

Next Generation High Speed System



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High Speed Rail Planning

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Public Phones in THSRC Station



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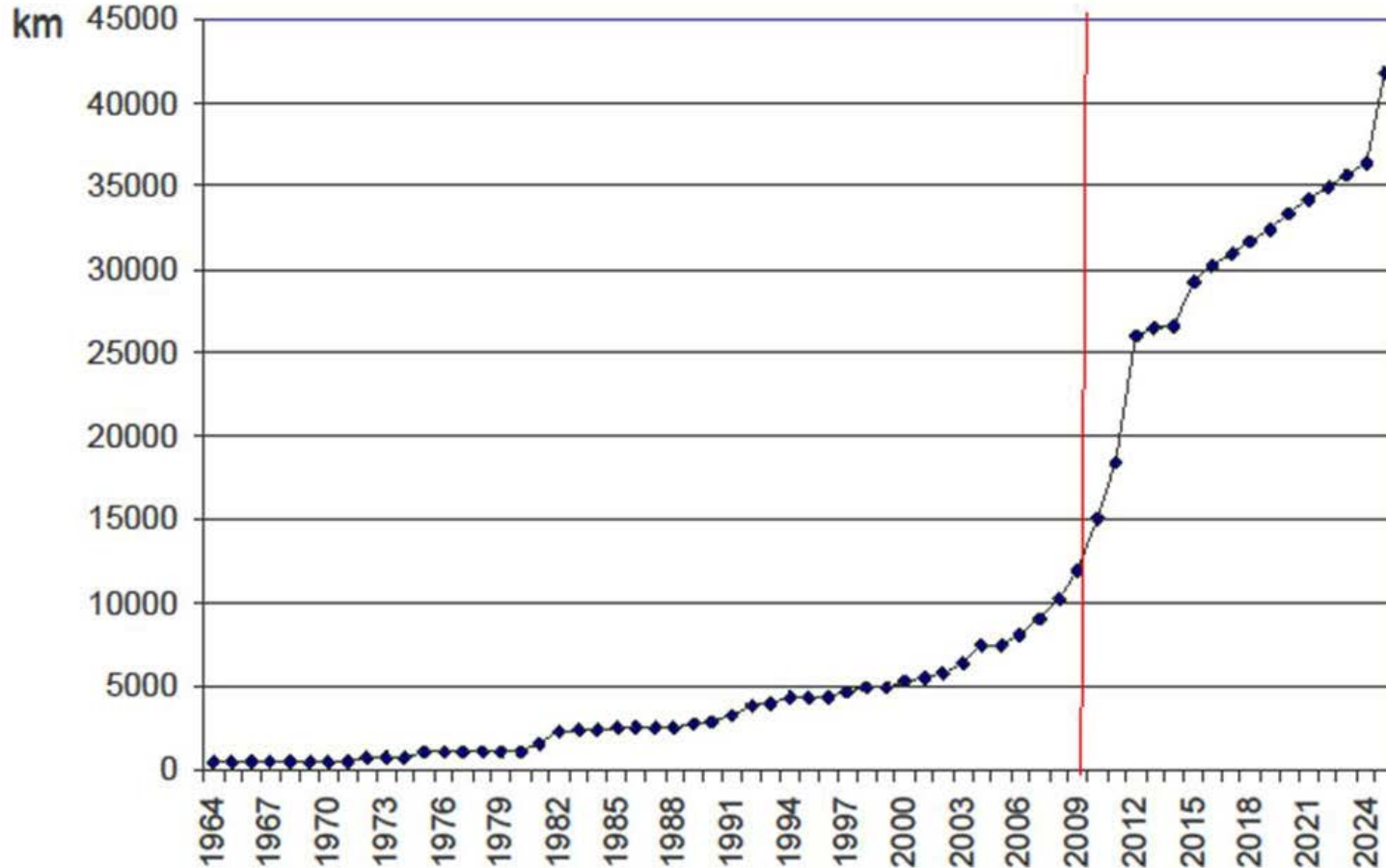
Phone Booth in THSRC Train



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Evolution of world HSR networks



Past



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Review of the Development of HSR in the past 50+ years

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- HSR Has been in service since 1964.
- HSR provides a high speed, high capacity, low pollution and high energy efficiency modern transportation tool.
- Many countries are developing their HSR system.
- New technologies are being developed.
- Integrated intermodal transportation planning.
- Many countries are building their HSR.

The Advantages of HSR



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High speed/ high capacity

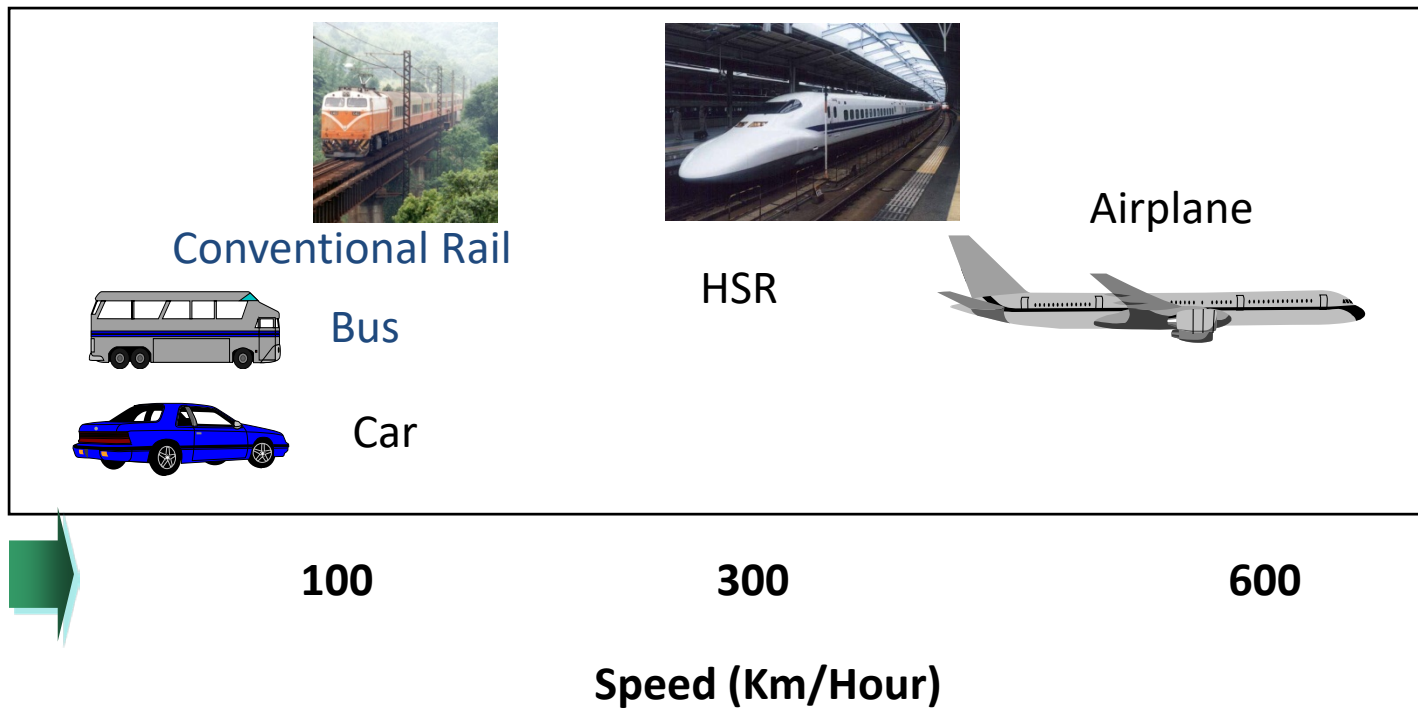


Capacity

High



Low



Center to center



- Pairs of large cities
- Corridor of high density cities
- Feeder systems (inter-city ,commuter trains, subways, bus, other public or private transport)
- Intermodal – connect to long distance flight

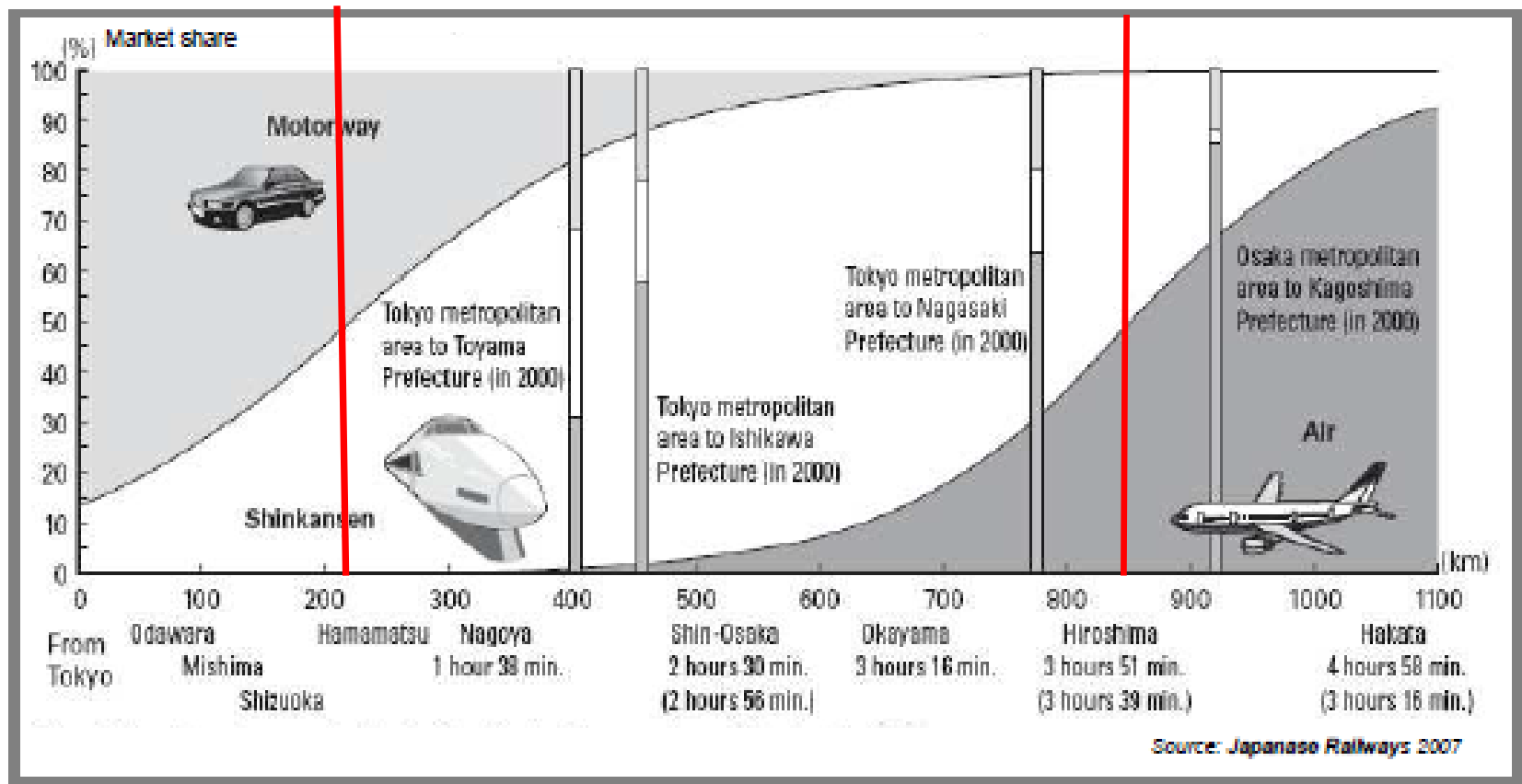
Speed \neq Time

A different kind of travel time

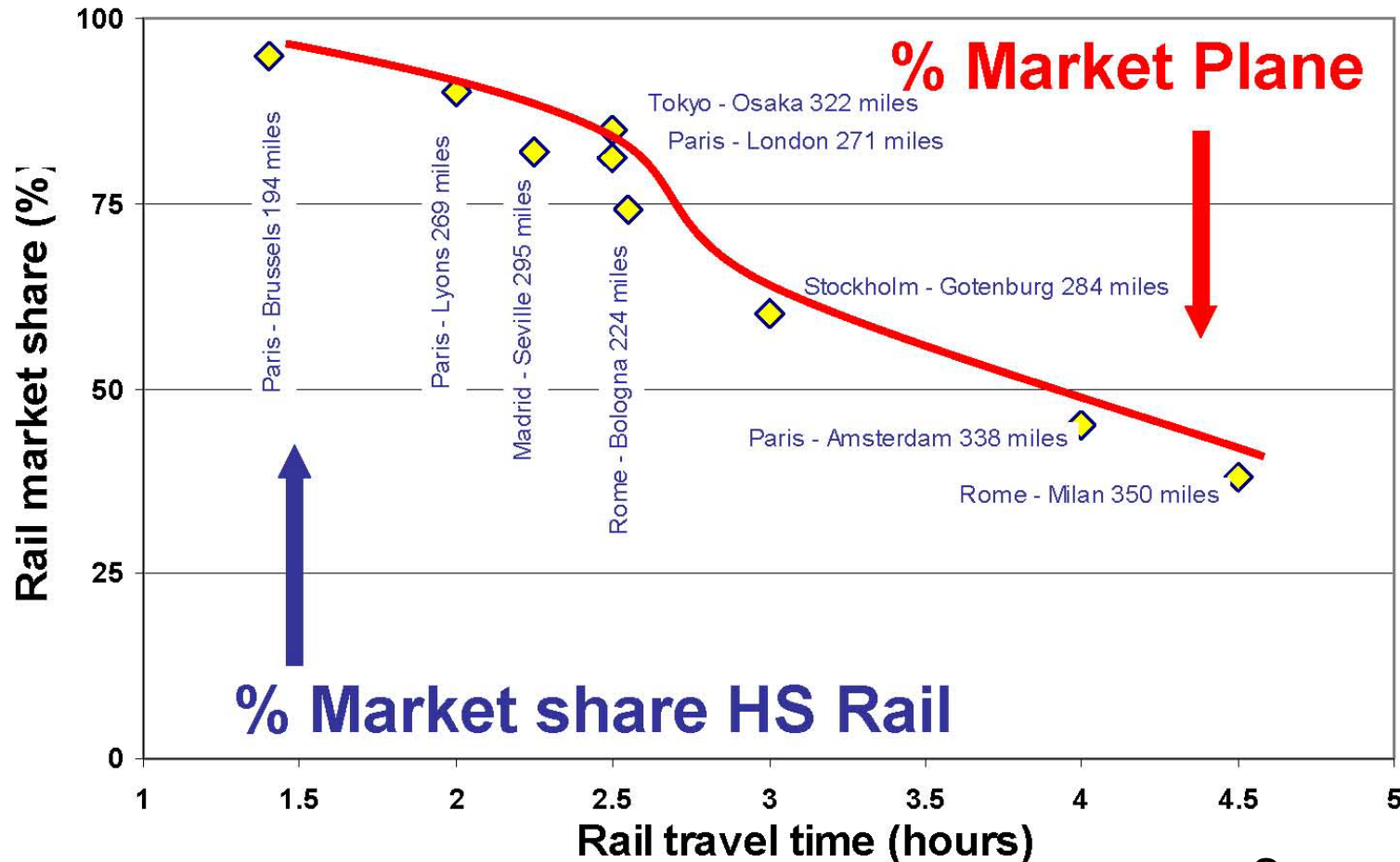


- Total Travel Time
- Productive Travel Time
- Perceptive Travel Time

Multi-model market share in Japan

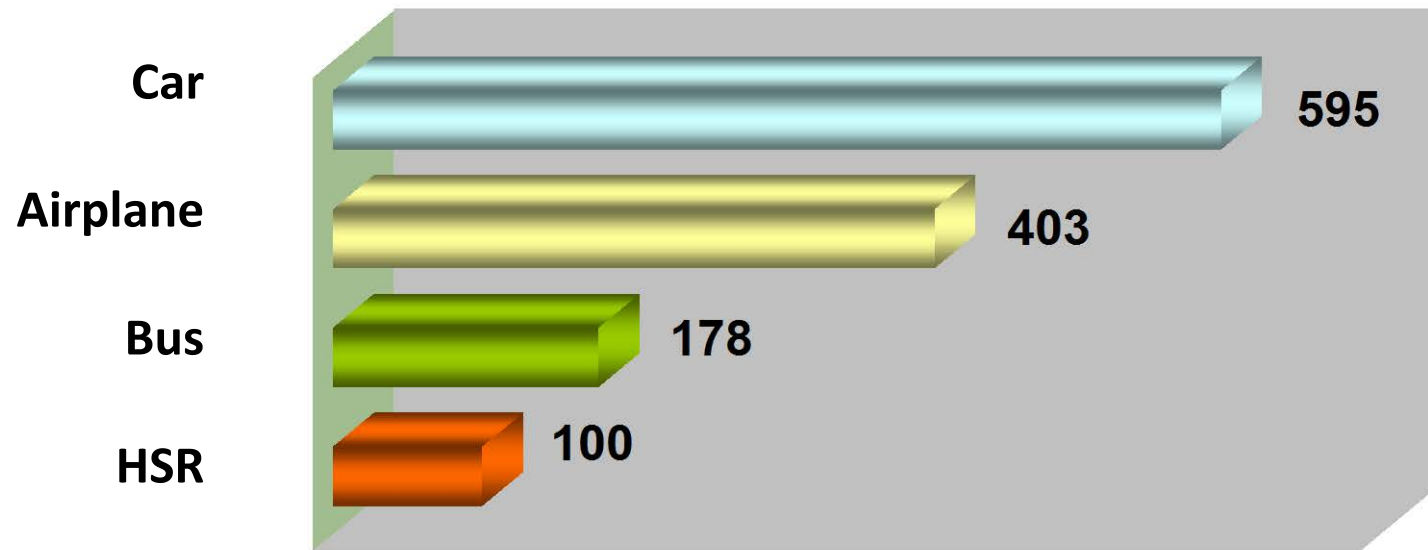


How train travel time influences the market share



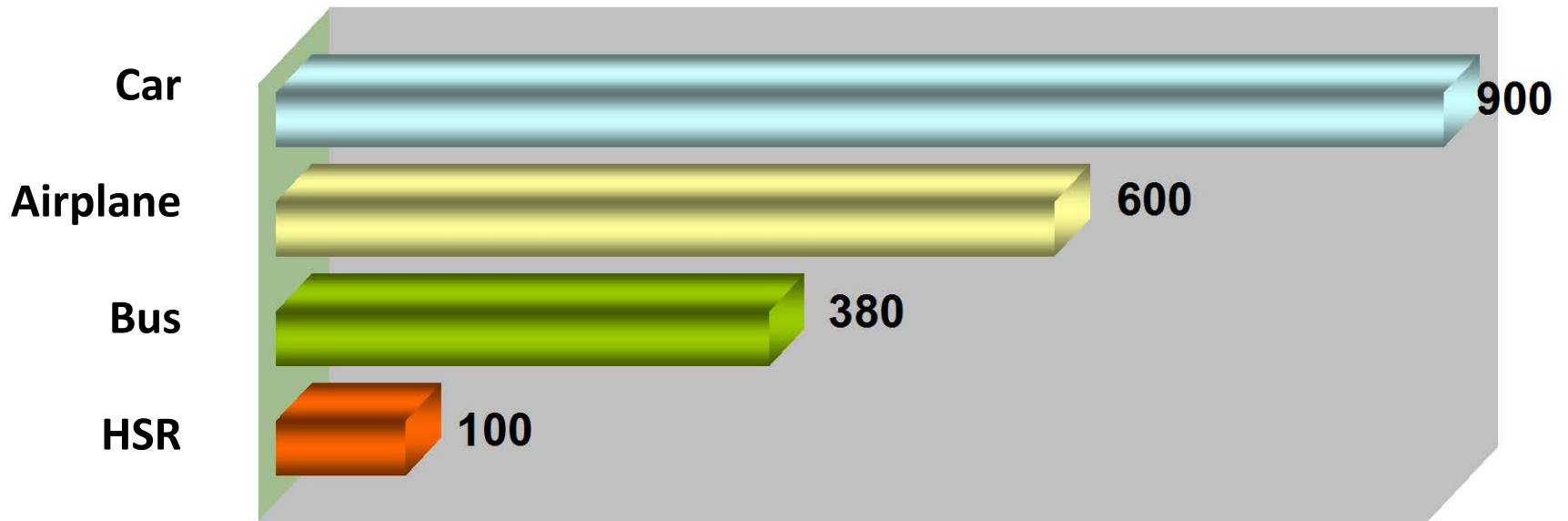
Source: UIC

Energy consumption



Courtesy of JR East

CO₂ emission



Courtesy of JR East

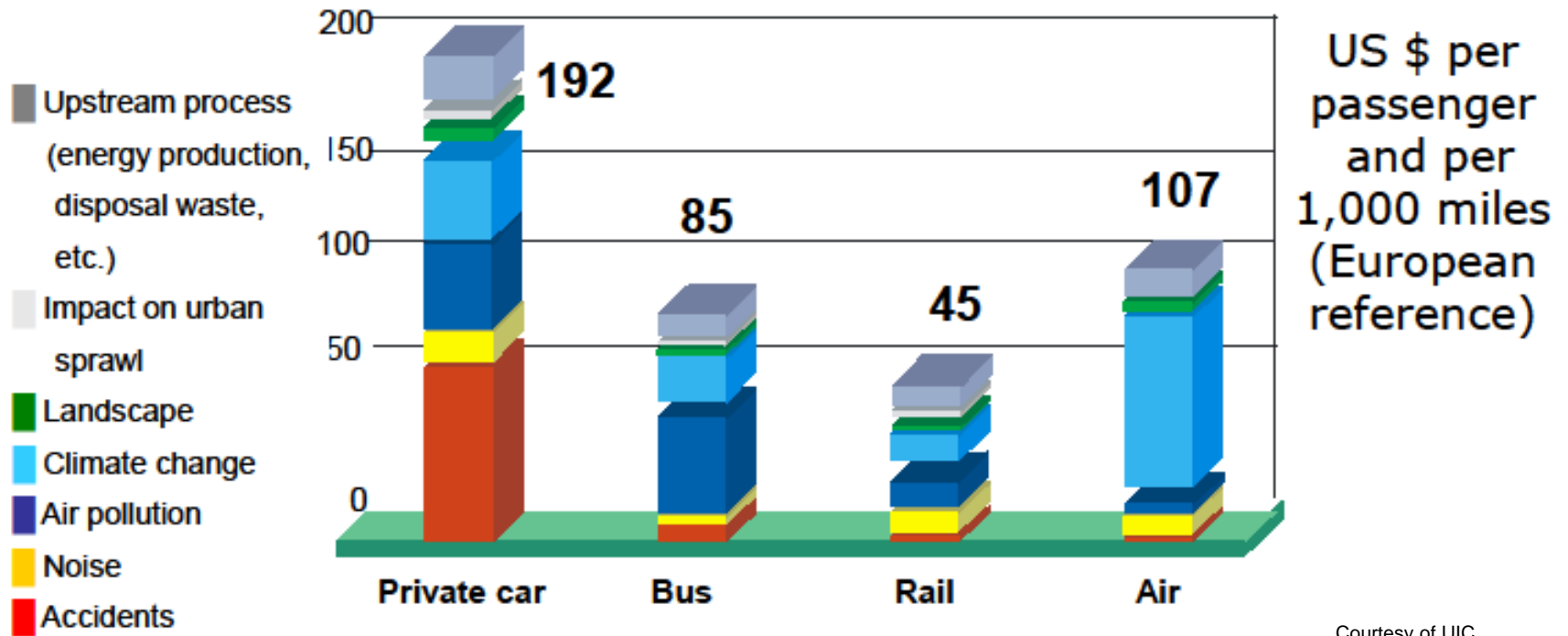
Land Use

- Average HSR = 3.2 ha /km,
Average freeway= 9.3 ha /km



External costs

External costs = Part of the ticket paid by society



Courtesy of UIC

Internal & External Benefit



- Internal :
 - Operation Revenue (fare box income, station advertisement)
 - Station area development
- External :
 - Regional Development
 - Importation of oil
 - Productive time of HSR passengers
 - Reducing traffic congestion on highway and at airport
 - Auto accidents
 - Pollution emission

Future



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- Technology innovation
- Social Economical Evolution
- Geopolitical Uncertainty

Technology Innovation



- New Technology are being developed
 - New HS Systems: Faster trains, Maglev, Hyperloop,
 - New cars: **Driverless car**, Electric Car, **Car-car communication**
 - New business mode: Uber
 - New IT technology: Virtual Reality Computation (VR) , Artificial Intelligence (AI), Apple pay
 - New energy source: Shale oil, Hydrogen car,
 - Next generation robotics, Drone technology, Distributed manufacturing

Geopolitical uncertainty



- New Geopolitical Changes- New world order
 - Terrorism
 - Refugee
 - Globalization vs. isolationism

Technology Innovation #1 - Driverless car



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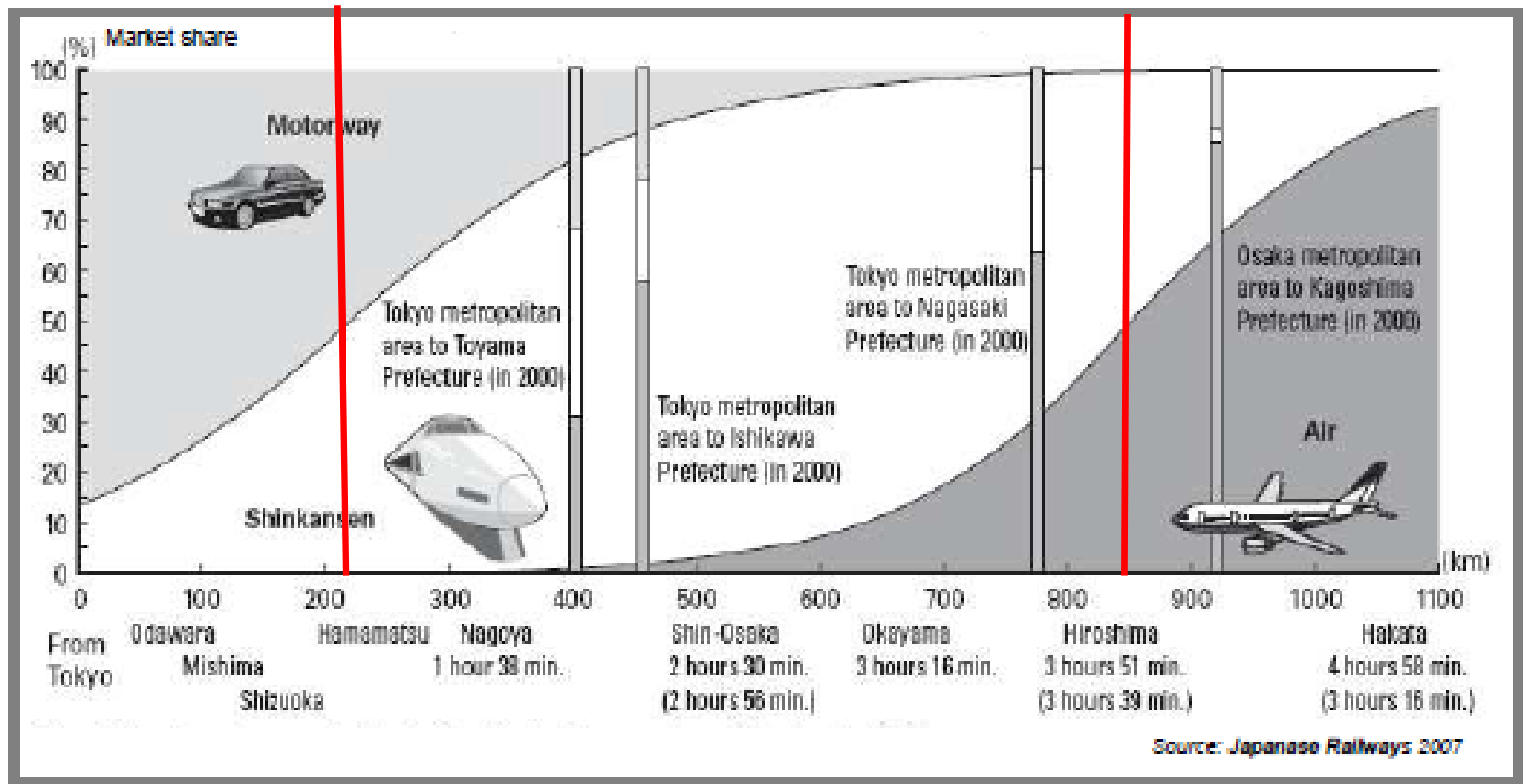
Current Development of Driverless Car



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Multi-model market share



Technology Innovation #2 – Driverless Uber



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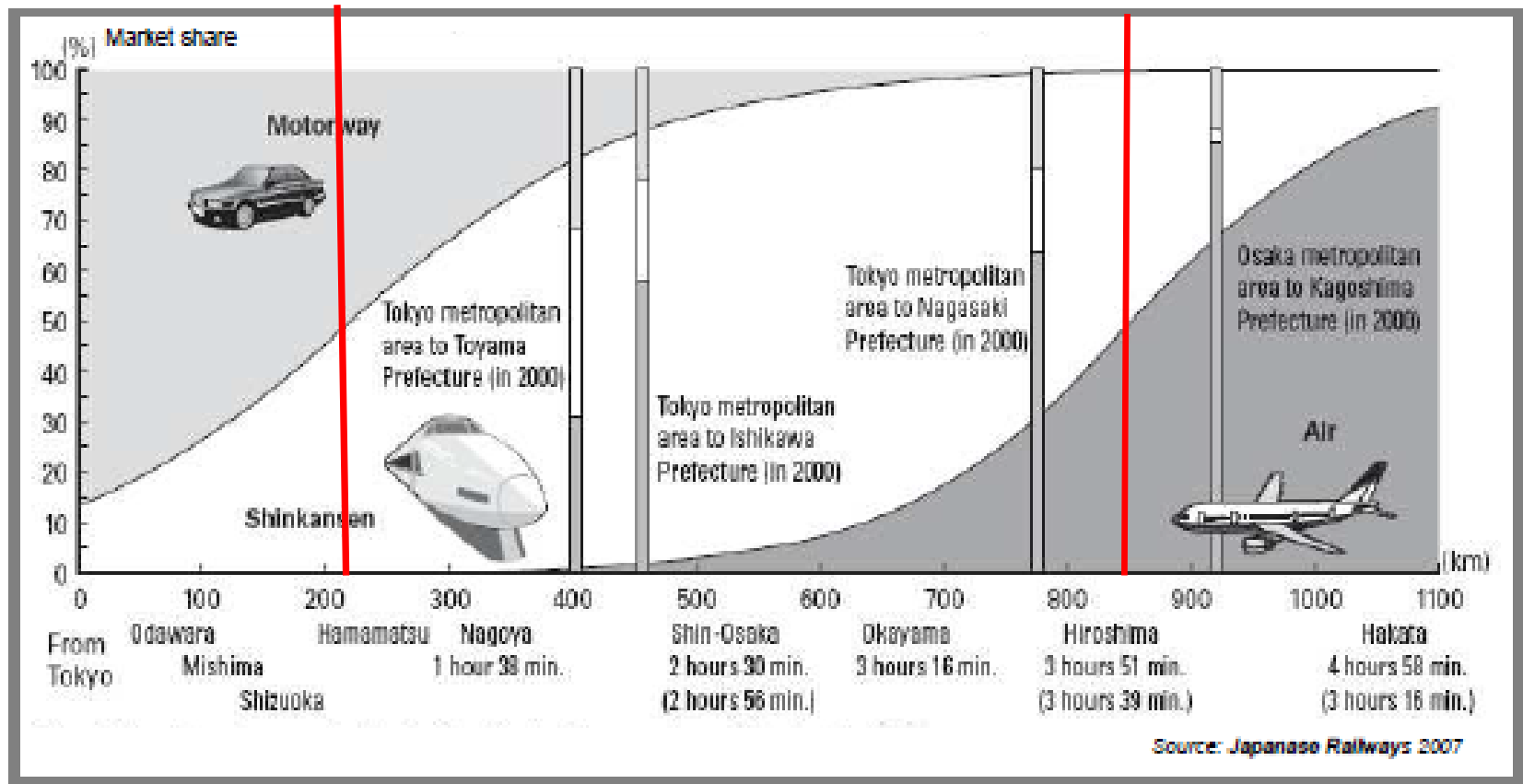
Current Development of Driverless Uber



Impact of driverless Uber



Multi-model market share in Japan



Technology Innovation #3- Maglev



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Status of Maglev Development



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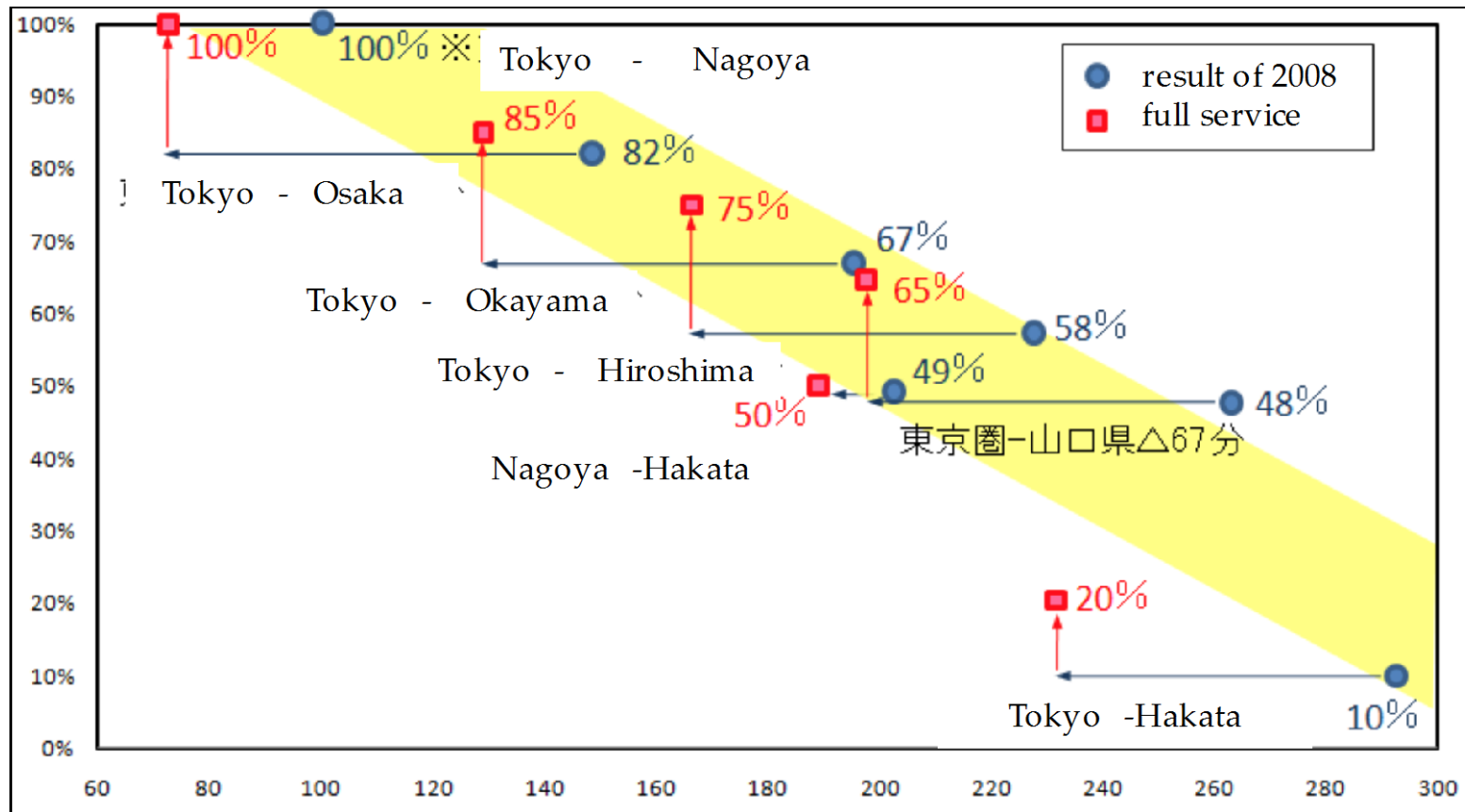
Chuo Shinkansen - Maglev



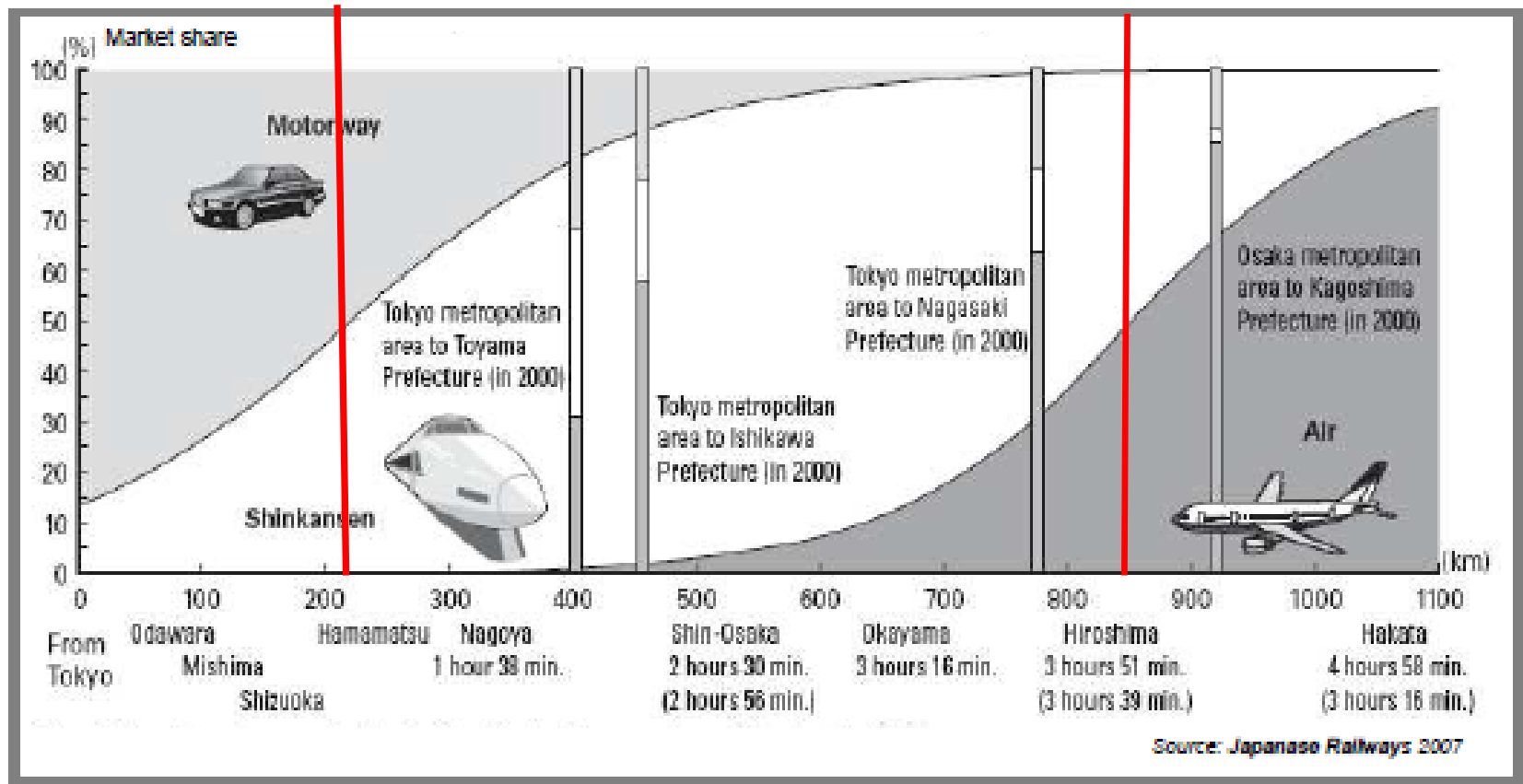
		Shinkansen	Maglev
Travel Time	Tokyo- Nagoya	90min	40min
	Tokyo- Osaka	150min	67min
Speed		285km/h	500km/h

Total investment: \$90 billion (to Nagoya \$55billion)

Air/ Maglev Market share



Multi-model market share in Japan



Technology Development #4 - Digital Evolution



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Development of IT Technology



- Virtual Reality Computation (VR) ,
- Artificial Intelligence (AI),
- Apple pay

From Digital Native to Data Native



Digital Native

- People who grow up using Mobile Devices & Apps
- Use iPhone & Starbuck apps to order a coffee.
- Use program to set thermostat
- Organize travel plan with apps from various transportation agents



Data Native

- People who expect Devices & Apps to be “smart” and work for them
- Want apps to suggest a particular flavor of coffee on a particular time
- Expect program to set itself
- Expect apps to organize a “tailor made” comprehensive travel plan, with whether input, personal preference.



Hi! Siri.

Case-by-case transportation solution

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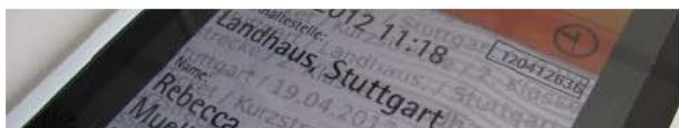
INTEGRATOR



Multimodal comparison



Real-time PT information



Smartphone ticketing



INFORMATION OVERLOAD

CURATOR



Based on long-term preferences



More parameter (weather, diary)

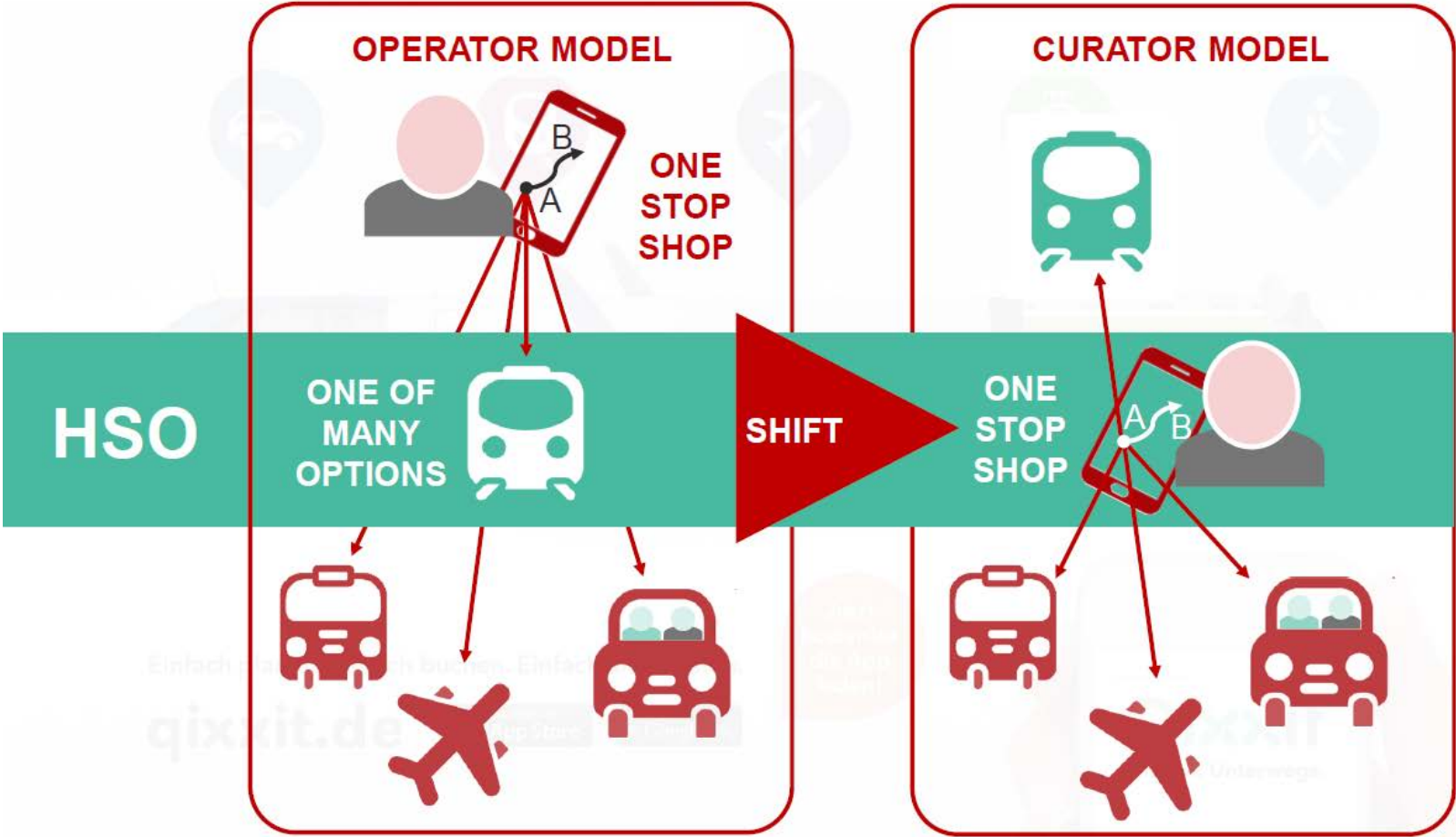


Learning from customer history



INDIVIDUAL SOLUTION

Emerging HSR Mobility OS



Case-by case solution



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Einfach planen. Einfach buchen. Einfach ankommen.

qixxit.de



Jetzt
kostenlos
die App
laden!



Geopolitical development



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Dissolution of the Soviet Union

- Euro-Asia Railway Net work



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The New Railway- We tie Europe Together



一路一帶



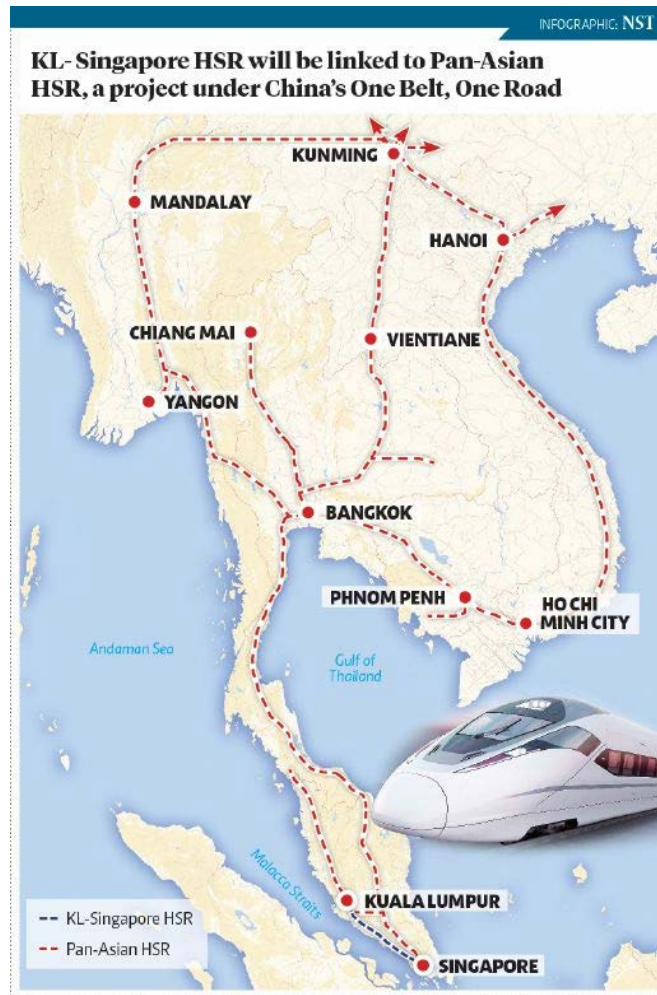
Muslim Extremist & Terrorism



Globalization vs. Isolationist



Pan Asia HSR Network



Thanks!



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