

INTERNATIONAL SPACE BROKERS

Bengaluru Space Expo 2010
27th August

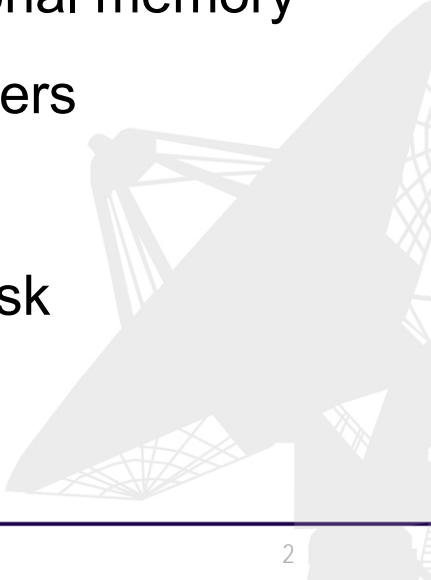
AON RISK SERVICES

ISB

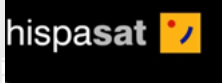
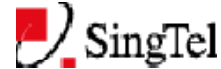
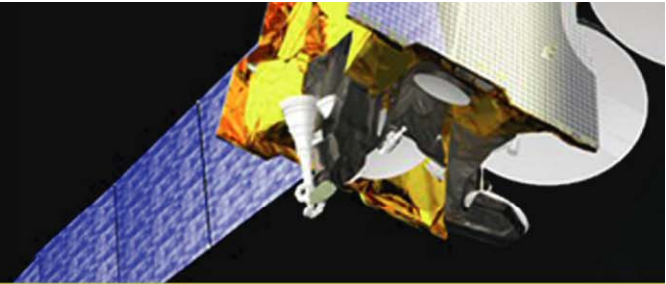


ISB Overview

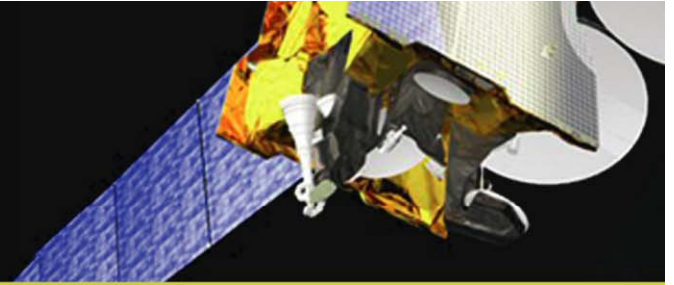


- Part of Aon – the world’s largest global insurance broker
 - Formed in 1991 with offices in all major insurance centres; Washington, DC; London; Paris
 - Strategic satellite offices in New York; Madrid; Brisbane
 - Leading market share of 38% (+/-)
 - Low employee turnover – consistency and institutional memory
 - Experienced “team” structure to benefit our customers
 - Quality and depth of in-house technical expertise
 - Insurance marketing approach customised to the risk
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ISB Clients



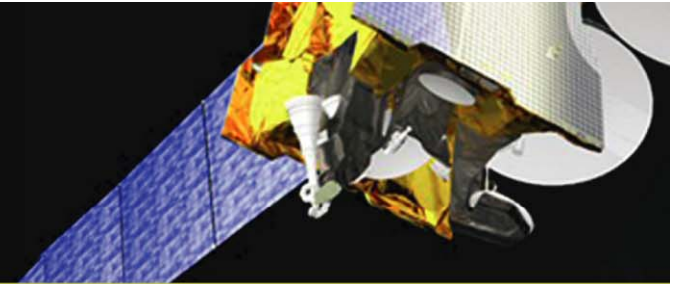
Space Applications



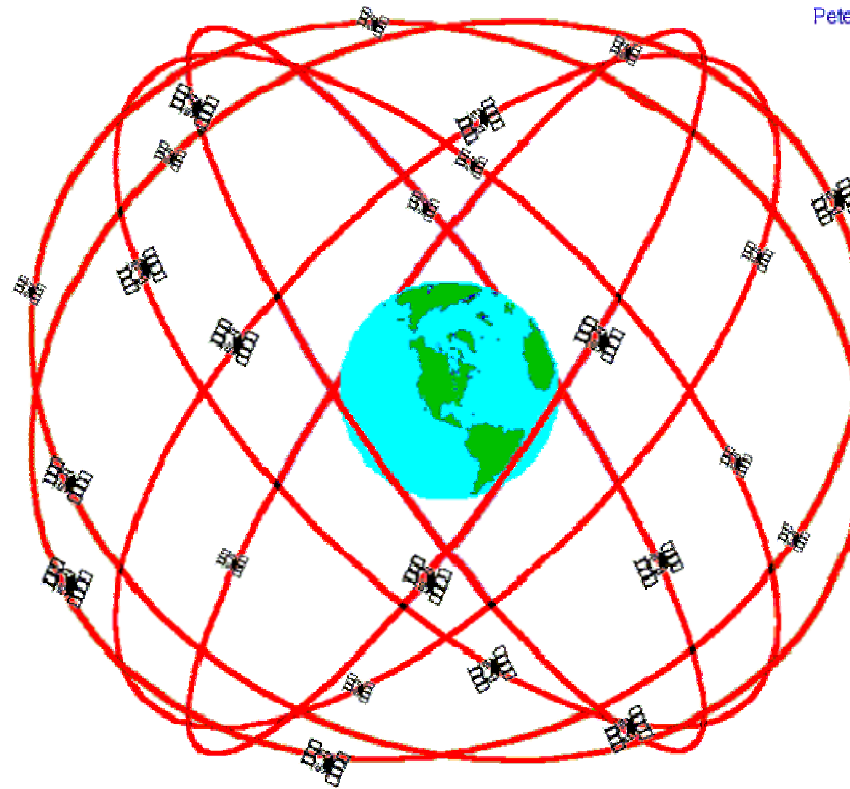
- Space is now an integral and far reaching part of everyday life for most people on the planet providing infrastructure for:
 - Television
 - Communications
 - Navigation
 - Disaster Monitoring
 - Meteorology / Climatology
 - Planetary Science / Astronomy
 - Civil / Military
- Within India the industry is thriving, contributing around Rs. 10 billion per annum to the Indian economy alone



Space Applications: Navigation



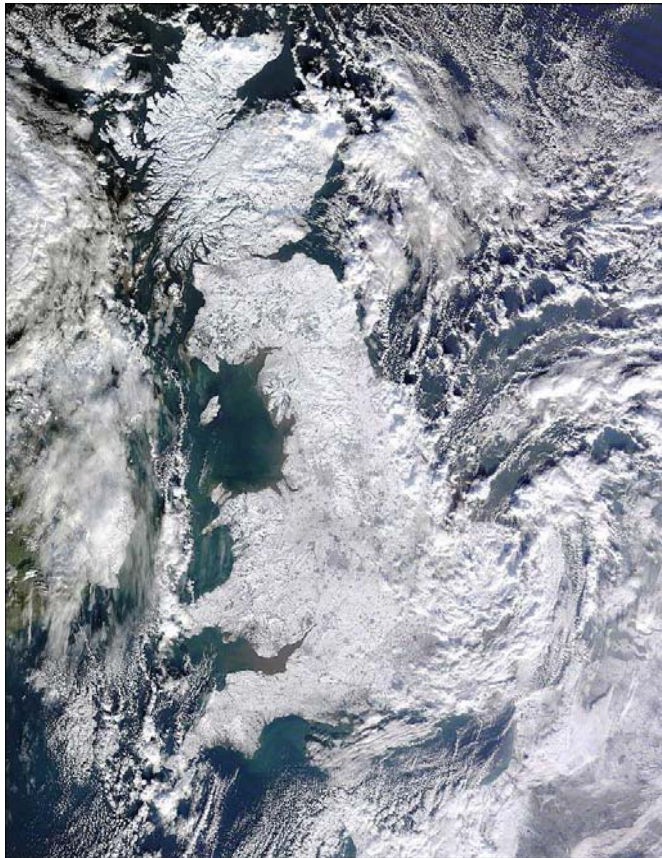
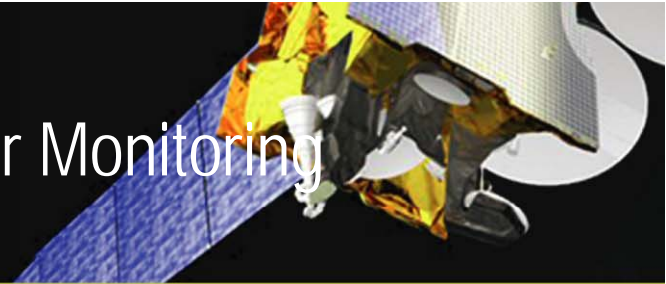
Peter H. Dana 9/22/98



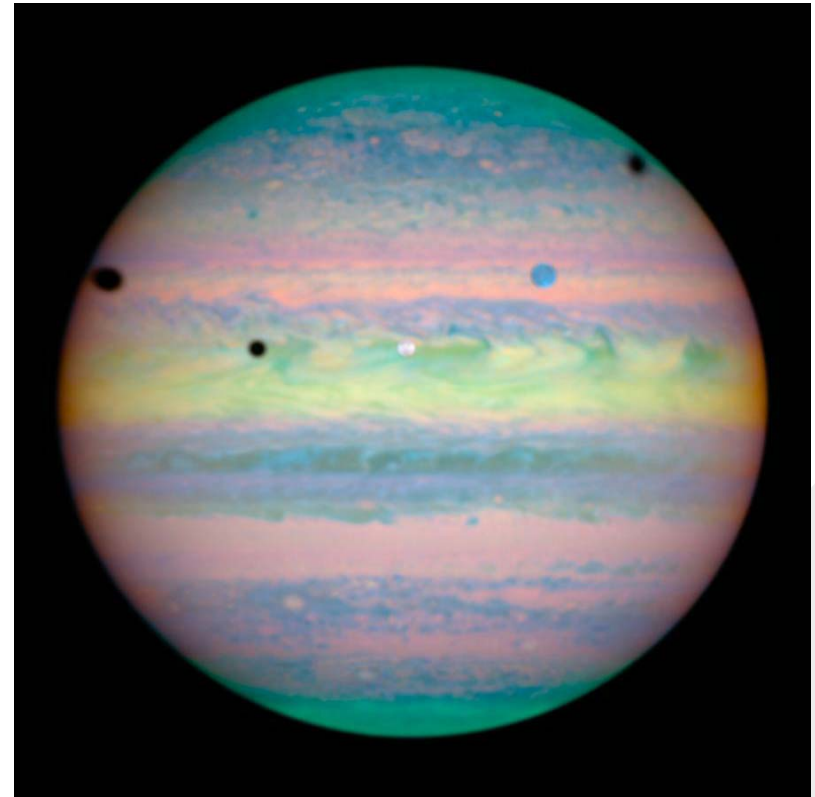
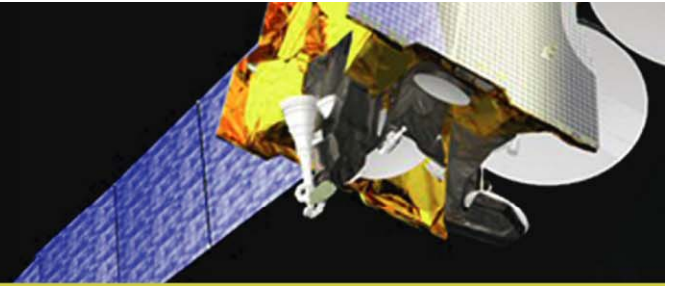
GPS Nominal Constellation
24 Satellites in 6 Orbital Planes
4 Satellites in each Plane
20,200 km Altitudes, 55 Degree Inclination



Space Applications: Meteorology/Disaster Monitoring



Space Applications: Astronomy



Space Applications: Space Tourism

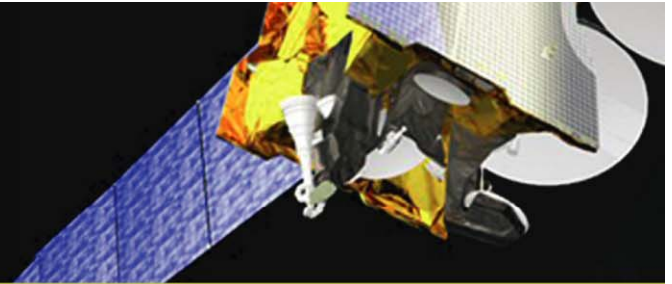
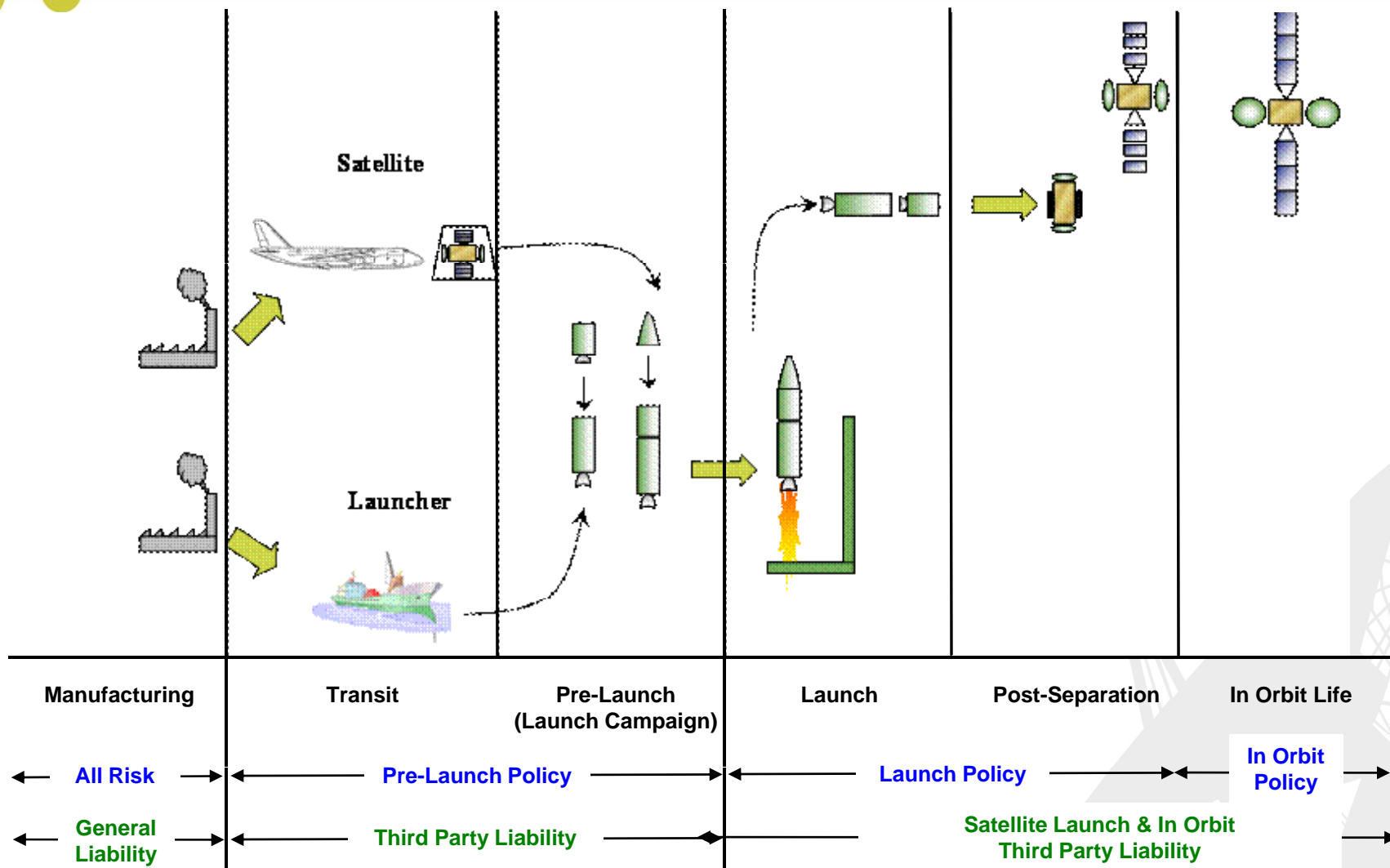
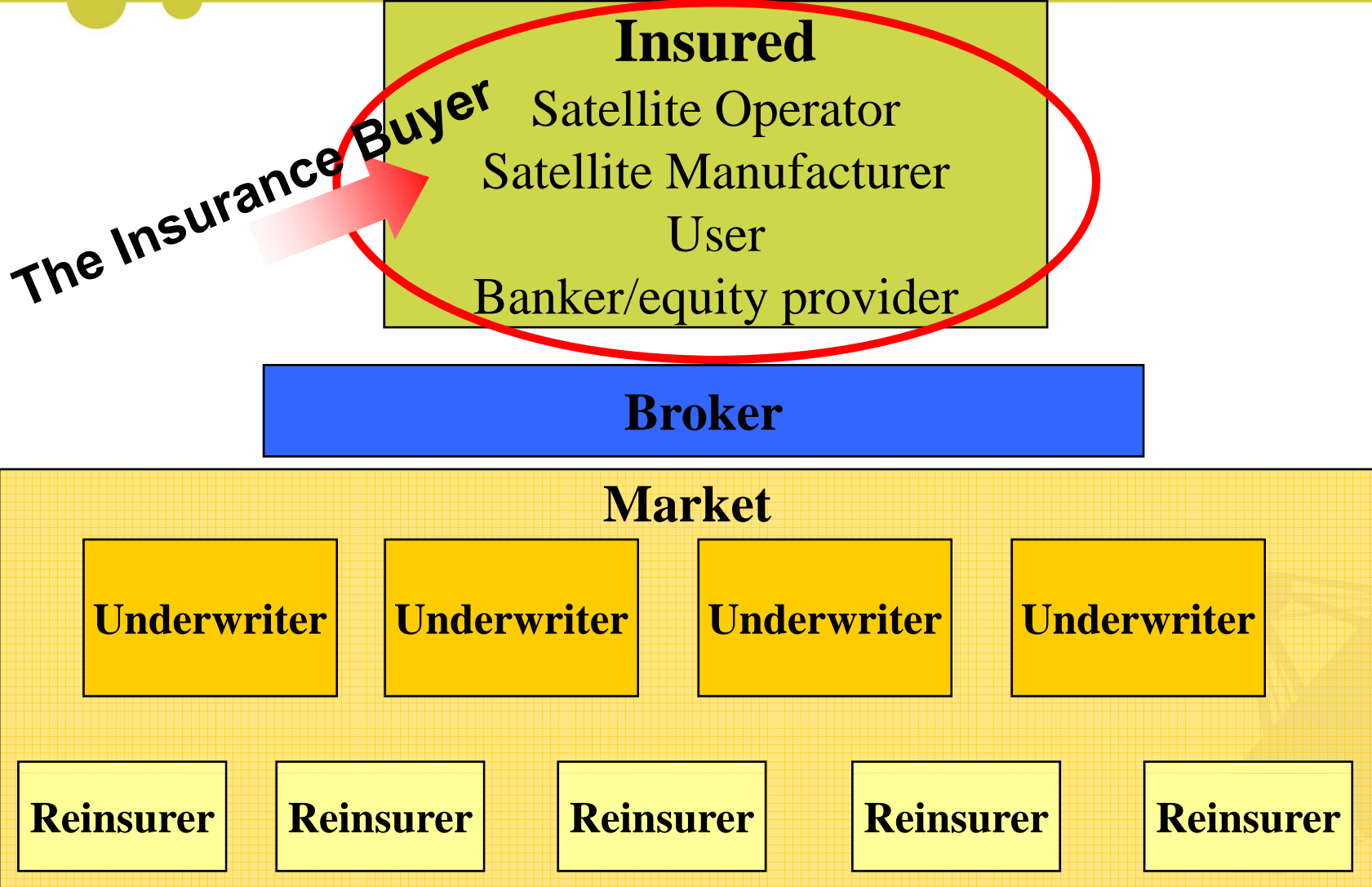
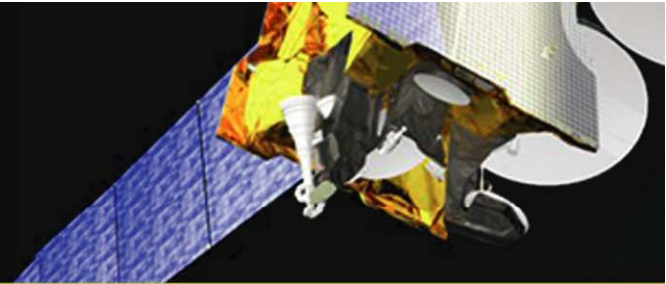


PHOTO COURTESY OF SCALED COMPOSITES, LLC

Types of Insurance Coverage



Space Insurance Players

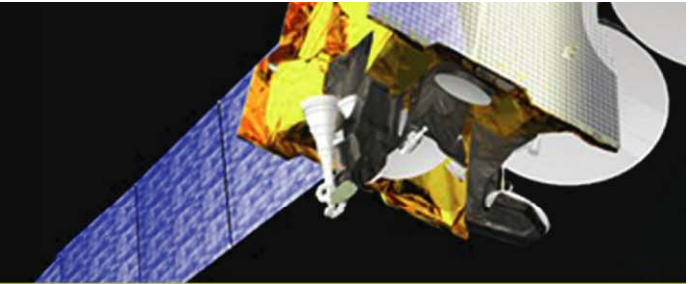


Space Insurance Market

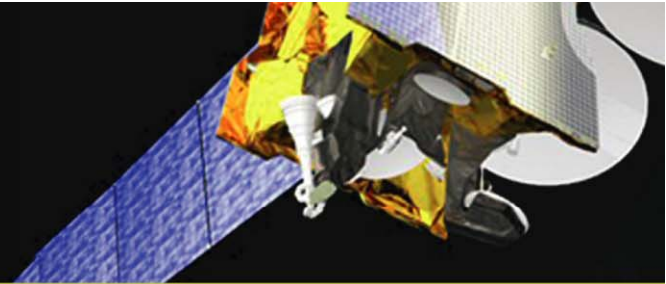
- Current market capacity for launch and early orbit operations is approximately USD 588,500,000 actual and USD 785,500,000 theoretical
- The space insurance market remains volatile, driven and directed by few, but severe losses
- Current Status: Declining rates for Launch & In-orbit

Facts

- Typically insure 25 (circa) launches each year (commercial)
- In-orbit insured satellite fleet is currently an estimated total insured value of \$17.5 billion

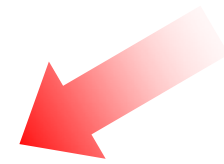


Space Insurance Market Cycle

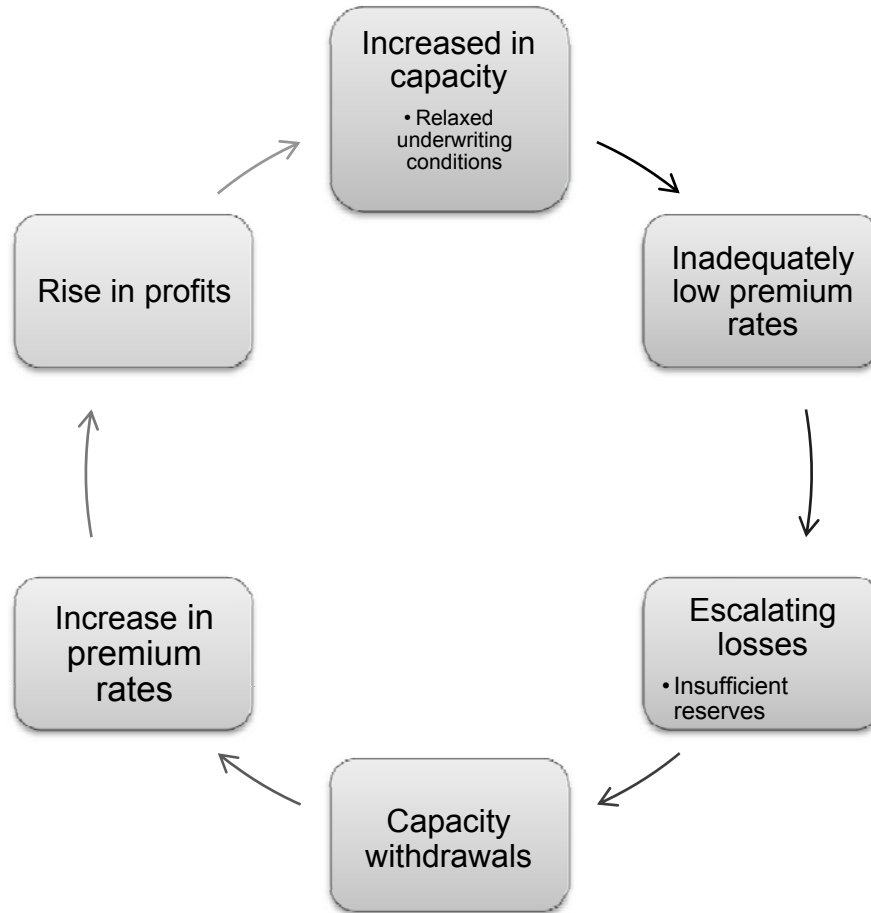


Hard Market

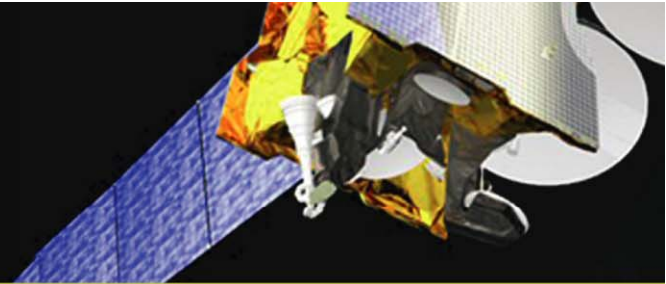
Current State of the Market



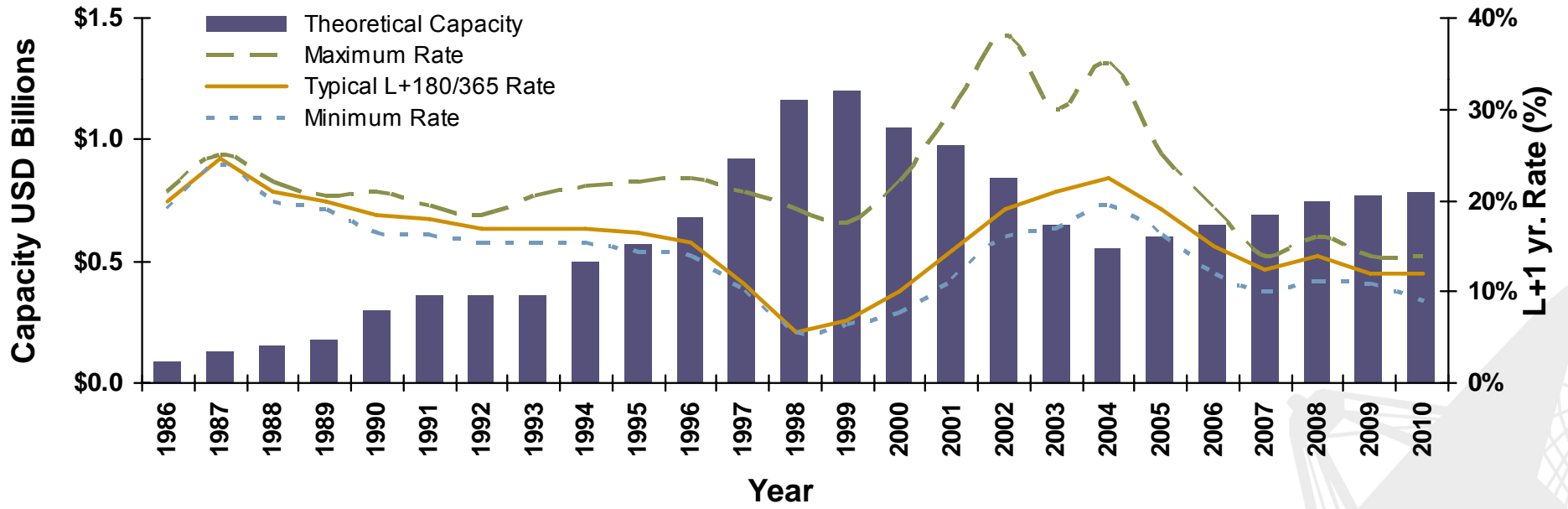
Soft Market



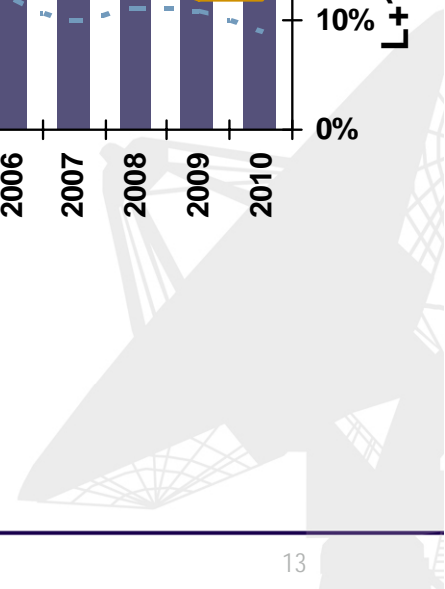
Insurance Market Performance



Launch Capacity and Rate Trends



As of August 2010



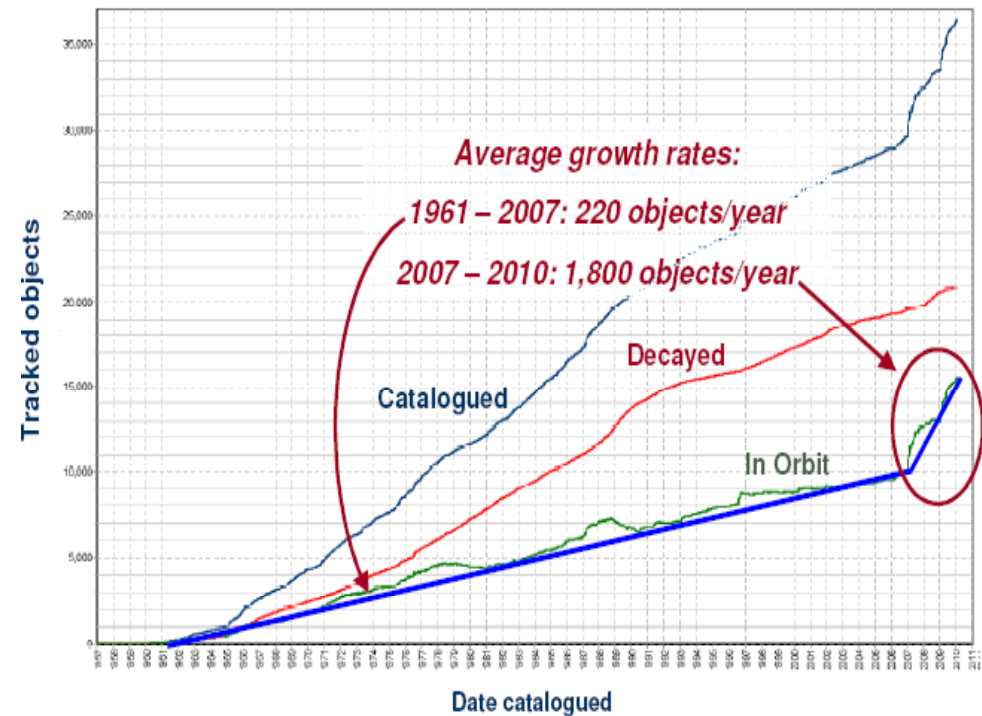
A Topical Risk Management Issue: Space Debris



- No definition of space debris in International Space Law
- Space debris includes:
 - Objects or fragments of objects both in-orbit and re-entering to earth
 - Debris from launchers and stages which either explode, do not reach orbit or re-enter to earth
 - Debris from satellites that return through air-space to earth
- Identification of space debris is difficult but possible
 - in-orbit detection threshold is currently 10 cm
- Third party liability claim can be successfully filed if identification is possible
 - In case of in-orbit collision a third-party is entitled to file a claim against any or all of the responsible launching States

Space Debris


- Risk of collision is growing
 - Especially in LEO (most EO spacecraft)
 - Kessler syndrome effect
- Satellite Operators need to implement collision avoidance measures
 - In-orbit Liability damages to Third Parties due to non-standard conduct or care
- Satellite Operators need to procure more space liability insurance



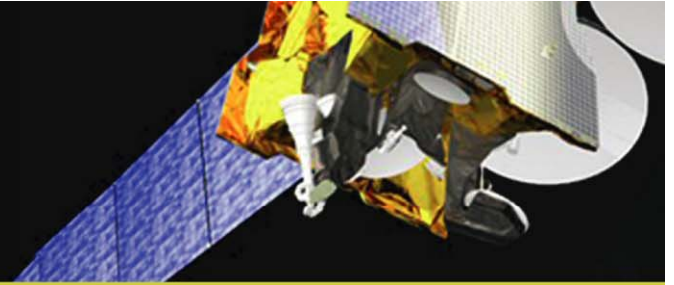
Source: XL Aerospace, WSRF 2010

Risk Management for Emerging Markets



- Balance Sheet Protection
 - R&D
 - Business Plan Verification
 - Contract Risk Mitigation
 - Examine Financial Covenants in case of delay
 - Possible funding options - PE, Debt, Export Credit, Bonds, IPO
what is best for the project?
 - Funding option elements - Business Plan, Cash Flow, ROI -
ROA models, Security
- 

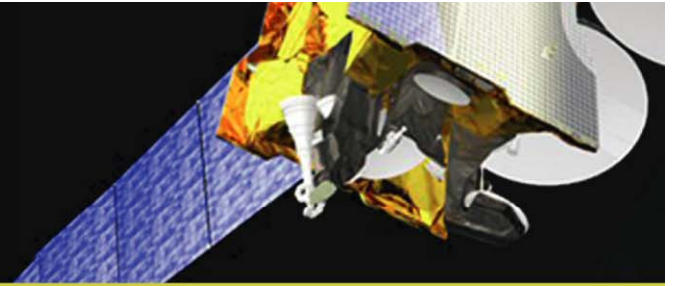
The Future



- Over the next 10 years (2009-2018) the total launch market is expected to be divided 65% government/ 35% commercial
- Among the government programmes the majority involve civilian satellites
- Government business therefore remains a key market for satellite manufacturers and launch service providers, and Antrix / ISRO is certainly one of the most active in this field

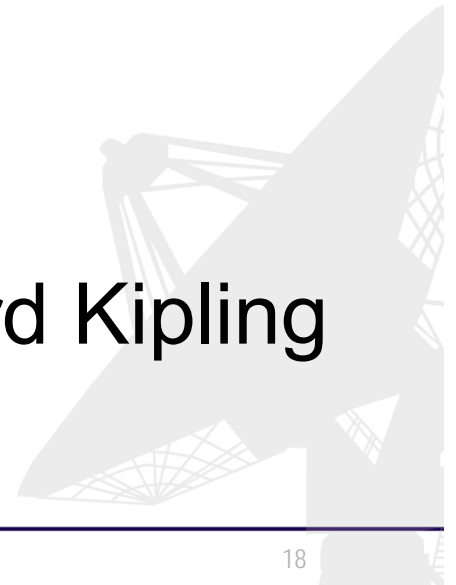


In Conclusion



*“We have forty million reasons for failure,
but not a single excuse”*

Rudyard Kipling





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