



SPACE COOPERATION FOR EUROPE'S GLOBAL LEADERSHIP

What role for Europe in the global exploration strategy?

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What role for Europe in the Global Exploration Strategy?

- Europe and the G2
- Smart Power through Space
- Soft Power through Space Exploration
- A European Space Strategy for Global Leadership
- Geostrategic Mix

Annexes

- Budget
- ISS

Europe and the G2

- Europe is currently the biggest economy in the World
- The US remains the only global military power
- Europe and the US are struggling economically
 - Budget deficits, high unemployment, poverty level reaching 14% of the population
- China is rising:
 - Budget and trade surplus
 - Cash and limited debt
 - Will become the world largest economy in the next decade
 - Will want to match US hard power (Grand Harmony)

Europe and the G2

- If the current trends hold, the world will be controlled by the G2:
 - bilateral relationship between the US and China
 - The world is already shifting from Transatlantic centric to Transpacific centric
- Europe should try to make it a G3
 - Many Geostrategic options (through the US, through Russia, through the 3rd dimension= space)

Smart Power through Space

- In 2008 CSIS delivered a report on “Smart Power”
 - Smart Power is an subtle mix of Hard and Soft Power
 - Smart Power is now being used by The Secretary of State H. Clinton
- Part of the study was funded by the Secure World Foundation : Smart Power Through Space
 - csis.org/.../smart-power-through-space
 - Cooperation Centric
 - 北京宣言 Declaration of Beijing (Cooperative Lunar Exploration)
- Space Power is Smart Power

Smart Power through Space

- Space Power is in the XXIth century what Sea Power (Adm. Mahan) was in the XVIIIth century, extended to the third dimension and to the digital world (Cyberspace)
- Space Power is Hard Power:
 - Rumsfeld in 2000, followed by Alliot-Marie in 2005: “Space is a vital asset. Space is as strategic now as the nuclear deterrence was during the cold war”
- Space Power is Soft Power
 - More difficult without the Hard Power component (synergy)
 - But too much Hard Power dwarfs Soft Power (ITAR, ...)

Soft Power Through Space Exploration

- Europe is not ready for Hard Power
- The hard power side of Space will remain the responsibility of a few member states for the foreseeable future
- Europe should and can focus on Soft Power through Space (Share responsibility / Lisbon treaty)
 - To unite
 - Within continental Europe
 - To ignite
 - Sociocultural aspect: A better future instead of “no future”
 - Economic growth: through innovative technology development
 - To invite
 - G2 and others in line with Europe foreign policy goals (Global Leadership?)

Soft Power Through Space Exploration

- As described above, Space is so strategic that regional powers will seek to
 - maximize their dissymmetric advantage
 - minimize their dissymmetric vulnerabilities
- Space exploration will be driven by competition
- Space exploration can include cooperation, or not
- China will land a crew on the Moon by itself with its technology base around 2025 to demonstrate the world:
 - They are second to the US only (G2)
 - Maybe to seize some land (the 3 flags theory, go west young man)

Soft Power Through Space Exploration

- Current European Space ambitions, vision, governance, policy, and budgets are not sufficient to compete with the G2, even on the soft power side
- Current European approach for Space Exploration is science driven and under scientists' control because they are the only ones who have been able to make a case
- In the current environment, cooperation with dependence is the only way forward for Europe (minority partner, Beagle type of cooperation ...)
- Incompatible with Global Leadership

A Space Strategy for Global Leadership

- Europe has to choose and fund an independent space exploration program
 - The US has chosen the robotic exploration of Mars
 - China has chosen the Human exploration of the Moon
- The only credible option for Europe is a robotic exploration of the Moon
 - A Human exploration of Mars would clearly be better !

	Moon	Mars
Human	CHINA	International?
Robotic	Europe	US

- ✓ All these programs are stepping stones, or building blocks, compatible with the Global Space Exploration Strategy (Land an International Crew on Mars)

A SPACE STRATEGY FOR GLOBAL LEADERSHIP

- Invite Partners to join the effort but in a way that cannot disrupt the program (Add-on capabilities, non critical path...)
- Promote standards and inter-operability
- Promote open-architecture systems
- Leverage the ISS to do so

GEOSTRATEGIC MIX – 1/4

- The US should remain the first priority:
 - The US is and will remain the leader (@ \$60Billions/year)
 - Common values
 - Operational gap but no real technology gap
 - Interdependence already in place at industrial level, under prime system integration level (A&D)
 - Complex relationship both strategic partners (NATO) and economic competitors (Aerospace)
 - Transatlantic cooperation in Space has decreased consistently despite many efforts during the last two administrations
 - Tanker, Liberty, Exo-Mars, DTLX...
 - Some fear an “ice age”, due to industrial base issues, economic patriotism, jobs, and US geostrategic shift towards the pacific
- Both side will have to keep faith in the transatlantic relationship
- Both will need to work quickly and hard to correct this negative trend

GEOSTRATEGIC MIX

- Two Leadership choices
 - Barack Obama: ... *"From investing in research on advances in spaceflight technology, to expanding our commitment to an education system that prepares our students for space and science achievements, I am committed to strengthening the base for America's next generation of spaceflight. No other country can match our capabilities in Earth observation from space. In robotic space exploration, too, nobody else comes close. And I intend to keep it that way."*
 - Mitt Romney: *"... A strong and successful NASA does not require more funding, it needs clearer priorities. I will ensure that NASA has practical and sustainable missions. There will be a balance of pragmatic and top-priority science with inspirational and groundbreaking exploration programs. Partnering Internationally. Part of leadership is also engaging and working with our allies and the international community. I will be clear about the nation's space objectives and will invite friends and allies to cooperate with America in achieving mutually beneficial goals."*

GEOSTRATEGIC MIX – 2/4

• CHINA

- China is determined to become a Space Power
- Its understanding of the multi-dimensions of Space surpasses the one in Europe
- Its financial and engineering might is impressive
- The inability for the US to work with China on Space matters creates an historic opportunity for Europe
- In a G3, beside the transatlantic relationship, Europe needs to build a strong relationship with China
- Europe will need to prevent technology transfers and remember that even space exploration is competition driven
- Robotic and Human lunar space exploration programs could however co-exist

GEOSTRATEGIC MIX – 3/4

- RUSSIA

- Could offer a continental path to Asia to make up for the lack of direct transpacific option
- Strategic cooperation possible (HSF with Soyuz from Kourou)

- JAPAN

- Needs to position itself with respect to China and the US
- Technological Strength and Efficiency
- Partnership with the US always comes first
- Europe is far and not a priority

GEOSTRATEGIC MIX – 4/4

- The rest of the BRIC:

- India and Brazil are the only 2 BRIC nations without a Human space flight program

India:

- Despite a philosophical believe that Space is about cooperation, India will compete with its Eastern neighbor China
- Cooperation will be sought with others

- Brazil:

- Does not have a real Space Program
- Has always been a very pacific Country and some (R. Unger) have advised to develop strategic independence, including in the field of Space
- Cooperation will be sought, but in a way to develop national technological capabilities and independence

Summary

- Space is shared responsibility in Europe
 - Member States should focus on Hard Power through Space
 - while Europe should focus on Soft power through Space
- Space Exploration is the best way to apply Soft Power through Space
- A significant independent Space exploration program must be decided and funded (strategic advantage)
- Europe should invite other nations to join the endeavor in line with its foreign policy goals

ANNEXES

- Budget for Exploration
- ISS

A Space Strategy for Global Leadership

- What is the budget needed?
 - The US is spending about \$10billions/year on exploration
 - If we compare the cost of an Ariane 5-ME and a Delta 4 Heavy, we can assess a factor of 2 in efficiency
 - To be credible Europe should aim at spending 4 billion € /year in exploration within five years
 - To start the EC should have a budget line no less than 500 Million
- It is really cheap!

A Space Strategy for Global Leadership

- The ISS (I)?
 - The program was born in the cold war and adapted to the post cold war environment (non-proliferation)
 - It is unfit to the post-post cold war environment
 - INKSA waivers needed now and beyond 2015
 - China is not part of it
 - Its orbital position is not well suited to further exploration
 - It is not supported by the Science community
 - Some fear in the US that it is only justified to provide some activity to the new “commercial space”(see latest NAC report)
- Should Europe continue beyond 2017?

A Space Strategy for Global Leadership

- The ISS (II)?
 - At this point, given the need to launch an independent space exploration program, the decision has to be political
 - The ISS can however be useful as a “middleware”
 - Open architecture
 - Standards and interoperability
 - Europe through ESA could still leverage the ISS
 - To complement an EC led robotic lunar exploration
 - Launch with the operating budget beyond 2017 a European CCDev program much like in the US
 - Low-cost crew vehicle, to be launched on current European capabilities
 - 100% European built
 - Or compliant with foreign Policy Goals launch crews from French Guyana with Soyuz