Changing markets for Small Satellites: From Academia to Commerce:
since 2014 the majority of small satellites is commercial

Next technology driver:
Internet of Things (IoT) with expected 25 billion nodes by 2020 includes fraction not covered by fiber glass
→ Internet of Space (IoS) promoted by IEEE

A Big Bet on Small Satellites

If all goes as planned, 2017 will set a new record for commercial launches of tiny spacecraft called CubeSats, each only a liter in volume and weighing less than two kilograms. The diminutive satellites have been used for over a decade in academic and government missions, but now investors and entrepreneurs are betting on new markets in imaging and telecommunications.

Small satellites: Taking advantage of smartphones and other consumer technologies, tiny satellites are changing the space business
With progressing miniturisation software plays an increasing role to compensate related deficits, with effects on
- lifetime
- pointing accuracy

Expected perspectives
- towards decentralized distributed spacecraft systems
- from constellations (individually controlled from ground) to self-organizing formations in orbit

Small satellites offer
- faster innovation cycles due to shorter satellite realization period
- at the cost of one traditional satellite many small satellites can be provided
- use of high performance commercial components
Technology Innovations: Standards

Standardization of electrical IF: no Harness, Modular and Flexible Satellite System Design

Electrical IF Standards supported by UNISEC Europe

http://unisec-europe.eu/standards/bus/

Current Technology Achievements for Pico-Satellites