



LONDON INSTITUTE OF SPACE
POLICY AND LAW

Joint ESPI-DGAP-FRS-IFRI-SWP-ISPL Policy Memorandum Europe's Reaction to the "Augustine Report"

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1. Introduction

The Summary Report of the Review of U.S. Human Space Flight Plans Committee, ("Augustine Report"), released in mid-September,¹ has received considerable attention in the space policy community and in public debate. Its findings directly impact U.S. partnership with Europe. Therefore, Europe must be prepared to respond to any possible consequences. This Joint Memorandum by European think tanks aims to analyse the context and content of the Augustine Report, evaluate the echo it received and sketch a suitable way forward for Europe in reaction to any implementation of the Report's findings.

2. The Augustine Report and its political context

In May 2009, the White House had charged a committee of high ranking experts, headed by former Lockheed Martin CEO Norman Augustine, to assess U.S. human spaceflight plans and to generate appropriate options. The so-called Augustine Report is a summary to be followed by the Committee's final report, which is not yet available.

The review is part of a broader political effort to evaluate the current situation of U.S. space plans, with other assessments going on in the field of security. This includes an interagency effort led by U. S. NSC to release a new Quadrennial Defense Review (QDR), a new Nuclear Posture Review and a new National Space Policy in 2010. The White House is also looking at a reform of the ITAR rules.

¹ Summary Report of the Review of U.S. Human Space Flight Plans Committee, September 2009
http://www.nasa.gov/pdf/384767main_SUMMARY%20REPORT%20-%20FINAL.pdf

In July 2009, the National Research Council had published a Report on “America’s Future in Space: Aligning the Civil Space Program with National Needs”,² (“NRC Report”), calling for the U.S. civil space program to serve national imperatives, such as ensuring national security, educating an engaged citizenry and a capable work force, as well as working internationally to build a safer, more sustainable world. Concrete goals for the national space programme were then deducted to include establishing, sustaining and enhancing strategic U.S. leadership in protection of the Earth, in science matters and globally.

3. Main Findings of the Augustine Report

The Augustine Report states that the selected space program must match the resources needed for its execution.³ The Report observes that space exploration is a global endeavour featuring the chance of international cooperation, and recognises the increasing role of the commercial space sector. It calls for providing industry with opportunities, hinting at potentially reduced costs, but also mentioning possible associated risks. Moreover, human safety is considered as an indispensable precondition for the conduct of space activities.

The Augustine Report says that planning spaceflight programmes should start with selecting overarching goals and destinations then be derived from those goals. This top-down approach resembles the NRC Report, and in line with the latter, the Augustine Report stresses that “spaceflight objectives should align with key national objectives”. In wider terms, exploration is seen as a chance to display space leadership while closely cooperating with international partners, with human expansion into the solar system as the ultimate goal.

The six main chapters of the Augustine Report deal with current programs, the capability for launch to low-Earth orbit and exploration beyond, future destinations for exploration, integrated program options, organizational and programmatic issues, the final chapter listing key findings. Since the contents have been discussed extensively in public, they will not be treated in detail here. Only the integrated program options and the key findings will be highlighted.

The integrated program options lay down five main alternatives for human spaceflight. These differ in their assumptions about the available budget, the International Space Station (ISS), the heavy launch vehicle and the way of transporting crew to low-Earth orbit.

Two of the options assume current budget conditions for the fiscal year 2010, dubbed the “constrained options.” The other three options presume a less constrained budget. They (and their sub-options) are grouped into “Moon first,” preserving the Moon as the first destination for human exploration beyond low-Earth orbit, and “Flexible Path” options, featuring inner solar system destinations like lunar orbits, Lagrange points, near-Earth objects and Mars orbits, possibly with Mars moon visits. The Report states that the “Moon first” and the “Flexible path” options are not mutually exclusive. It also points out that while Mars is the ultimate destination for human spaceflight, it is “not the best first destination”.

The final chapter is dedicated to key findings. Not giving explicit recommendations, it lists a series of interconnected issues. These include international partnerships, planning for the Shuttle, extending ISS lifetime, commercial crew launch and general options that summarise the five integrated program options.

² “America’s Future in Space. Aligning the Civil Space Program with National Needs”, National Research Council of the National Academies, The National Academies Press, Washington, DC, July 2009
http://www.nap.edu/catalog.php?record_id=12701#description

³ The first lines of the Augustine Report state “The U.S. human spaceflight program appears to be on an unsustainable trajectory. It is perpetuating the perilous practice of pursuing goals that do not match allocated resources.”

International partnerships in human space exploration are seen as beneficial to foreign relations and to the availability of resources, with a conceivable role for the U.S. to lead a corresponding international effort. According to the Report, the Shuttle budget should account for the fact that the current Shuttle manifest is likely to stretch into the fiscal year 2011. Beyond the funding issue, no extension of the Shuttle lifetime is envisaged per se. However, it is noted that extending the life of the Shuttle program is the only way to significantly close the looming gap in U.S. astronaut launch ability.

The Report states that an ISS lifetime extension would significantly enhance the return on investment by the U.S. and its international partners. The U.S. would risk its capacity to develop and lead future international partnerships in human spaceflight if ISS lifetime was not extended. Commercial services for crew delivery to low-Earth orbit are seen to potentially offer earlier capability and lower costs than government efforts. Accordingly, suitable competition should be opened to all U.S. aerospace companies, giving NASA the chance to focus on more complex endeavours like exploration beyond low-Earth orbit.

Referring to its five options for the spaceflight program, the Report puts forth that the current budget guideline does not allow human exploration beyond low-Earth orbit. "Meaningful human exploration" is considered possible with an additional funding of at least 3 billion U.S. dollars in total resources per year compared to fiscal year 2010 conditions. According to the Report, such additional funding would allow an exploration program following the "Moon first" or the "Flexible path" options, each one having the potential to "produce results in a reasonable timeframe".

4. Reactions to the Augustine Report

The Augustine Report has received considerable attention, both in the space policy community and in public debate. Most observers agree that the review effort was politically justified. They argue that many projects and plans stemming from the Bush administration are questioned in the public due to their origin, and that they are in need of a renewed backing based on neutral evidence, such as the work of an independent panel of experts, as performed by the Augustine Committee.

The Report brings the issue of human spaceflight back to the political agenda and discussion. Doing so, it recalls the necessity of continuous support and of supplying enough resources to follow assigned goals. This can have positive effects on the conduct of space activities in the broadest sense by strengthening the associated groundwork.

It has also been noted that the Committee did not just check whether current U.S. human spaceflight plans are effective in regard to the given goals. Instead, the Committee widened its mandate to check whether the existing goals as such are suitable. As mentioned before, this can be seen as sticking to a basic line that has also been sketched by the report of the National Research Council.

The Augustine Report has also met criticism. Some observers claim that the Augustine Report has done little more than state the obvious by laying down budget shortcomings that had been known before. More importantly, there are voices that the Committee offered various options, but failed to explain why the current Constellation program should be abandoned in the first place. Moreover, the notion of "flexible path" is perceived as relatively fuzzy, which might introduce an undue delay of concrete decisions that are needed to provide guidance on mid-term issues.

At a 15 September hearing of the U.S. House of Representatives Committee on Science and Technology, Democratic Chairwoman Gabrielle Giffords said she had expected a thorough

review of the Constellation program. Instead, she stated, she was presented with “alternative exploration options that are little more than cartoons”.⁴ Other Representatives recalled the maturity of the Constellation program and the support it has received from the Congress so far. In their view, to walk away from Constellation would require a compelling reason or motivation that cannot be found in the Augustine Report.

Other critics object to the suggested involvement of the commercial space sector.⁵ They question whether industry will really be cheaper (both in investment and lifecycle costs) for transportation of crews to low-Earth orbit and they hint to the fact that in case of failure, there will be no fall-back option. The doubts about saving potential primarily refer to legacy companies in view of their past performance.

It is worth noting that the 2004 Vision for Space Exploration and the following Constellation program had also received direct criticism due to the ambitious budget they required, the technical difficulties already faced and the quick termination of the IIS they implied. This latter point was particularly sore for the ISS partners of NASA.

In Europe, the Augustine Report’s emphasis on international partnerships has received special attention. Cooperation with the U.S. can provide attractive opportunities for the European space community, offering prestige, know-how and political leverage. Some Europeans also see business opportunities in the domain of crew transportation to low-Earth orbit. It has to be said, though, that it is not very likely that U.S. taxpayers’ money will be used to sustain the European space industry.

5. A Way Forward for Europe

The forthcoming Prague Conference on space exploration provides an opportunity for open discussion of potential impact of any implementation of the Augustine Report. However, a full analysis can only be made after the publication of the Final Report and the decision of the U.S. Administration on its findings. It is probable that the final report of the Augustine commission will follow the thrust of the present Augustine Report. At the heart of this Report is a call for additional U.S. annual expenditure of 3 billion U.S. dollars. It also advocates the extension of the ISS life-spans. Such extension will increase European return on investment in the ISS. In the view of Augustine on retirement of the Shuttle in 2011, the U.S. commitment to transport European astronauts and payloads to the ISS could be met by a combination of Soyuz missions, European and Japanese cargo transports and U.S. start-ups like Space-X. Accordingly the U.S. needs to open its market, at least to a limited extent.

Whether the Final Report’s findings are implemented is an open political question. Abandonment of early return to the Moon may be unpopular, the U.S. public having taken on trust the previous Administration’s rhetoric. One can expect resistance to the cancellation of the current Constellation Programme from congressmen and senators whose districts benefit from it.

A European response to the Augustine Report may, therefore, be premature. However, an analysis of the likely impact of the Final Report on European space sector and policies is worthwhile. Beyond that, Europe needs to adapt its space policy review to accommodate the Final Report’s findings and any decision by the U.S. Administration. Generally, Europe should follow its own way in a proactive manner and should not just react to others. Just as the U.S. review aims to advance U.S. interests, Europe must pursue and advance its

⁴ Opening Statement by Chairwoman Gabrielle Giffords at the Hearing of the Committee on Science and Technology of the U.S. House of Representatives, 15 September 2009
<http://science.house.gov/publications/OpeningStatement.aspx?OSID=2758>

⁵ In evaluating whether an arrangement is “commercial,” a distinction needs to be made between fixed price contracts and acquisitions made under “cost plus” contracts.

independent interests. Nevertheless, it will do so in the light of U.S. policy impact on those interests, since most space matters cannot be handled by single actors in an isolated way. This is especially true for the ISS, which has been planned from the outset as a multi-national endeavour and which calls for a coordinated approach. In this regard, Europe and its Member States have to find a common basis of support for the ISS.

The discussions on the Augustine Report also touch upon the basic question whether Europe wants to conduct human spaceflight in the first place. This issue has been debated numerous times, with supporting arguments like prestige, the ability to handle complex situations, or the preparation of human expansion into the solar system. Beyond that, there are trans-utilitarian aspects like human curiosity or the symbolic conquest of new spheres.

On the other hand, human space flight requires extensive resources of all kinds and demands highest levels of reliability for safety reasons. The financial demands are not only enormous and long-term, but also occur in a quantised manner with no possibilities for in-between options. Given the moderate funding of European space endeavours, a decision for human spaceflight might endanger other space projects financially.

Moreover, the enthusiasm for human space may be less strong in Europe than in other countries. If human exploration is a staple of the American culture (the "pioneer spirit"), Europeans may be more fascinated by scientific discoveries (obtained through robotic and astronomy programs), echoing the works of great European astronomers throughout the centuries. However, if the U.S. goes back to the Moon and other space actors pursue ambitious human space programs in the coming years, can Europe with its economic and political weight afford not to be part of the game?

Either way it is unlikely that Europe can afford human spaceflight on its own. It needs to explore partnership options, should it be argued that human spaceflight is desirable. The need for partnerships is reinforced by the fact that the world currently faces the worst economic crisis since the Great Crash of 1929. Its full impact will not hit public budgets until 2010. The consequences for state finances will be felt over several years in the form of immense budget deficits and cuts. In Europe the Maastricht Treaty limits annual budget deficits to three percent of GDP. Pressure is looming for large and highly-integrated projects like GALILEO and GMES.

A way ahead for the exploration of space could be offered by combining complementary programmes of individual states. Where different states have different technological profiles it makes sense to combine complementary strengths. Much can be learned from the Franco-German cooperation in their SAR-LUPE and HELIOS II Earth observation projects. If cooperation between specific partners works well, system integration can be enhanced in following satellite and program generations. In any case cooperation schemes in the future will need to feature fair financial burden sharing.

In the long run, this combination of complementary programs is not limited to Europe, but can also be expanded to include transatlantic partnerships. Space Situational Awareness (SSA) could be a first and affordable prototype in this field. A coordinated combined concept for space exploration and optional human spaceflight could follow when resources are available again. Such concepts will have to account for lessons learnt from cooperation schemes in the past, e.g. for the ISS.

The Augustine Report is a critical element in restructuring human spaceflight in the U.S. More outreach to international partners is a central element of this initiative. Europe should consider this offer seriously. The Augustine Report could be a catalyst to stimulate the discussion on European goals for human and robotic spaceflight and on the potential for more transatlantic complementarity in these fields.



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