

# Estimating Controller Productivity in the Future NAS

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FAA MOIE

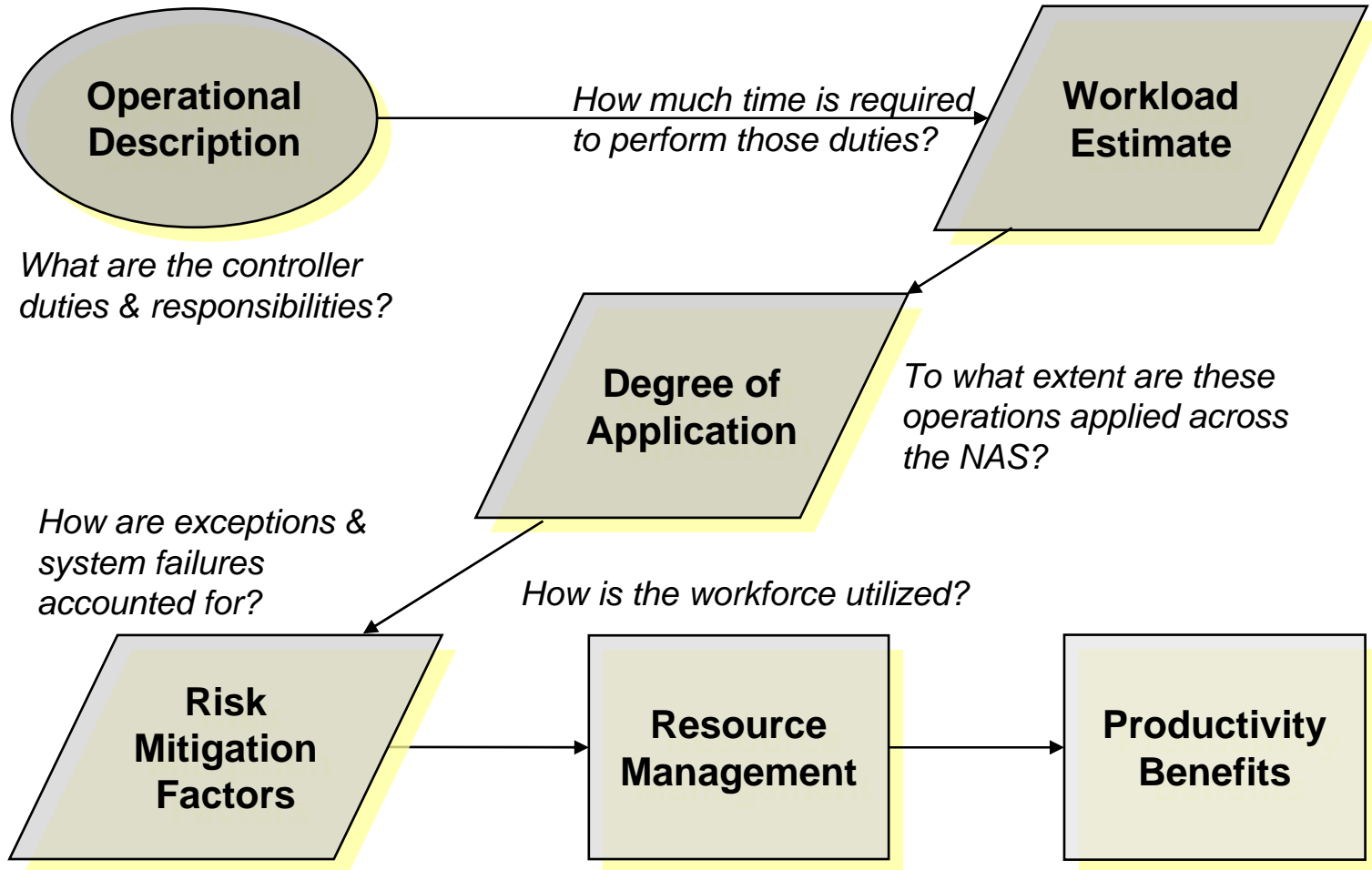
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# Problem

- **Improved tools and techniques are needed for estimating future controller productivity to**
  - **Support future workforce planning**
  - **Support investment decisions in ground and aircraft automation**
- **This problem becomes more difficult as roles and responsibilities change in response to**
  - **Increasing levels of traffic volume and complexity**
  - **The need for improved cost management**

# Background



# Objective

- **Develop improved tools and techniques for controller productivity modeling that**
  - **Support estimates for various automation, procedural, and anomalous event alternatives**
  - **Readily incorporate results of human-in-the-loop laboratory measurements and extrapolate them to a NAS-wide level**

# Activities

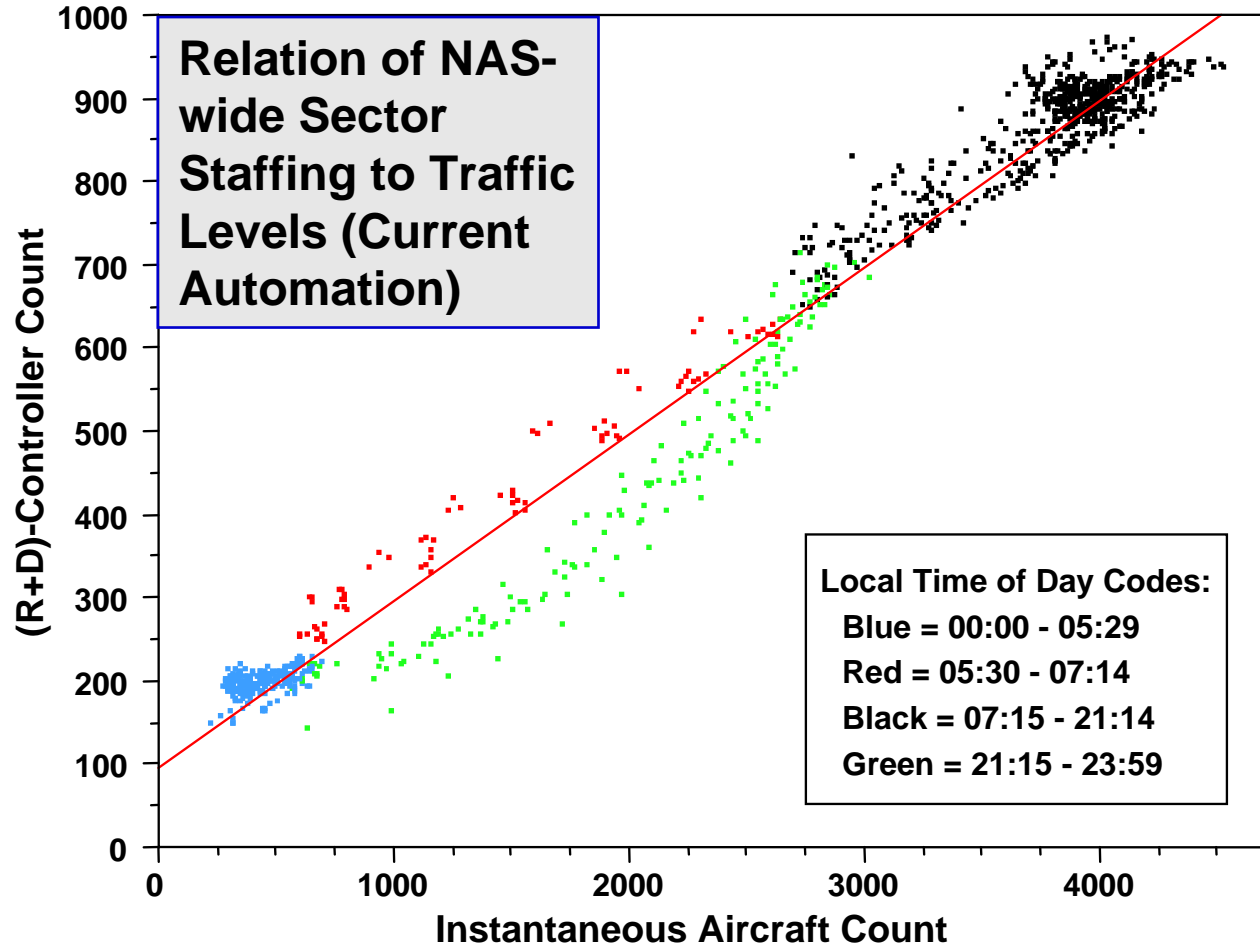
- **En route controller workload model**
  - **Both current and enhanced automation**
  - **Routine tasks and exception/failure cases**
- **Analysis of current NAS-wide controller workload vs. sector staffing and traffic levels**
- **Projection of future traffic levels, controller workload, and sector staffing**
  - **With and without enhanced automation**

# Highlight

**Task decomposition for problem analysis and resolution (current automation)**

Tasks	Task Times (Seconds)			
	Problem Analysis	Altitude	Vector	
<b>Air/Ground Communication</b>		5	10	
<b>Data Entry</b>		3		
<b>Intersector Coordination</b>			5	
<b>Decision Making</b>	10	3	8	
<b>Sum</b>	10	11	23	<b>Total</b>
<b>Weighted Sum</b>	10	6.6	9.2	25.8

# Highlight



# Impacts

- **Establishment of a methodology to estimate changes in controller productivity due to procedural and automation enhancements, thus supporting**
  - **Future workforce decisions**
  - **Prioritization of automation enhancements**
- **Improved techniques for applying human-in-the-loop laboratory measurements of productivity gains (in selected sectors) to a NAS-wide level**

# Future Plans

