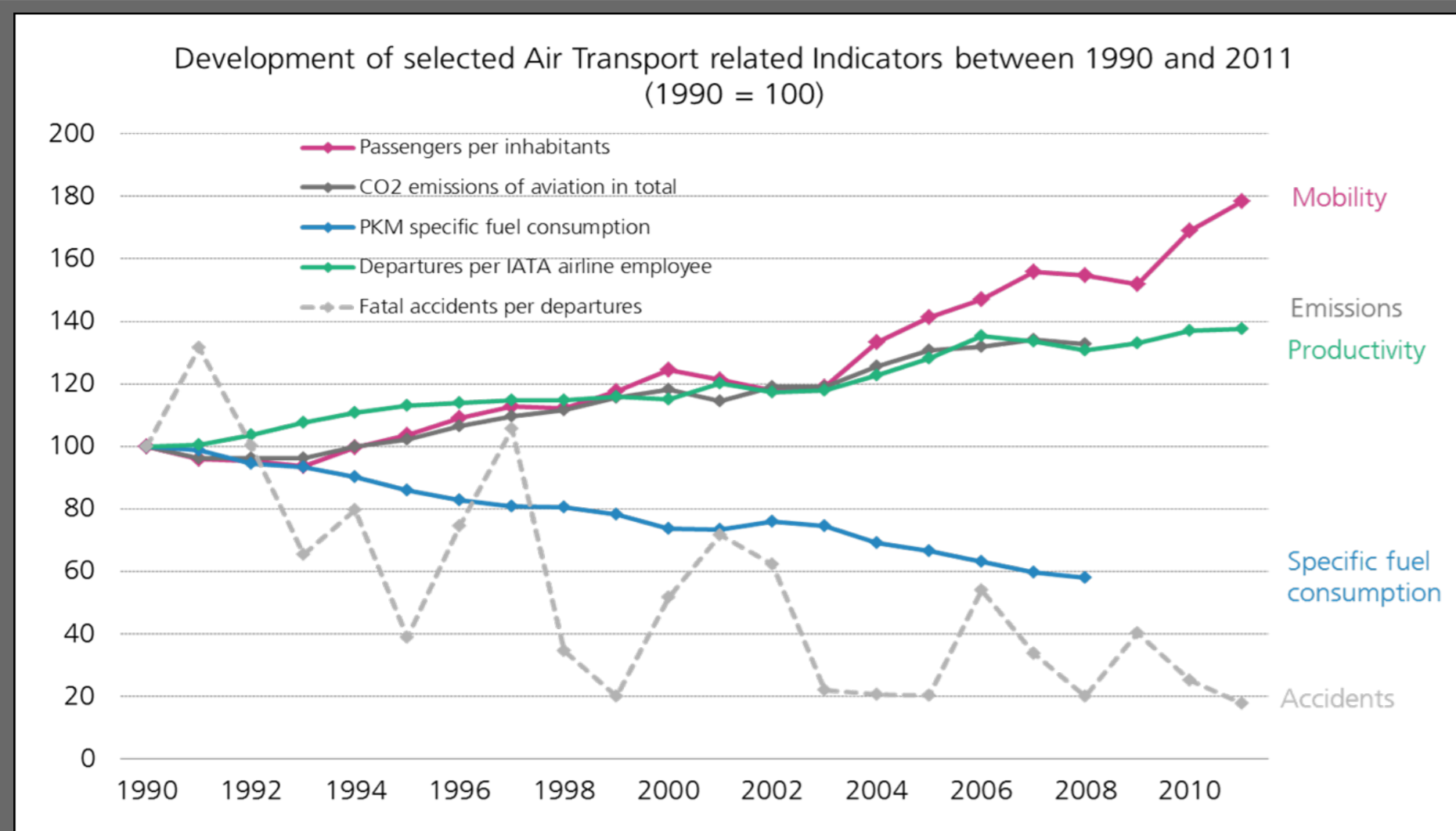
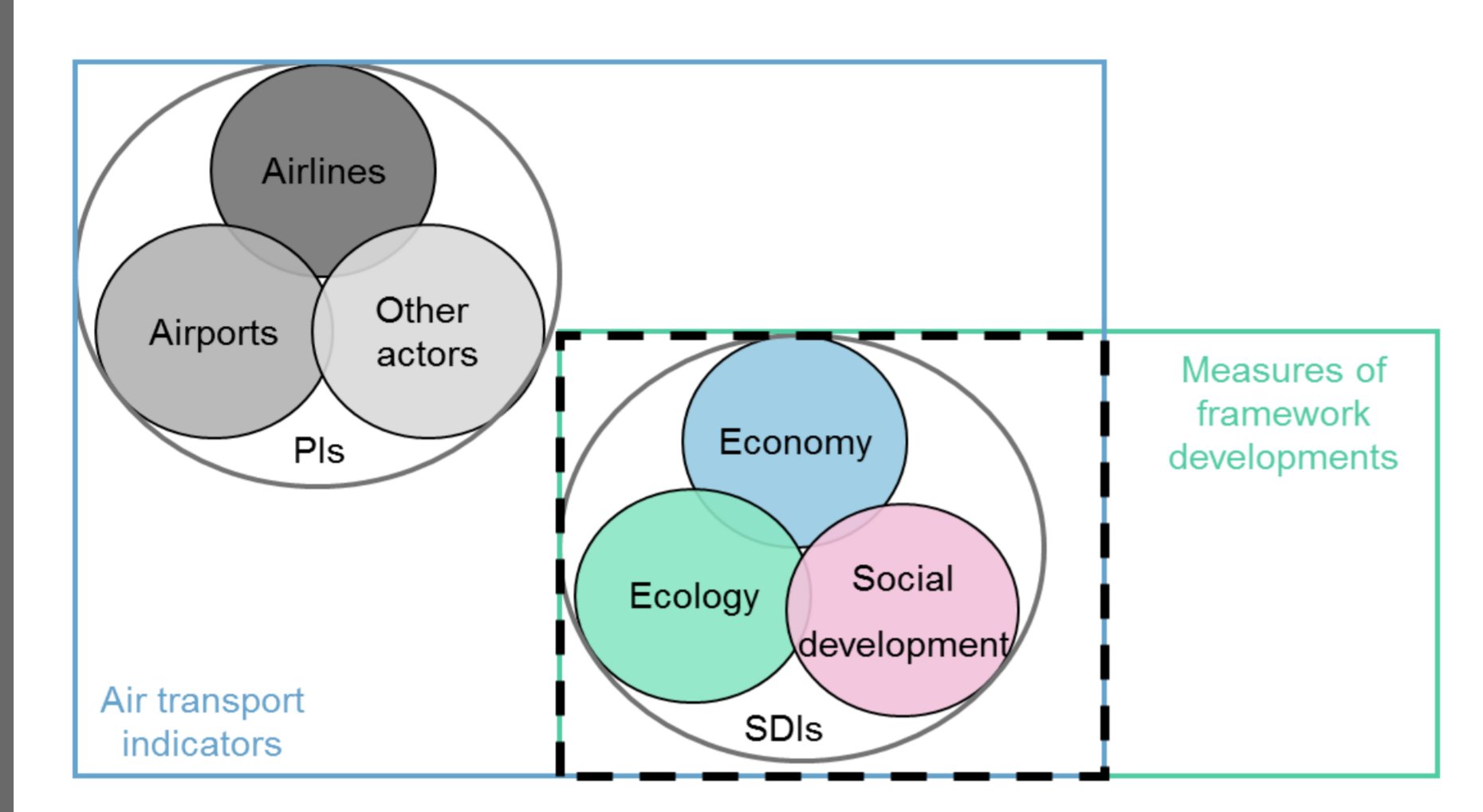


# MONITOR: Indicators for the development of the air transport system



Performance Indicators							
1. Trends at airlines	1a. Airline Fleet Development	Aircraft in service per airline	Share of stored aircraft compared to number of total aircraft	Number of aircraft orders per 100 aircraft in service	Share of different aircraft classes	Average age of aircraft in service	
	1b. Airline Traffic Performance	Average number of departures per aircraft	Average number of departures per airline employee	Average number of passengers per aircraft	Average TKM per aircraft	Load factor (passenger and cargo)	Percentage of delayed arrivals and departures
	1c. Airline Financial Performance	Average revenues per airline	Average operating expenses per airline	Average operating result per airline	Average net result per airline	Average operating margin per airline	
2. Trends at airports	2a. Airport Traffic Performance	Average number of movements per airport	Average number of movements per top 30 airport	Average number of passengers per top 30 airport	Average amount of freight per airport	Average amount of freight per top 30 airport	
	2b. Airport Financial Performance	Average operating result per top 100 airport	Average operating result per top 100 airport	Average operating margin per top 100 airport	Average net result per top 100 airport		

Sustainable Development Indicators			
3. Indicators on economic aspects of air transport development	Development of freight tonne kilometres per inhabitant	Economic specific flight development	Economic specific freight tonne kilometre development
4. Indicators on ecological aspects of air transport development	Development of absolute CO <sub>2</sub> emissions	Air transport emissions share in total CO <sub>2</sub> emissions	Percentage change of overall and air transport related CO <sub>2</sub> emissions
5. Indicators on social aspects of air transport development (aspects of transport function)	Number of departures per 1,000 inhabitants	Number of passengers per 1,000 inhabitants	Number of passengers per 1 million US\$ GDP
		Fatal accidents per 1 million flights	Passengers killed per 1 billion RPKs
			Average time of travel between selected airports (Connectivity)



Development tendencies over the last 20 years of the Flightpath 2050 issues					
Indicators	PI: Productivity	PI: Specific fuel consumption	SDI: Emissions	SDI: Accidents	SDI: Mobility
Goals					
1. Meeting social and market needs	↗				↗
2. Maintaining and extending industrial leadership					
3. Protecting the environment and energy supply		↘	↗		
4. Ensuring safety and security				↘	
5. Prioritising research, testing capabilities and education					

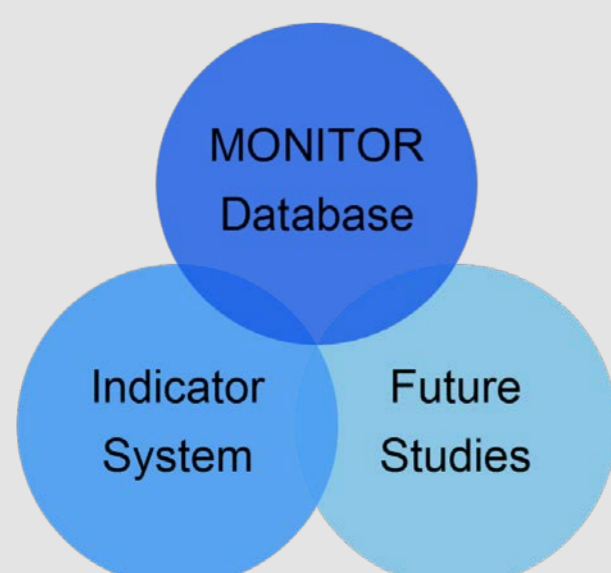
↗ = positive trend    ↘ = negative trend  
↗ = increasing tendency    ↘ = decreasing tendency

Clockwise: Results of selected indicators, Air transport system indicators, Assessment of selected indicators with regard to the ACARE Flightpath 2050 goals, Structure of the indicator system

## MONITOR: Indicator System

A significant challenge for the future development of the air transport system lies in harmonising the interests of the various stakeholders such as airlines, airports, passengers, industry, environmental organisations, politics and others. In order to meet these challenge, a comprehensive understanding of the context of development is required as well as a solid foundation of data from which to evaluate it.

In order to address these challenges, a monitoring system consisting of three elements has been developed permitting a comprehensive look at the long-term development of the air transport system and forming the basis for strategic analyses, modelling and quantification.



## Indicator approach

The indicator approach contributes to the definition and evaluation of the air transport system in terms of characteristics of the system itself as well as the social, economic and environmental effects of air transport development. A total of 43 indicators currently form the basis for comprehensive description and analysis.

**Performance Indicators (PIs)** reflect the key internal measures of the air transport system e.g.:

- Financial indicators for airlines and airports,
- Aircraft movements , passenger and freight transport volume,
- A comparison of aircraft on order and in storage.

**Sustainable Development Indicators (SDIs)** concentrate on the interrelation between the air transport system and the three dimensions of sustainability:

- Environmental: air transport's contribution to CO<sub>2</sub>-Emissions
- Social : Mobility aspects
- Economic: Freight figures per inhabitant

## Indicator assessment

Strategic and sustainability goals from the UN, WBCSD, IATA, ICAO and ACARE are used to assess the indicators developed. Selected trends in the air transport system over the past 20 years are evaluated against these goals.

Weaknesses , (un)desired developments and positive trends can thus be identified and used as an early warning system from which recommendations can be derived for the future of the air transport system as well as more concrete sustainability and strategic objectives relevant for policy, industry and other interested parties.

The MONITOR indicator system is constantly being updated and expanded. In addition, the indicators will be useful in future studies on the development of air transport.

[www.airtransport-monitor.eu](http://www.airtransport-monitor.eu)

