Interest for governments



- Innovation of highest priority
- Increasingly important to *prove* that the *current* regulations actually delivers
- Can we *tweak* the regulations so that the innovation rate *increses even more*?
- Todays seminar aims to discuss some *tools* for analyses and setting regulations (MEPS, labels), plus providing some examples on innovation.

Energimyndigheten

The power of political visions: *Express* the challenge

- "…of landing a man on the moon and returning him safely to earth"
- Was that really necessary… and wasn't it terrible expensive?

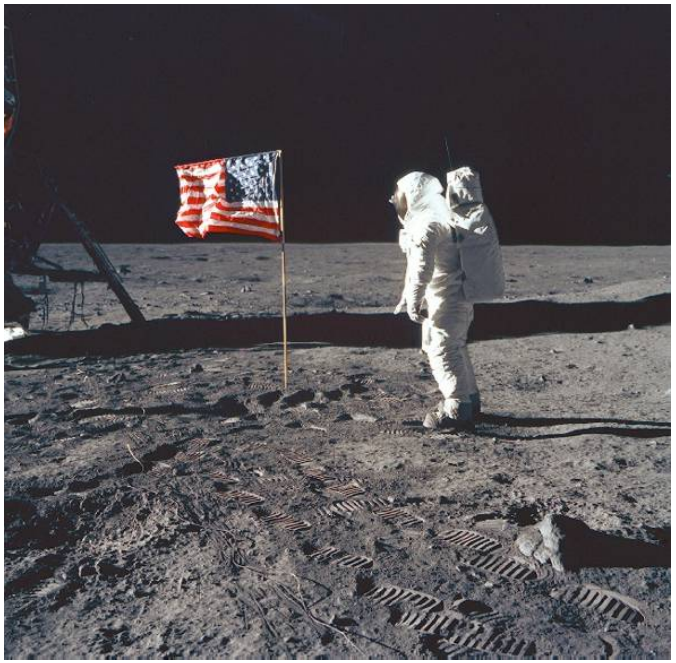


May 25, 1961

Energimyndigheten

… and then *do* it

- People involved:
  NASA: *36 000*
  Universities &
  Companies: *377 000*
- In 2005 $: *Total* cost ca 170 billion
- Initial cost underestimated by a factor of 3
- James Webb, NASA legend:
  above all, a matter of *management*



July 20, 1969
Apollo *11*

Was it worth it?

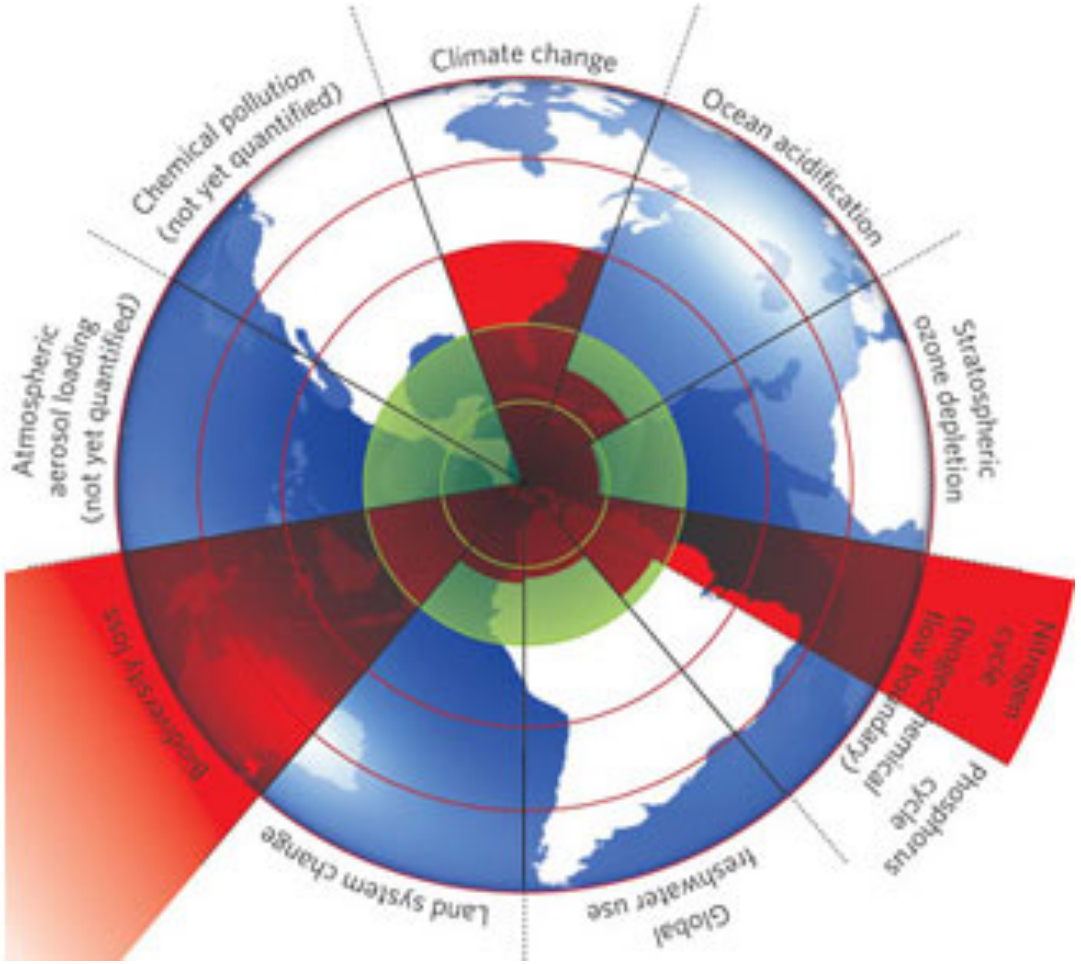
- Profound insight: planet Earth

- Technological impact:
  - Material science
  - Energy sources (fuel cells)
  - IC and computer technology
  - Etc etc…

- *"The $25 billion in 1958 dollars spent on civilian space R & D during the 1958-1969 period has returned $52 billion through 1971 -- The discounted rate of return for this investment will have been 33 percent."*



The challenge of our time: to stay within the *planet boundaries*



Rockström et al, http://www.nature.com/nature/journal/v461/n7263/full/461472a.html