



## **SPACE SECURITY : PERCEIVED NEED, NEW TECHNOLOGICAL MENTALITY, TECHNICAL CHALANGES**



## SPACE SECURITY IS A MULTYDIMENSIONAL PROBLEM

- Mentality and political dimension
- Science and technological dimension
- Ecological dimension
- Economical dimension

Agreement we discuss today is a very important step forward to solve this problems



## MAKING SAME MISTAKES

- From the dawn of space exploration we consider Space like a cask without a bottom.
- First pollute - than cleaning. First create a problem than fight with it  
Forget about romantic. What is Earth orbit comes now.

We should change mentality





## NEW POLICY REQUIRE NEW TECHNOLOGICAL MENTALITY

“ the responsibility of States to take all appropriate measures and cooperate in good faith to prevent harmful interference in outer space activities”

- To think not only how to launch and keep space objects on orbit but how to utilize
- Create a kind of “recycling” technologies for launch vehicles, space objects, space debris

“4.1. The Subscribing States commit to establish and implement policies and procedures to minimize the possibility of accidents in space, collisions between space objects or any form of harmful interference with another States peaceful exploration, and use, of outer space.”

- Create a database of orbits of all on-orbit space objects.
- Create a monitoring system for outer space objects, approaching to near Earth orbits

We can use existing local ground station for this purpose and create a network



## NEW POLICY REQUIRES NEW TECHNICAL PARADIGM

- Each launch of the rocket today means additional space pollution with the third stages and raise the risk of on-orbit collisions
- Satellites , LVs should be developed in a new technical, “ self recycling” paradigm

“4.4. When executing manoeuvres of space objects, for example, to supply space stations, repair space objects, mitigate debris, or reposition space objects, the Subscribing States commit to take all reasonable measures to minimize the risks of collision.”

- To avoid on-orbit clashes satellites and other spacecrafts should be equipped with radar systems;
- To understand what is close proximity and enable satellites to perform proximity operations



TO INFORM, TO SERVE AND TO PROTECT

Sooner or later it will be necessary

- To develop space debris cleaning system .
- To create an international special fleet of 3 to 4 units on the high orbit with the functions :  
monitoring of Earth-orbit and closer outer space traffic and debris situation;  
transmission of this information to the Central Point of Contact
- To create a recycling center for example, on GEO
- To create an emergency system, including special Launch vehicle, servicing space craft

That can be done on international level with the joint effort of space community  
THAT SHOULD BE DONE FOR RESONABLE PRICE



## What Ukrainian space industry can deliver

- CICLON 4 as a special LV (design bureaux “Yuzhnoe”)







## WHAT CAN BE PROPOSED

- Space tug (“serviser”) which is under development and based on the proven technologies







**Briefing for:** “ The big picture: Space Security in Context” meeting  
hosted by the United nations Institute for Disarmament Research

**By:** Vadym Vasylyev, Head of supervisory board, JSC “ELMIZ”  
Kiev, Ukraine, [www.elmiz.com](http://www.elmiz.com)

**E-mail:** [vvv@itb.com.ua](mailto:vvv@itb.com.ua)

**Date :** 16 MAY 2013