

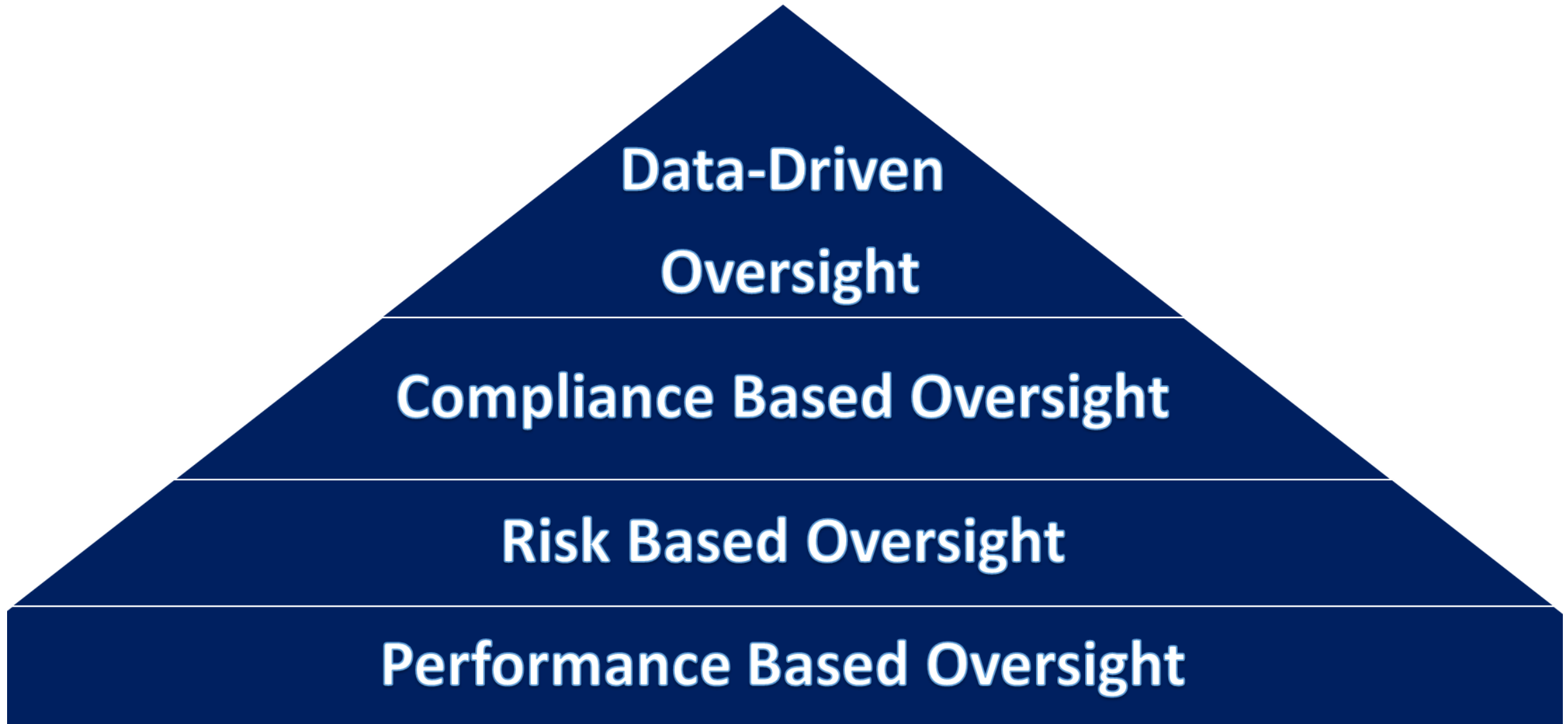
# Data-Driven in Aviation



**Khalilallah Memarzadeh (Mohammad Memar)**

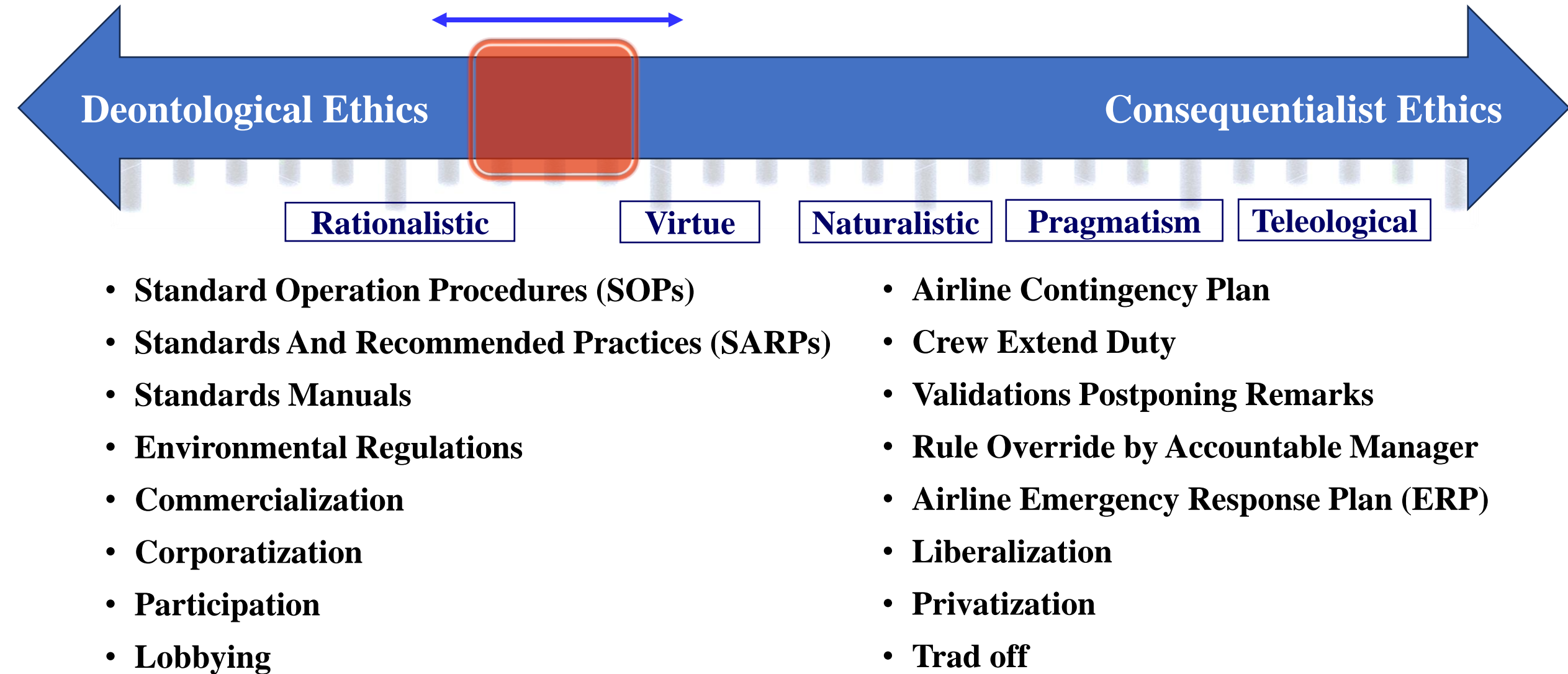


# Data-Driven Oversight in Civil Aviation Regulatory



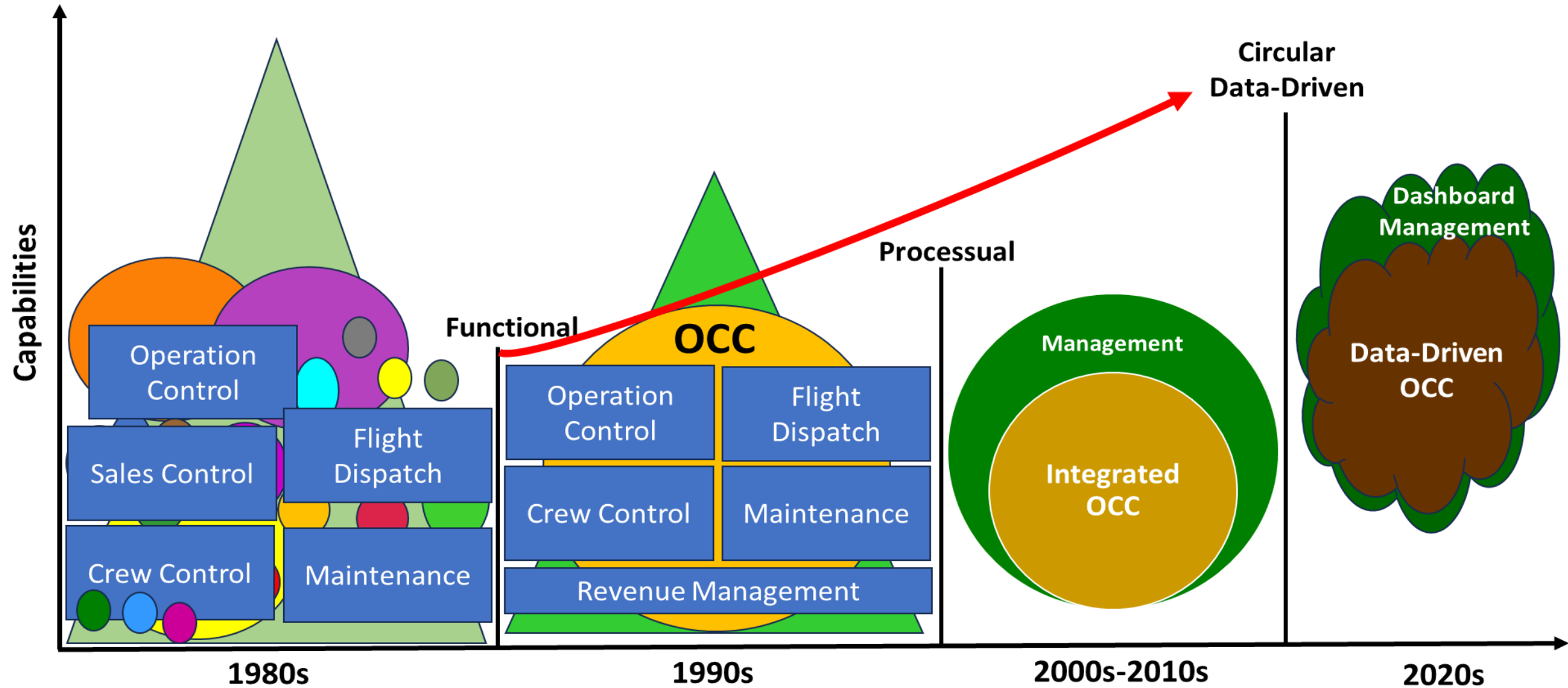
**Data-Driven in Aviation-MEMAR**

# Data-Driven Ethics in Aviation



**Data-Driven in Aviation-MEMAR**

# The Evolution of Airline Planning and Management



**Data-Driven in Aviation-MEMAR**

# Historical evolution in the concept of aircraft maintenance system

## (Mostly) HISTORY

- Bottom-Up Approach
- Failure-Based Maintenance
- Consequence-Driven Approach
- Three primary maintenance processes:
  - HD: Hard Time: Calendar Time, Flight Cycles, Flight Time
  - OC: On Condition
  - CM: Condition Monitoring
- Corrective and Fix Oriented
- Servicing maintenance actions (e.g., cleaning and lubrication)
- As if new when the need to recover
- Diagnosis-Oriented

## (Majority of) PERESENT

- Top-Down Approach
- Time-Based Maintenance
- Preventive Approach
- More Maintenance, More Reliability
- “Bathtub Model” of failure
- Reliability
- Focusing on the component failure

## (Desired) FUTURE

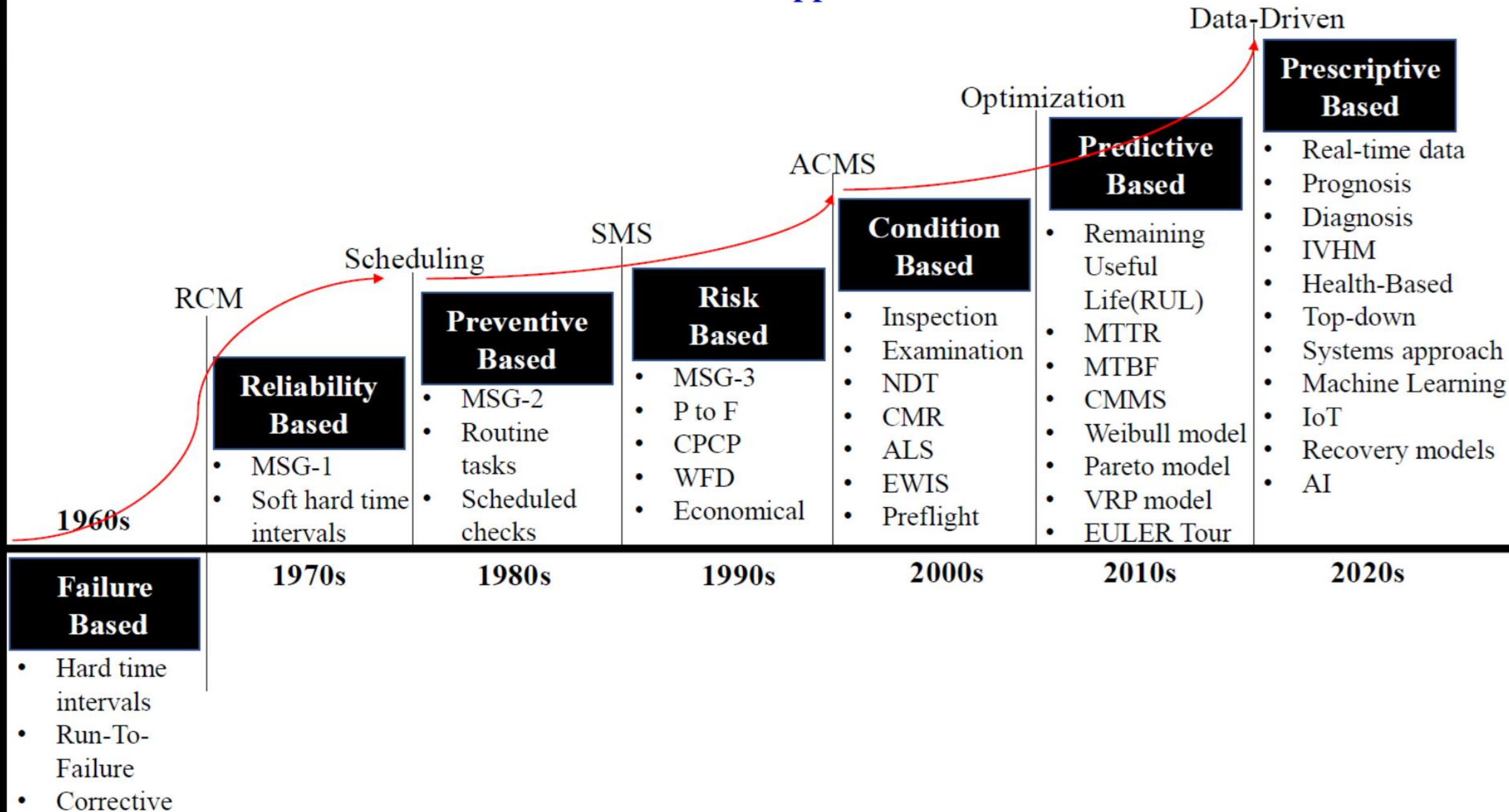
- Systemic Approach
- Condition-Based Maintenance(CBM)
  - Inspection-Based
  - Examination-Based
- ST: Soft Time intervals
- Holistic Performance instead of Failure Prevention
- Prognosis-Oriented

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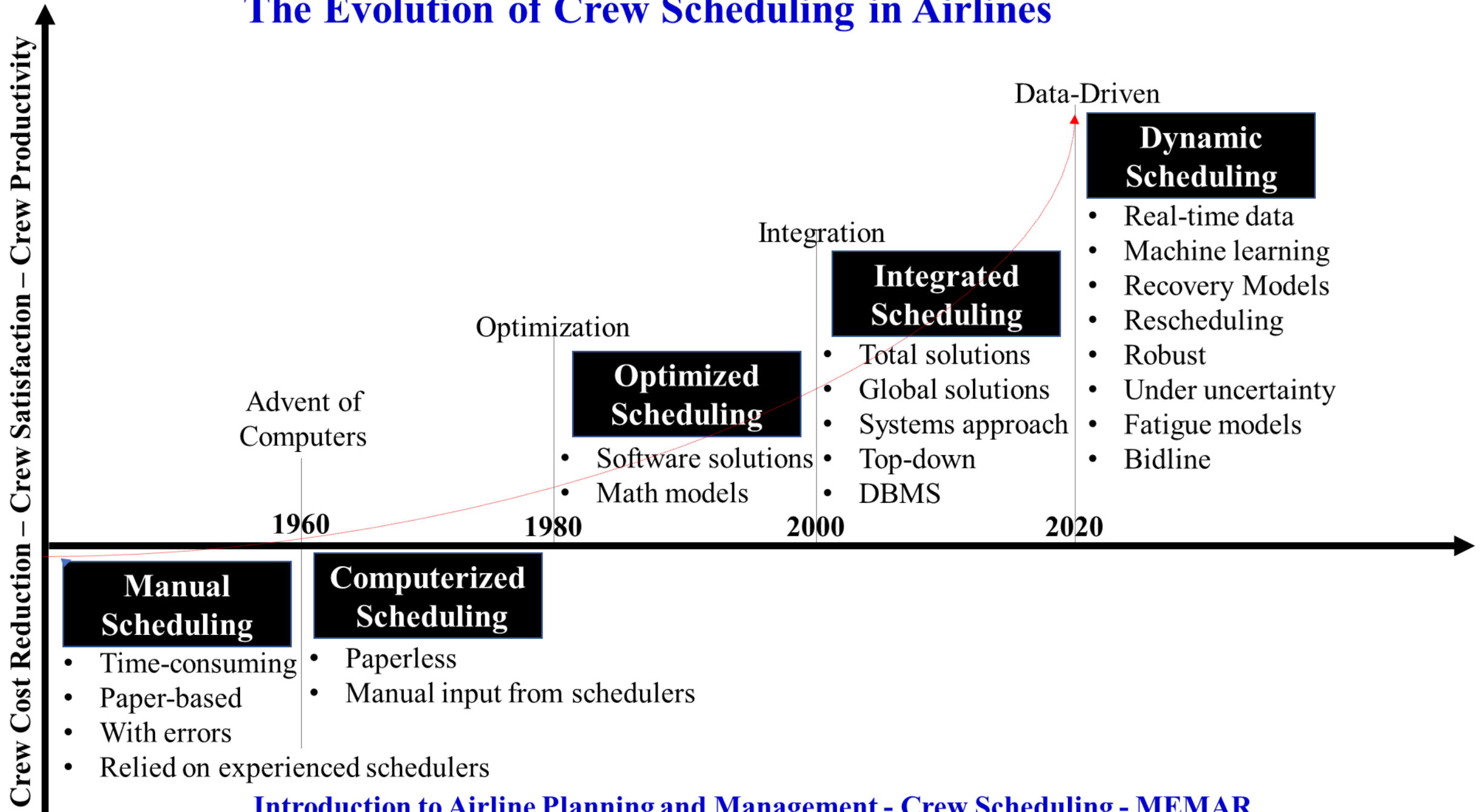


# The Evolution of Aircraft Maintenance Approaches in Airlines

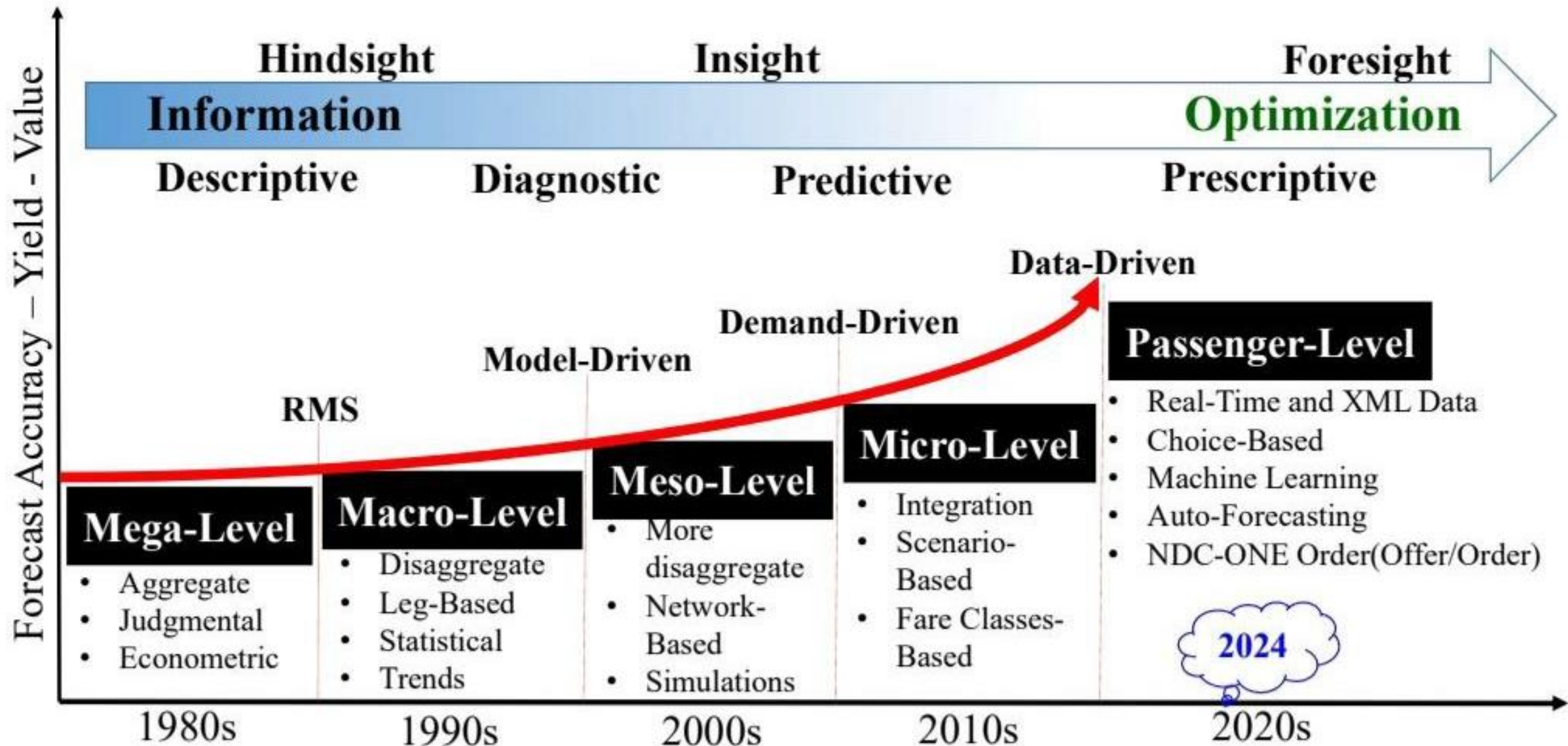
Maintenance Cost Reduction – Reliability – Availability



# The Evolution of Crew Scheduling in Airlines



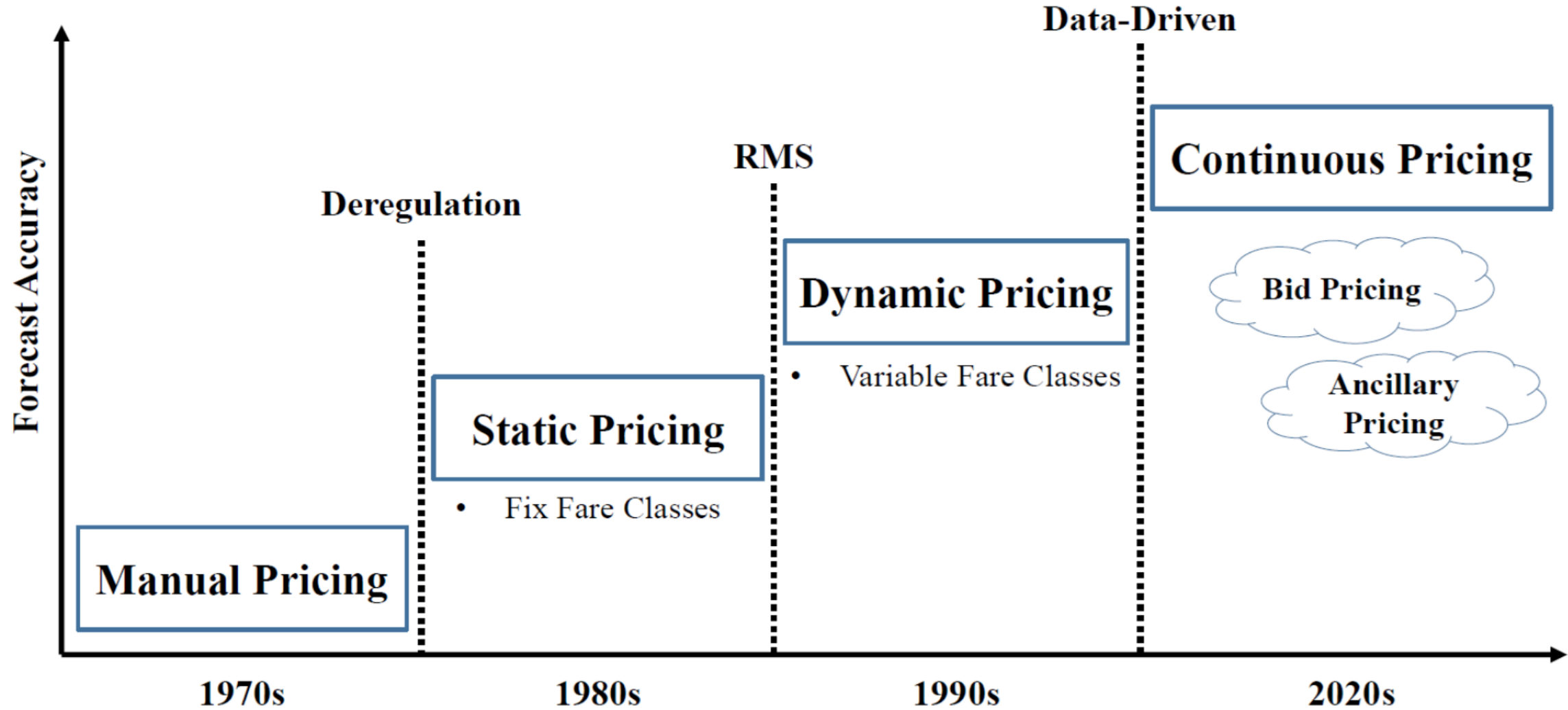
# The Evolution of Forecasting in Airline Revenue Management



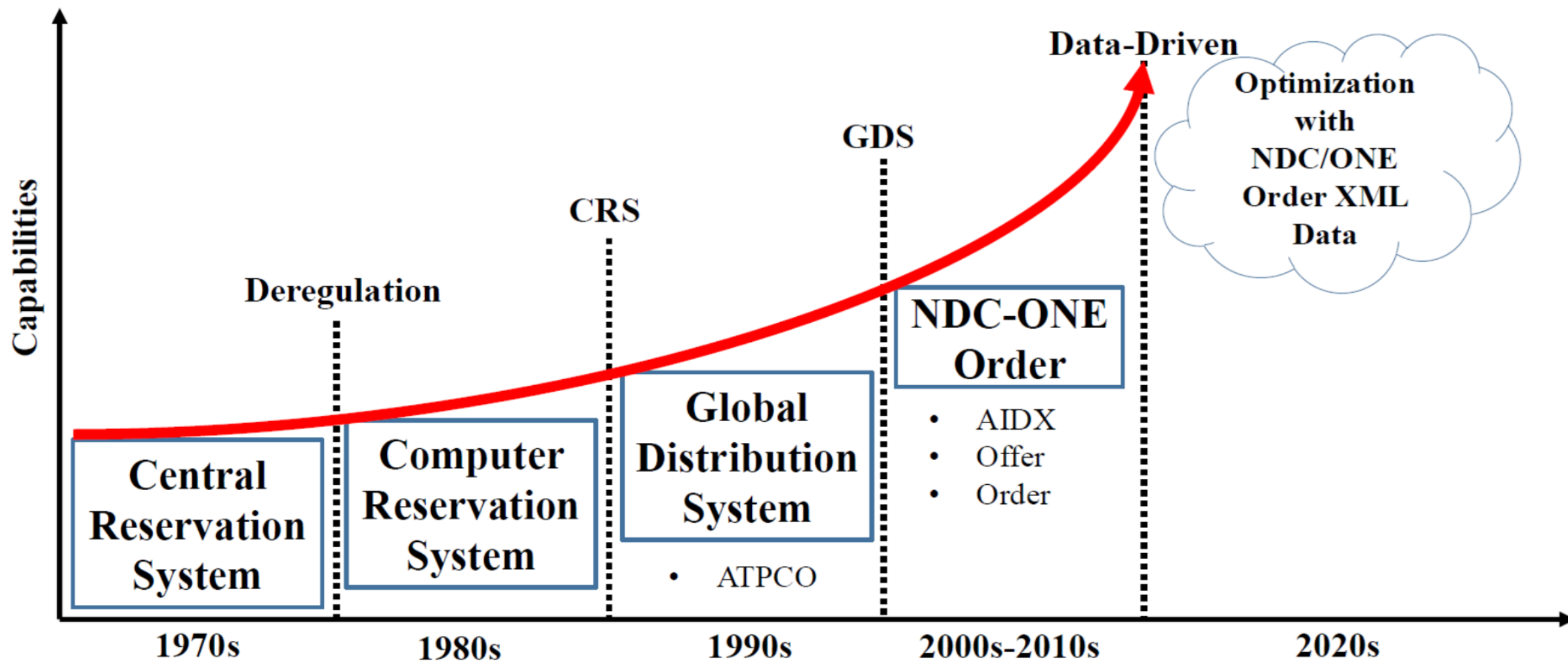
**Data-Driven in Aviation-MEMAR**



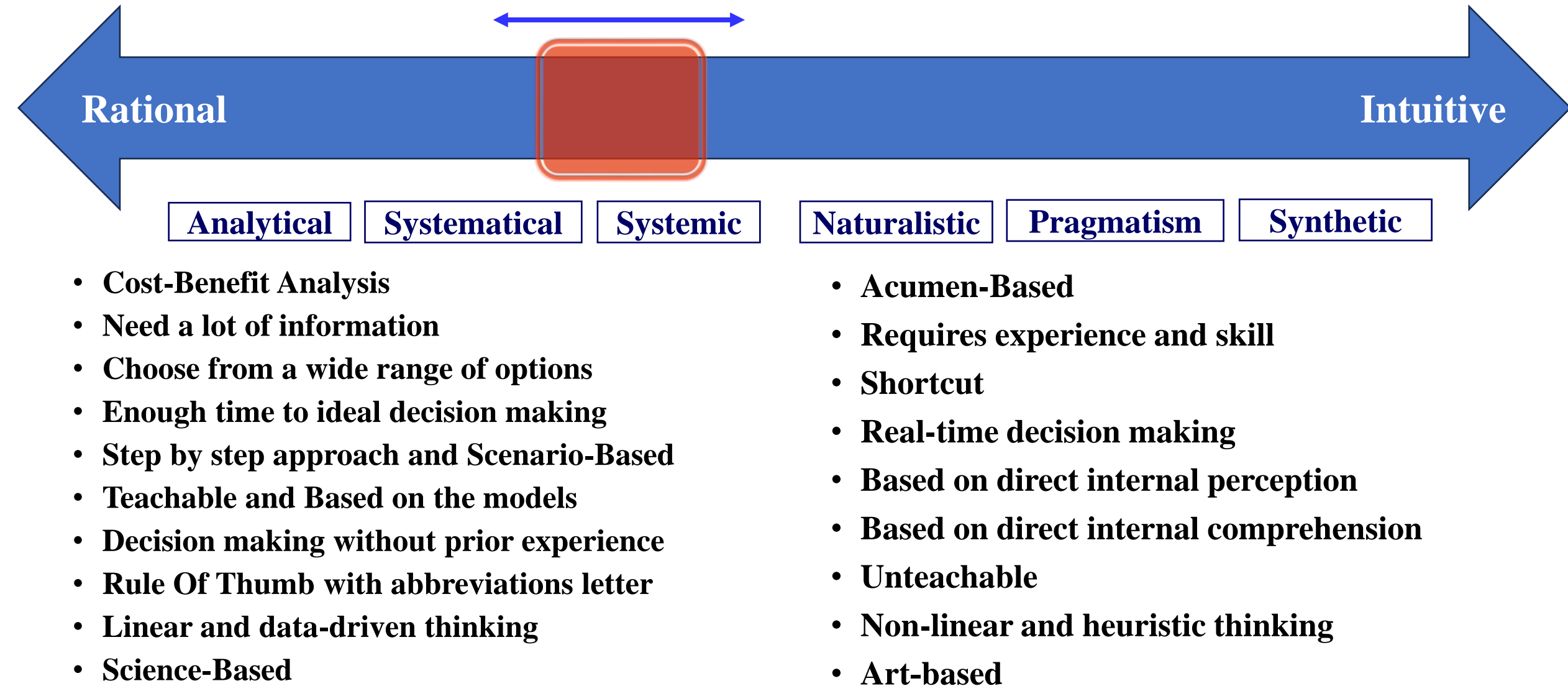
# The Evolution of Pricing in Airline Revenue Management



# The Evolution of Distribution in Airline Revenue Management



# Aviation Data-Driven Decision Making (AD3M)



**Data-Driven in Aviation-MEMAR**