High Quality/Low Cost Missions
(Man Power)

- Use the “best” experees available
  » Well qualified, highly motivated, experienced & young engineers
  » Willing to work 24/7 to push the boundaries of technology
  » Keep the Eng. teams as small as possible to challenge everyone

- Collaborate closely with universities for R&D
  » Sponsor/guide/define students space projects
  » Involve them to contribute experimental payloads to a mission

- Keep >75% of a mission program under a “single roof”
  » Limit the number of sub-contractors as much as possible
  » Optimise the communication/interaction between the teams

4th UN/Japan Nano-Satellite Symposium 11th Oct 2012
**High Quality/Low Cost Missions**

**(space hardware)**

- **Select the “best” commercially available components**
  - Test critical components for radiation tolerance/hardness
  - Design sub-systems to be redundant and diverse where possible
  - Stock pile critical tested components, ensure a reliable supply chain
  - Protect digital electronics against SEL’s and SEU’s
  - Test sufficiently for the space & launch environment
    - Vacuum, thermal cycling, vibration, out-gassing, etc.
  - Aim to reduce mass, power, volume, but maintain the performance

- **Use critical subsystems with space heritage**
  - New technology/designs will fly as redundant/secondary payloads to obtain space heritage for follow-on missions
  - New technology/designs can also first fly as technology demonstrators or on educational missions (e.g. CubeSats)
High Quality/Low Cost Missions (systems engineering)

- Follow necessary QA processes at a sufficient level
  » Focus on the purpose why doing it, not on a “book of rules”
  » Document all the QA test results concisely

- Document tracking and revision management system
  » Use a low overhead, but sufficient system to maintain tracking of document updates on a commonly shared server
  » Ensure that software development is also properly managed by a tractable revision update system on a commonly shared server

- Optimise the overheads and management structures as much as possible