



# Global and National Challenges in Aerospace and Space Science



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# Global Government Space Programs



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- Global government space programs hit record \$62B in 2008
  - 40 countries committed to space programs
  - India and China are new drivers
  - \$32B spent by civil agencies in 2008
  - \$30B spent on defense space programs
    - 95% by U.S.
  - Expect \$70B by 2012 (4.5% CAGR)

# Satellites driving growth

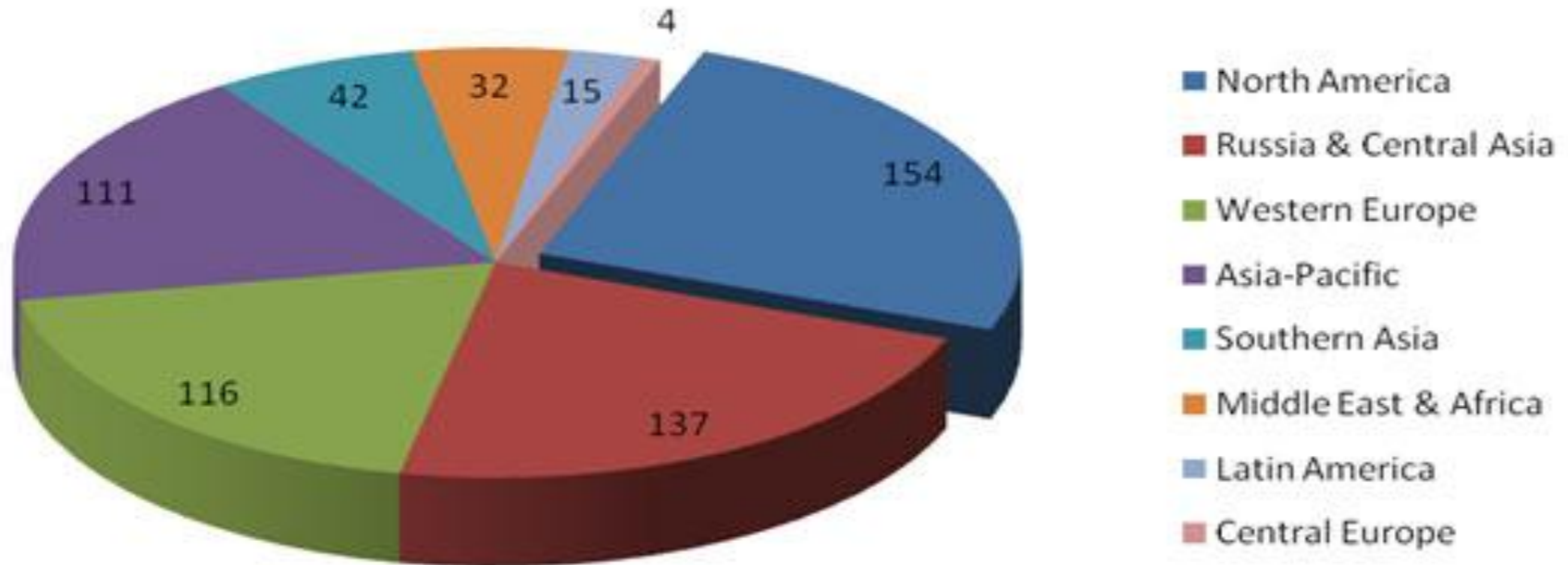


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- Space programs fueling demand for satellites
  - Voice, video & data
  - Google Earth, satellite radio, GPS, tourism, public safety, farming & construction
  - 38% increase in satellite launches in next decade
  - Expect 611 satellite launches 2008 - 2017

# Satellites driving growth

Projected Satellite Launches (2008-2017)



# Satellites driving growth



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- Manned Spaceflight largest global space budget item
  - \$11.6B in 2007 (up 8% from 2006)

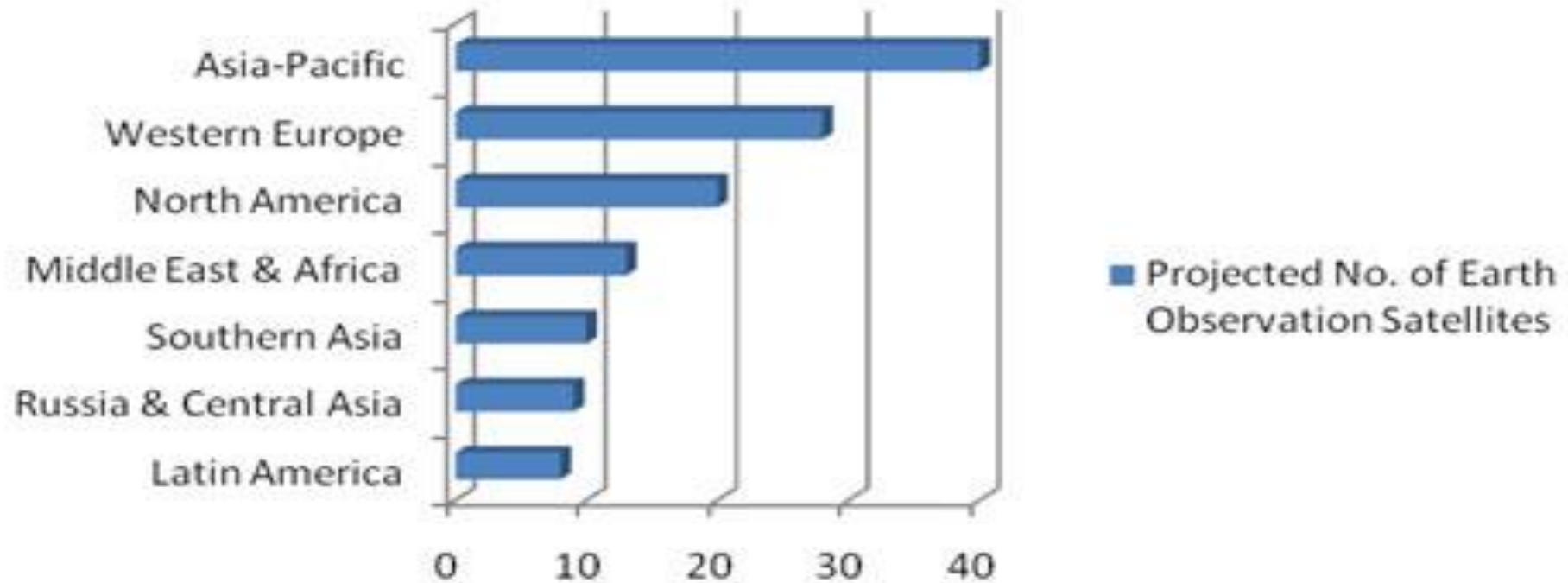


- Earth Observation
  - 1 global satellite application
  - \$6.7B in 2008



# Satellites driving growth

**Projected No. of Earth Observation Satellites  
(2008-2017)**



# Satellites driving growth



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- Satcom growing steadily
  - \$6.6B in 2008
  - 128 planned launches over next 10 yrs
- Satnav fastest growing
  - 21%/year \$3B by 2010
  - 144 planned launches over next 10 yrs
  - Boosted by Europe, China, India, Japan & Russia



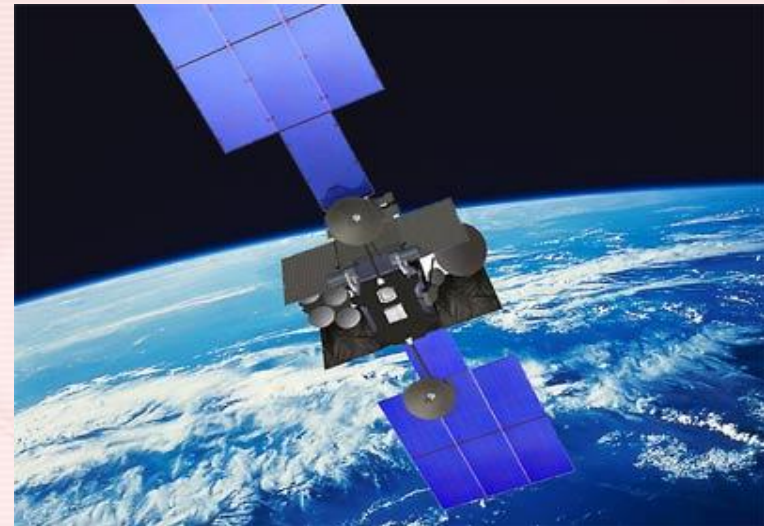
- 63% of global launches for defense
  - US accounts for 80%
  - Essential element of the Grid
- Civil programs support industry competitiveness & serve public needs
  - Digital TV, broadband, telemedicine & tele-education

# Satnav



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- Fastest growing space application
  - \$2.6B in 2008
  - GPS is the only fully operational system
  - US & Europe provide 70% of funding
  - Russia & Japan failed



# Blue Ribbon Studies



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- 2001 Commission to Assess U.S. National Security Space Management and Organization
- 2008 Allard Commission
- 2009 Committee for U.S. Space Leadership



# Blue Ribbon Studies



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- 2009 Committee for U.S. Space Leadership - Findings
  - US space sectors in worse shape than 10 yrs ago
  - Erosion of US space capabilities
  - Systems engineering problems
  - Lack of vision & leadership
  - Stovepipe issues



# Blue Ribbon Studies



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- 2009 Committee for U.S. Space Leadership – 6 Recommendations
  1. Establish White House focal point
  2. Assess & mitigate gaps
  3. Create Presidential Space Advisory Board
  4. Revise national space policy
  5. Devise a strategy by end of 2009
  6. Assign priority & link to broader priorities

# Strengthen the enterprise



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1. Science given opportunity to thrive
2. Role of private sector and non-profits
3. Education strengthened
4. Strategic long-term national objectives
- 5. Communicate value of science**
- 6. Application toward public policy**

# What can we do?



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- Aerospace States Association (ASA)
- Indiana Aerospace & Space Science Advisory Committee
- DAS cluster integration
- Breed new leaders to communicate & drive in Indiana & DC



# What can we do?

“I have come across several types of associations in America of which, I confess, I had not previously the slightest conception, and I have often admired the extreme skill they show in proposing a common object for the exertions of very many in inducing them voluntarily to pursue it.”

Alexis De Tocqueville (1805–1859)

Democracy in America [1835–1840]

# What can we do?



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