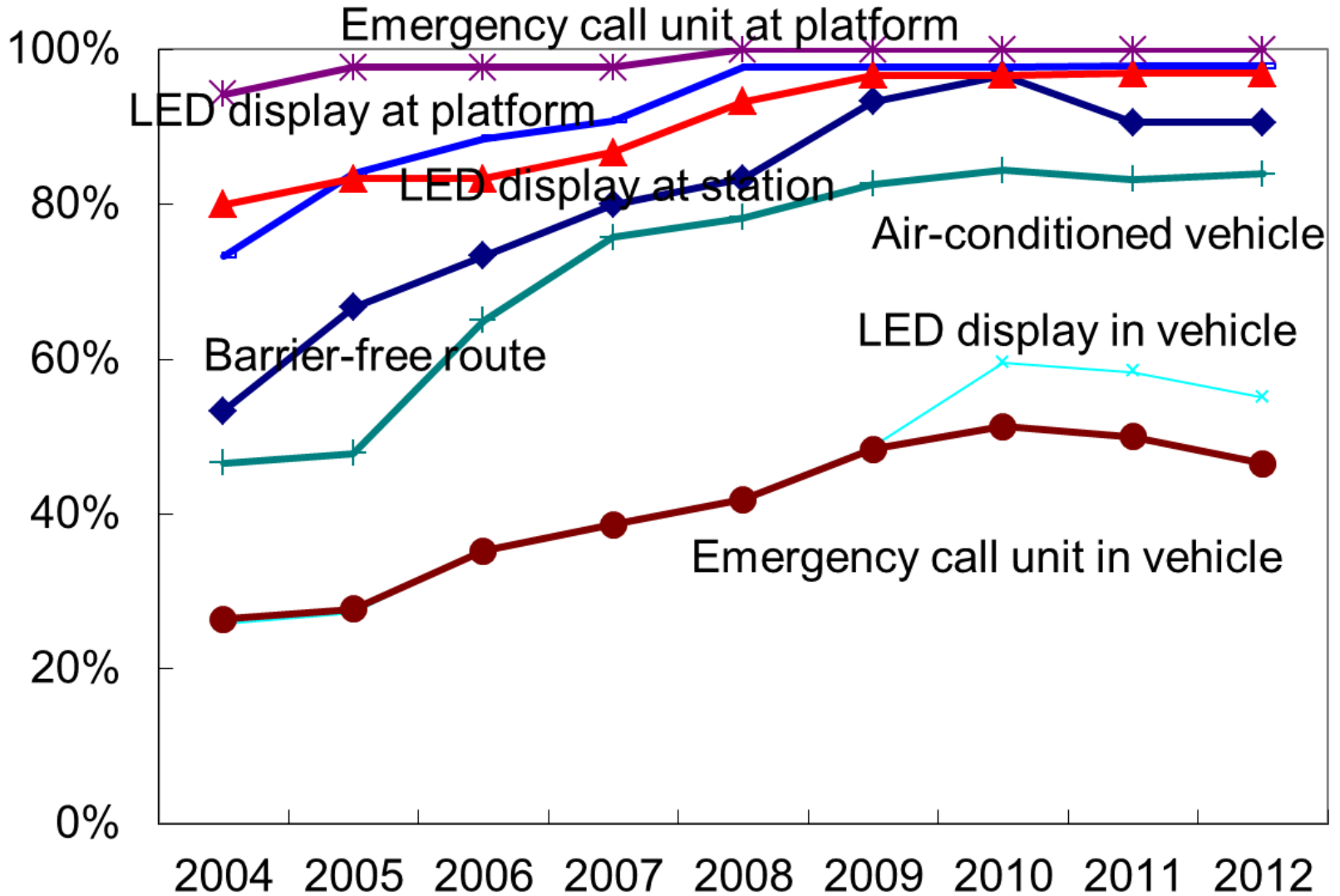
- **Safety**

- % of platforms have sta. staff or emergency call u.
- % of vehicles have emergency call unit





# Case: Isezaki line of Tobu Railway Co.

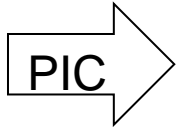


Congestion rate	2004	2005	2006	2007	2008	2009	2010	2011	2012
	142%	139%	143%	145%	141%	140%	140%	135%	136%



## Target setting

- **Congestion rate (target = 150%)**
  - Getting improved
- **The other PMs (target may be 100%)**
  - Motivates operators investment
- **PMs are not related to funding**
  - Monitoring and accountability





## 2. Safety Performance Measures for Railway Stations (Platforms)

- **Background: Railway safety**
- **431 accidents (person involved) in 2011**
- **208 accidents (29 fatalities) related to platform**
  - Passenger falls from the platform and has a collision with a train.
- **Focus on stations (platform).**
  - Station structure,
  - Station equipment,
  - Train operation,
  - Users.







# Safety Performance Measures

## Platform structure



- (1) Narrow part
- (2) Gap between platform & train
- (3) Platform arrangement
- (4) Area of platform
- (5) Platform curving in the middle

## Passenger flow



- (6) Crowding on the platform
- (7) Crossing of passenger flows
- (8) Passenger flow outside of white line
- (9) Crowding at stairs & elevators

## Train operation



- (10) Number of passing & stopping trains
- (11) Visual announcement about approaching train
- (12) Audio announcement about approaching train
- (13) Clarity of train approach direction

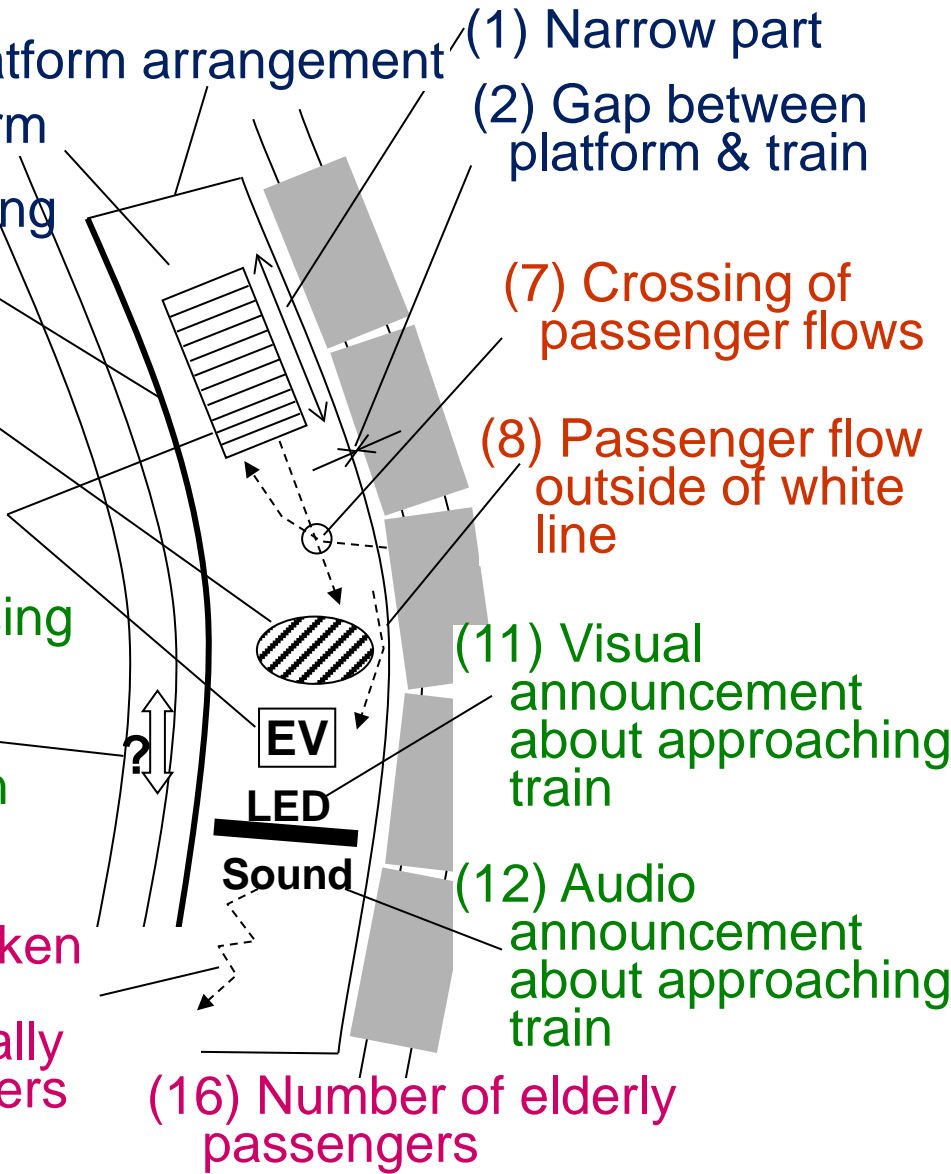
## Passenger profile



- (14) Number of drunken passengers
- (15) Number of visually impaired passengers
- (16) Number of elderly passengers

: On-site survey

: Data & Statistics





## Safety Performance Measures (detail)

- #1: The length of narrow part

2pt,  $L \leq 7.3$

1pt,  $7.3 < L \leq 19.5$

0pt,  $19.5 < L \leq 29$

-1pt,  $29 < L \leq 37$

-2pt,  $37 < L$  (m)





## Safety Performance Measures (detail)

- #2: The gap btw platform and train

2pt,  $L \leq 11$

1pt,  $11 < L \leq 13$

0pt,  $13 < L \leq 16.2$

-1pt,  $16.2 < L \leq 18.6$

-2pt,  $18.6 < L$  (cm)





## Safety Performance Measures (detail)

- #5: Platform curving in the middle

2pt, strait

1pt,

0pt, concave

-1pt,

-2pt, convex





## Safety Performance Measures (detail)

- #6: Level of crowding on platform

2pt,  $P \leq 62$

1pt,  $62 < P \leq 97$

0pt,  $97 < P \leq 114$

-1pt,  $114 < P \leq 195$

-2pt,  $195 < P$

(daily passengers/ m<sup>2</sup>)

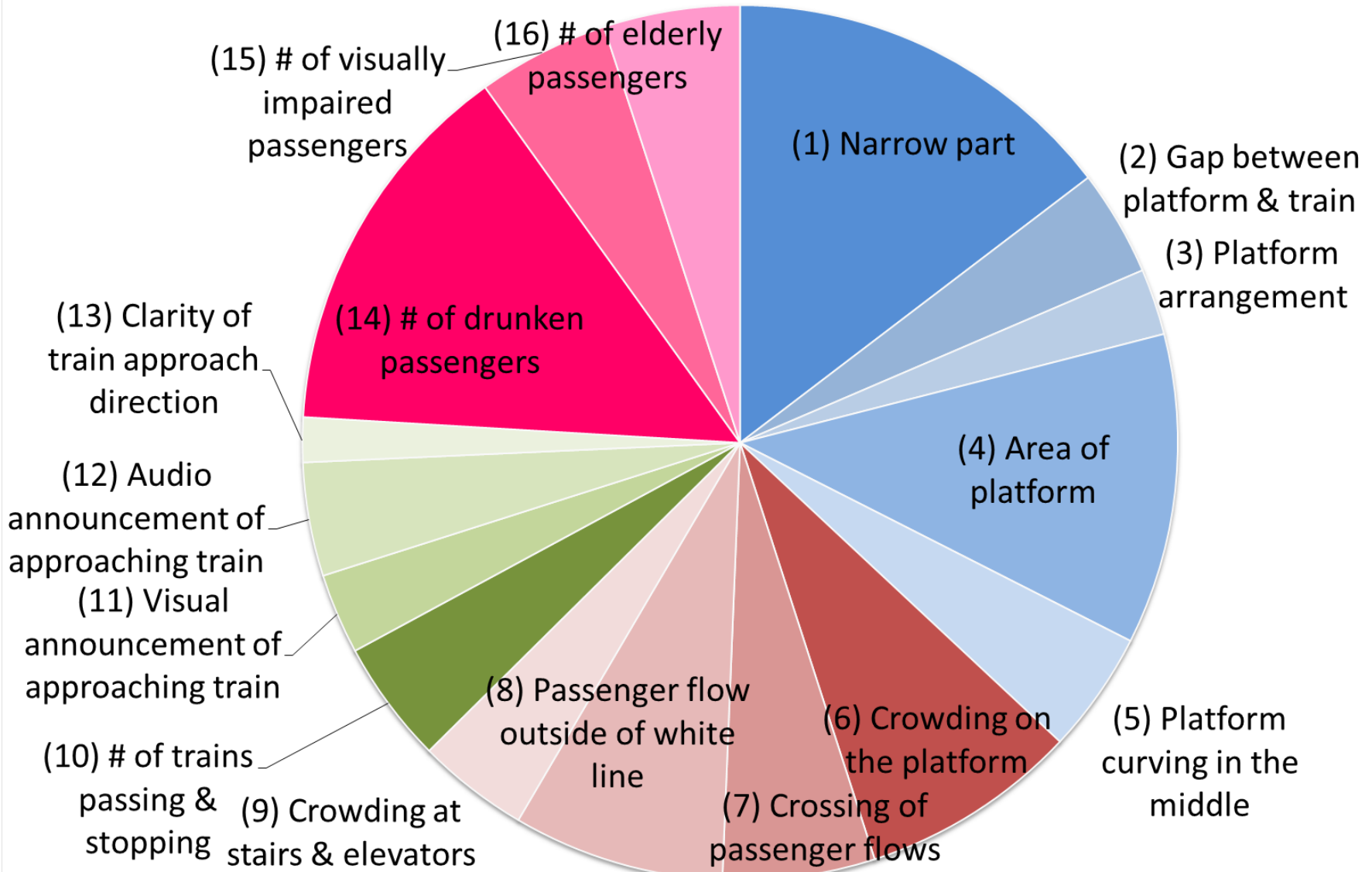




## Case Study

- **28 platforms on 10 stations**
  - Commuter rail in Tokyo Met Area
  - 0 – 7 accidents in eight years
- **Data**
  - **Weight of Safety Assessment Factors**
    - AHP questionnaire survey from passengers.
  - **Safety Performance Score**
    - On-site survey
    - Statistics

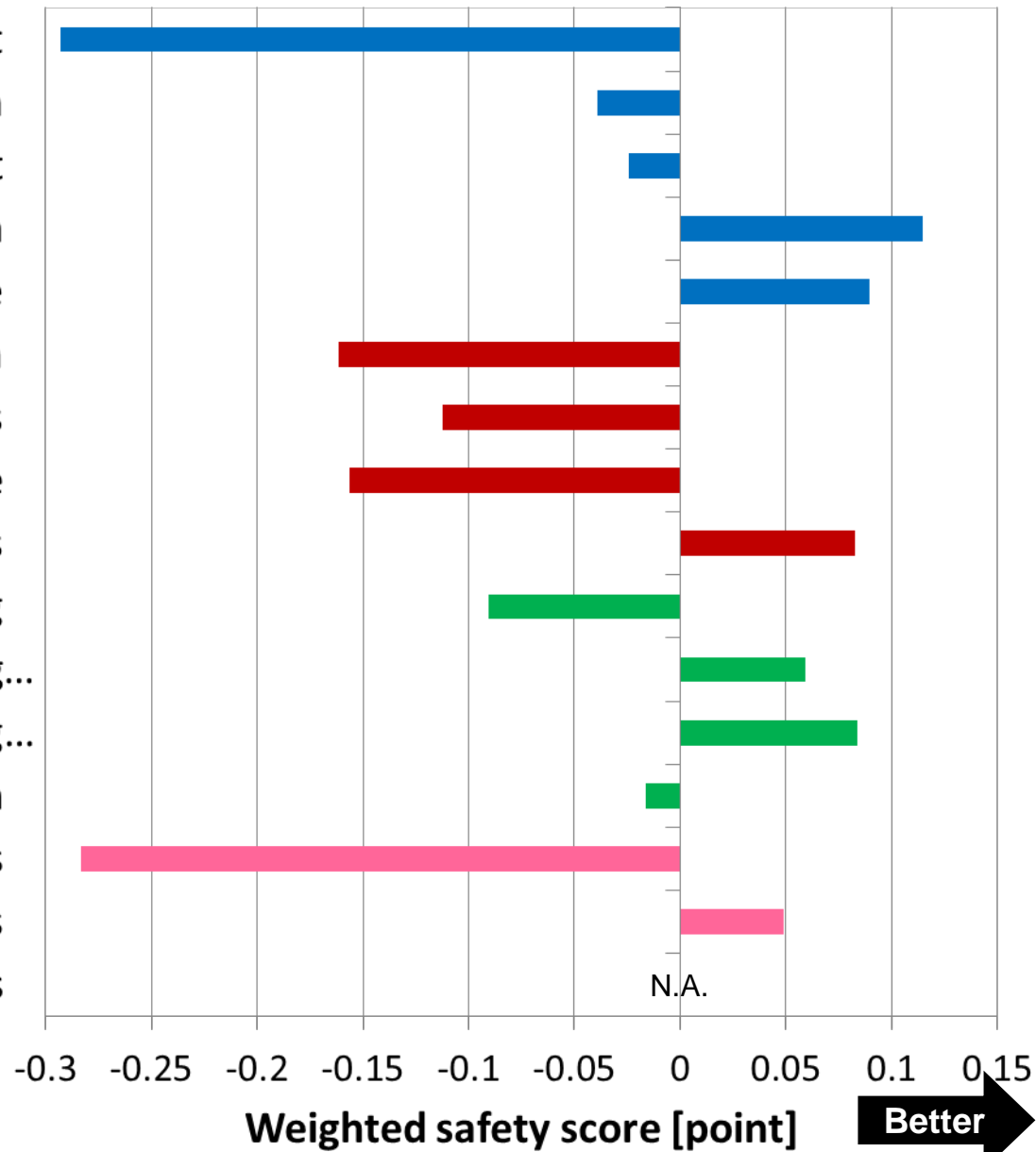
# Weight of Safety Assessment Factors





# Weighted Scores (track#1 of station A)

- (1) Narrow part
- (2) Gap between platform & train
- (3) Platform arrangement
- (4) Area of platform
- (5) Platform curving in the middle
- (6) Crowding on the platform
- (7) Crossing of passenger flows
- (8) Passenger flow outside of white line
- (9) Crowding at stairs & elevators
- (10) # of trains passing & stopping
- (11) Visual announcement of approaching...
- (12) Audio announcement of approaching...
- (13) Clarity of train approach direction
- (14) # of drunken passengers
- (15) # of visually impaired passengers
- (16) # of elderly passengers



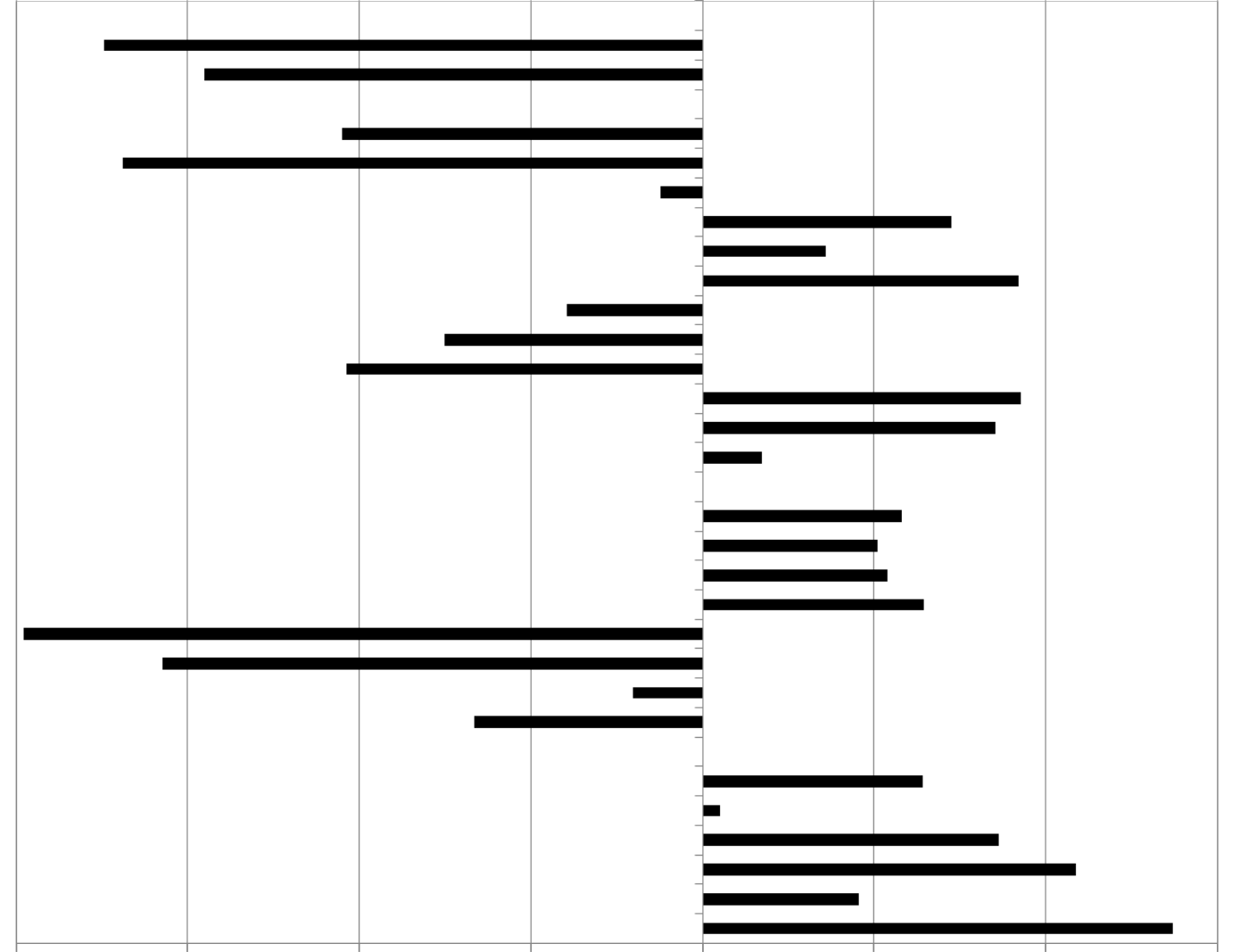


Case Study

# Comparison of Safety Score of Each Track



- 7 accidents**
  - i) Stations where 7 accidents occurred
    - Station A, Platform 1
    - Station A, Platform 2
  - ii) Stations where 2 accidents occurred
    - Station B, Platform 3
    - Station B, Platform 5
    - Station C, Platform 1
    - Station C, Platform 2
    - Station D, Platform 1
    - Station D, Platform 2
    - Station D, Platform 3
    - Station D, Platform 4
    - Station E, Platform 1
    - Station E, Platform 2
    - Station E, Platform 3
    - Station E, Platform 4
  - iii) Stations where 1 accidents occurred
    - Station F, Platform 1
    - Station F, Platform 2
    - Station F, Platform 3
    - Station F, Platform 4
    - Station G, Platform 1
    - Station G, Platform 2
    - Station H, Platform 1
    - Station H, Platform 2
  - iv) Stations where 0 accidents occurred
    - Station I, Platform 1
    - Station I, Platform 2
    - Station J, Platform 1
    - Station J, Platform 2
    - Station J, Platform 3
    - Station J, Platform 4







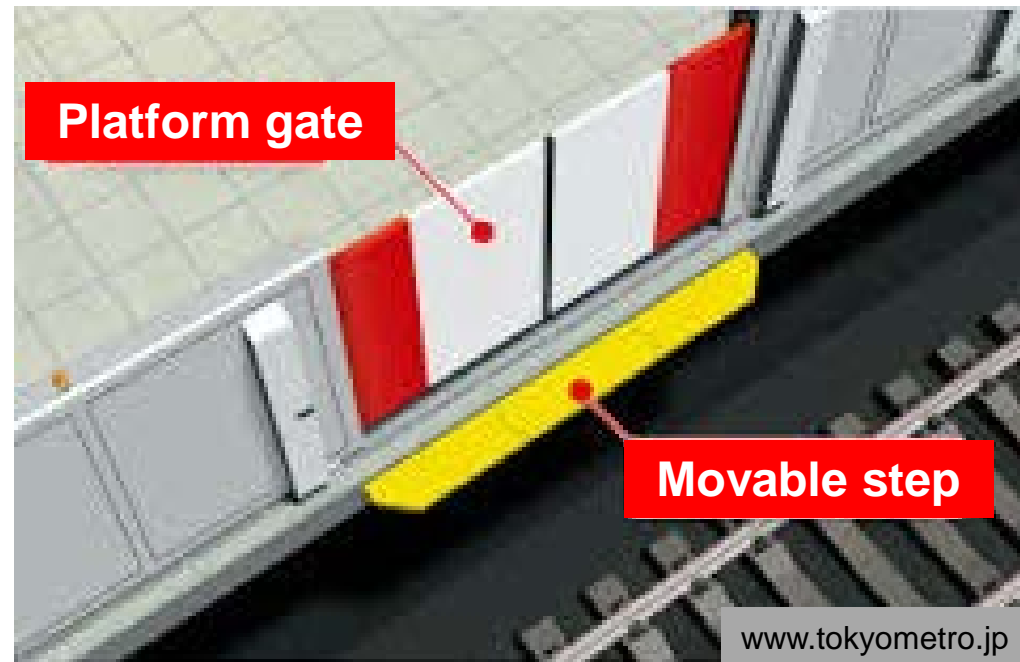
High safety score = low accidents

Comprehensive safety score [point] **Better** →



# Comparison of Before and After Safety Improvements

- If “platform gates” and “movable steps” are introduced,
  - #1: Narrow part 
  - #2: Gap between platform & train 
  - #4: Area of platform 
  - #8: Passenger flow outside of white line 



Safety score : -0.7  +0.2

Safety investment can be prioritized by this score.



### 3. Three ways to set target of transit performance

- (1) **Top-down** by strong leadership
- (2) Target should be **achieved asap**
- (3) Target improved thru **investment**





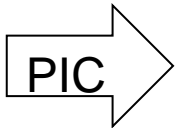
## (1) Top-down with strong leadership

- Leader of organization declares the target
  - Sometime without warrant
  - Target setting **encourages employee**
- No case are observed in Japanese transit



## (2) Target should be achieved asap

- **Safety and accident** related
  - Most important PMs for transit
  - **Zero** = everyone can understand
- **Difficult to maintain zero**
  - Passengers and pedestrians have also responsible not to fail.





### (3) Target improved thru investment

- **Service & facility** related
  - Trains, stations, ...
  - Good service needs money.
- Each target depends on the planned **investment**.
  - “Target will be completed within ten years.”



## 4. Lessons & Summary

- **Small # of measurements are important and sustainable.**
  - Road bureau did **not** continue to report road PMs (local gov) after 2007.
  - Reporting is not the goal but the **process**.
- **PMs should not owe to only transit operators.**
  - **Government** and **passengers** are also responsible.
  - Funding, regulation, behavior, and mass media



## 4. Lessons & Summary (cont.)

- Most transit targets are set by **compromise**.
  - Between ideals and available resources.
  - Target is not the goal.
- More efforts are needed.
  - We can **do better** with performance-based management.
  - **Transparency, Accountability, Motivation...**



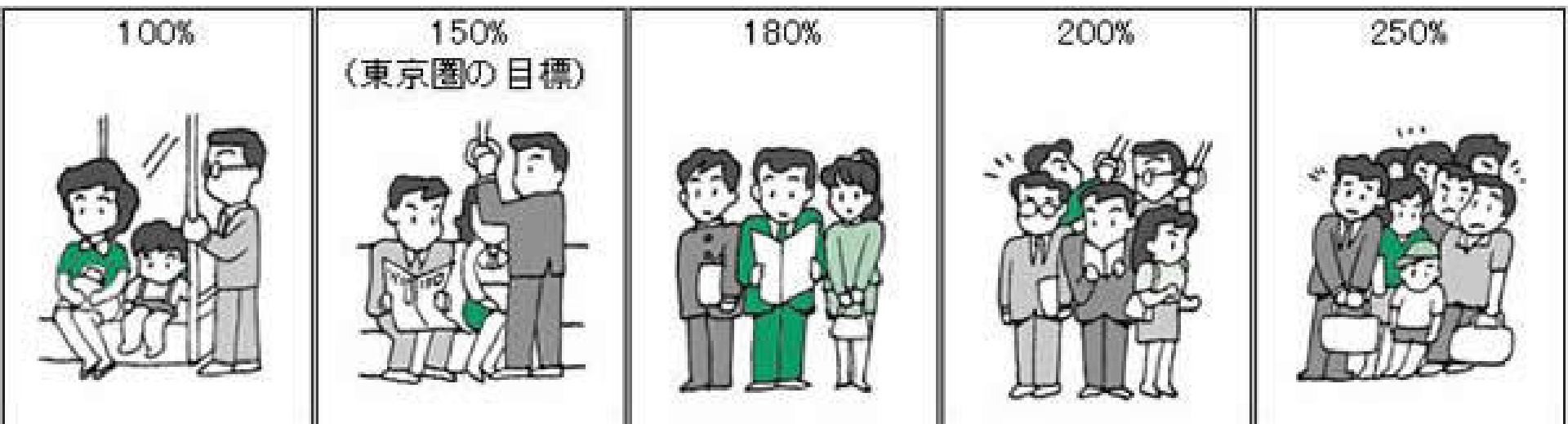


Thank you



## Current Status of Performance Mgt

- It is included in **“Policy evaluation”**.
  - Policy check-up of the ministry (most 2007-)
    - Covering all fields of the ministry
    - 233 PMs (13 policy goals) for MLIT
      - 11 for road transportation
      - 20 for public transit
    - Output measures also included.
- **“Vital few”** (“Vital small”?)
- Unitary format
- No regional cooperation



<p>定員乗車(座席につくか、吊革につかまるか、ドア付近の柱</p>	<p>広げて楽に新聞を読める。</p>	<p>折りたたむなど無理をすれば新聞を読める。</p>	<p>体がふれあい相当の圧迫感があるが、週刊誌程度なら何</p>	<p>電車がゆれるたびに体が斜</p>
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BACK

危険です、  
歩きスマホ。

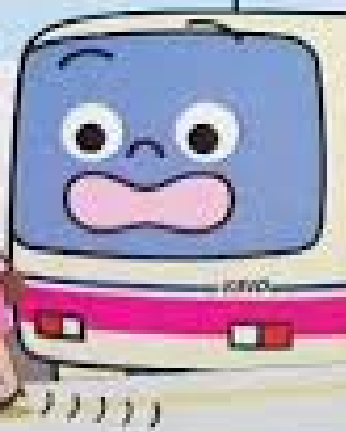
(本人は、この広告見ないだろうけど)



**あっ!**  
危ないですよ!  
その行為



歩きスマホは安全な場所でお止まってから。



駆け込まないで!  
次の電車を待ちましょう。



プラットフォーム  
事故 0 運動

緑色への転倒発見! すぐ通報

