6th UNISEC-Global Meeting
Group Discussion Activity

Group 1

Commercialisation of ISS:
How to Open Up the ISS Utilisation to Commercial Sectors
The budget of the ISS operation after 2025 is still unclear among the participating governments.

NASA and other national space agencies are considering re-directing their budgets to deep space exploration, such as cis-lunar habitation plan.

In amidst of this transition, there is an urgent need for further commercialization of the ISS in order to keep it sustainable.

**Question**

*What uses or services can contribute to further commercialisation of the ISS??*

- You can come up with any ideas utilizing external and/or internal platforms on the ISS, or even new facilities (but within reasonable limits)
- Ideas shall be summarized with a brief, tentative business plan(s).
• ISS has internal & external platforms, robotics arms, and smallsat deployment facilities
ISS – Key Features & Applications

- **Microgravity**
  - No convection
  - No sedimentation
  - Less buoyancy
  - Radiation

- **Space Environment Exposure**
  - Cells grow differently in microgravity
  - Cell and tissue engineering to find new ways to fight diseases
  - New food processing methods
  - Adv. cell tissues to repair and replenish damaged skin
  - Different protein crystallisation, molecule and enzyme development
  - Adv. antibiotics and other drugs
  - Quickly test new technologies
  - Gain “flight-proven” status to raise TRL
  - Improved manufacturing
  - Creation of new materials, alloys
  - 3D print in microgravity – Made In Space
  - Provision of additional resources to support Earth-observation and relay-telecommunication

- **Science Experiment Facilities**
  - In-orbit demonstration

- **Regular Re-fueling Mission**
  - Advanced materials

- **Earth Observation**
  - Satellite operation support

- **Telecommunication**
  - Biology / Bio-tech

- **Food & Cosmetics**
  - Pharmaceuticals
Space BD – Cubesat and microsat deployment service from the ISS (J-SSOD)

- Regular deployment opportunity – 4 re-fueling missions per year to the ISS
- No need to wait for a piggy-back launch opportunity
- Flexible deployment schedule – 4 deployment opportunities per year so easy to re-schedule
- Reduced vibration during launch – Launched in soft cushions with ISS supplies
Space Applications Services – “ICECUBES” Experimentation Platform

• Provides a platform where a system can plug on to
• Fast, simple, low cost & direct access for research and technology in LEO
• The platform provides standard interface - power, communication, USB and Ethernet ports
• Unique real-time interaction capability with space experiment from own premises
Examples of Commercial Applications

Space for Entertainment, Tourism and Virtual Reality

- Space tourism – Bigelow Aerospace
  - Additional modules on ISS to operate as hotels
- ALE Co., Ltd – Artificial shooting star
  - Shoot metal pellets from smallsats/ISS, which then burns up in atmosphere to create artificial shooting stars that can be viewed from the Earth
- Warp Space – Gaming and VR experience in space
  - Smallsats for gaming where players can send signals to “power up” and “collect items”
  - Cubesat with a camera to provide customers a VR experience of flying through space
Discussion Points & Schedule

- Brainstorm on commercialization ideas in smaller groups (30 – 45 mins)
- Come back together, round circle of ideas (15 mins)
- Concept establishment + benefit to the customer / value proposition (30 mins)
- Approach implementation / required facility (30 mins)
- Basic monetization scheme / business plan (30 mins)
- Preparation of pitch presentation (30 mins)