

# **Workshop of the Working Group on the Long-term Sustainability of Outer Space Activities**

## **Panel 3 on Scientific and technical research**

**Abstract of Ernst K. Pfeiffer, Managing Director of HPS GmbH, Germany**

### **“Measures against increase of Space Debris”**

1. Measures against increase of Space Debris are overdue. It must be a global effort with a joint goal. All orbits are to be treated, whereas low-Earth orbit (LEO) is the most urgent one.
2. Regulations to avoid space debris must be introduced - in a step-by-step approach starting now - on national level, as well as on international association level such as at European Commission (EC), European Space Agency (ESA), United Nations, Federal Communications Commission (FCC):
  - Simple rules: limitation of out-of-order-satellites staying in LEO-orbit to maximum 5 years.
  - Complex rules: introduction of maximum collision probability values.
3. Competitiveness of industry between countries must stay fair: introduction of similar rules in each country in parallel.
4. Technology to a) prevent b) reduce c) monitor space debris must be developed on equipment- and on system-level and, where already now available, must be implemented.
5. Information systems to foster satellite collision avoidance must be made compatible to each other for a global collaboration and effort.
6. Other upcoming sustainability topics are:
  - quiet and dark sky and
  - full demisability of satellites during re-entry.
7. Sustainability during spacecraft production is also a topic, but related minor in comparison to the impact of the other topics.