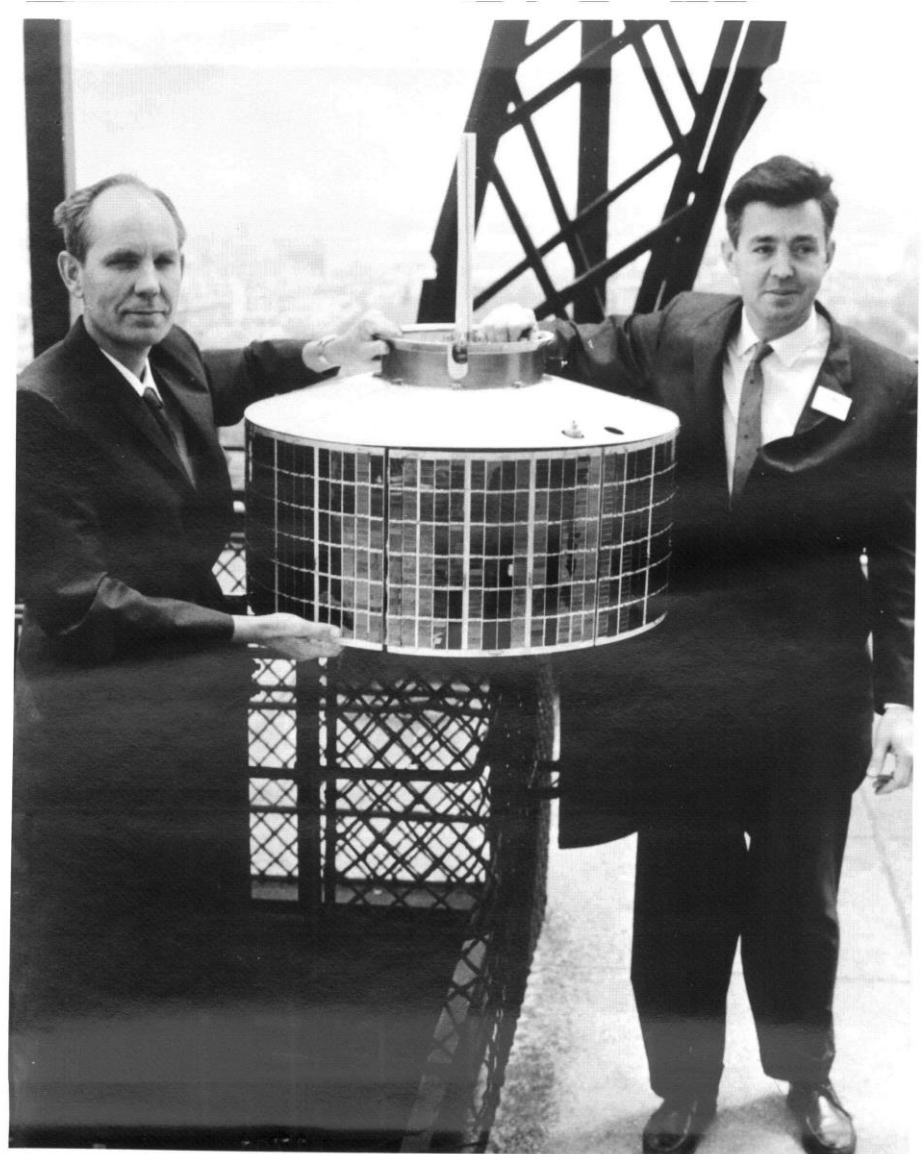


Brief History & Future Market Demands For Satellite Industry

How it all started over 50 years ago



Harold Rosen & Tom
Hedspeth take a
model of first GEO
satellite (Early Bird)
on top of Eiffel Tower
to convince
somebody to fund it!



This is what you needed to receive Early Bird



Figure 11.1 Andover, Maine (USA) Horn Antenna

Was this A Big Deal?

- Yes, indeed.
- While the ubiquity of Satellites was still largely academic due to large antennas needed, it enabled access to small and big countries with clear voice communications—for many for the first time.
- This gave birth to INTELSAT and the long but steady process of increasing capabilities began.

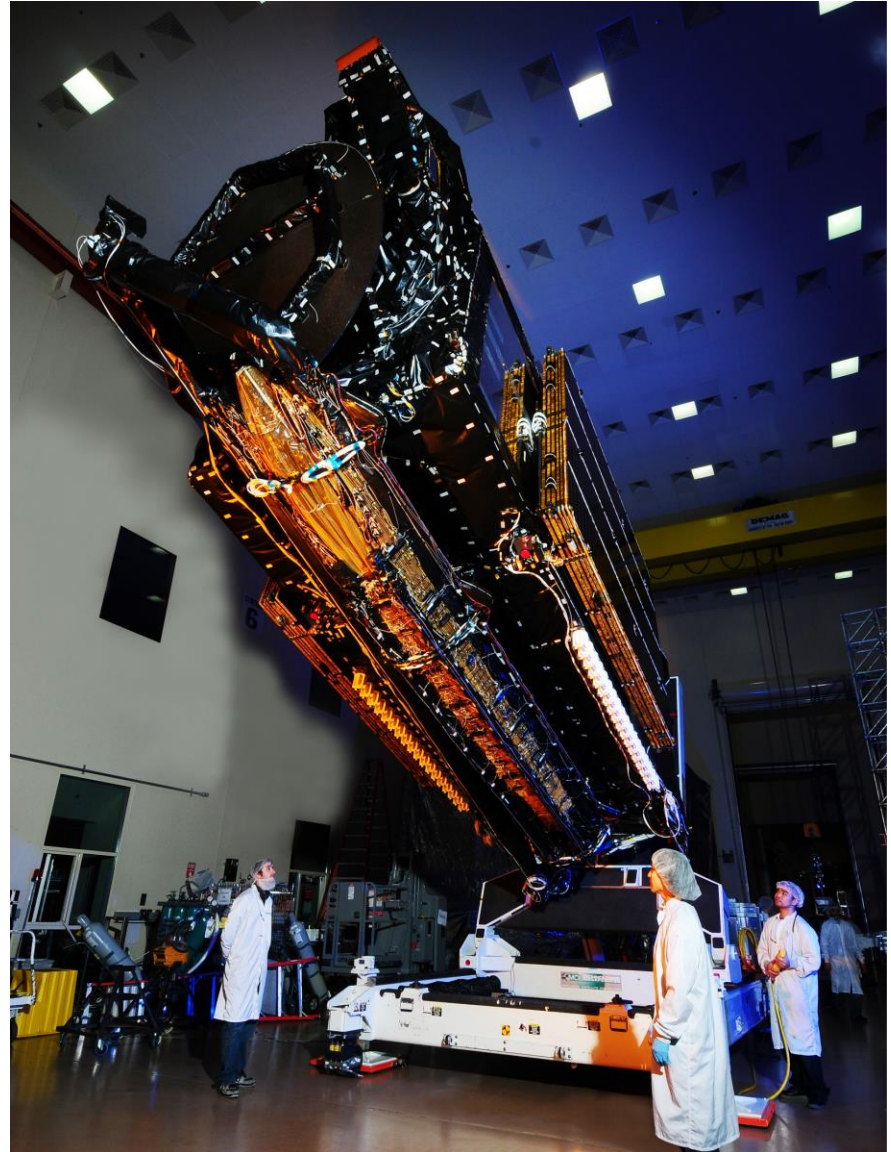
50 Years Later Where are we Today?

- Key Advances
 - More Powerful Launch Vehicles
 - Spacecraft mass and power 6 Tons/15-20kw
 - Voice and video compression by 1990s made direct broadcast systems a reality
- And Some Set Backs
 - Optical fiber undersea systems nearly destroyed Intelsat in the late 1980s
 - Separate systems challenges eventually leading to Intelsat privatization
- And Progress Continues!

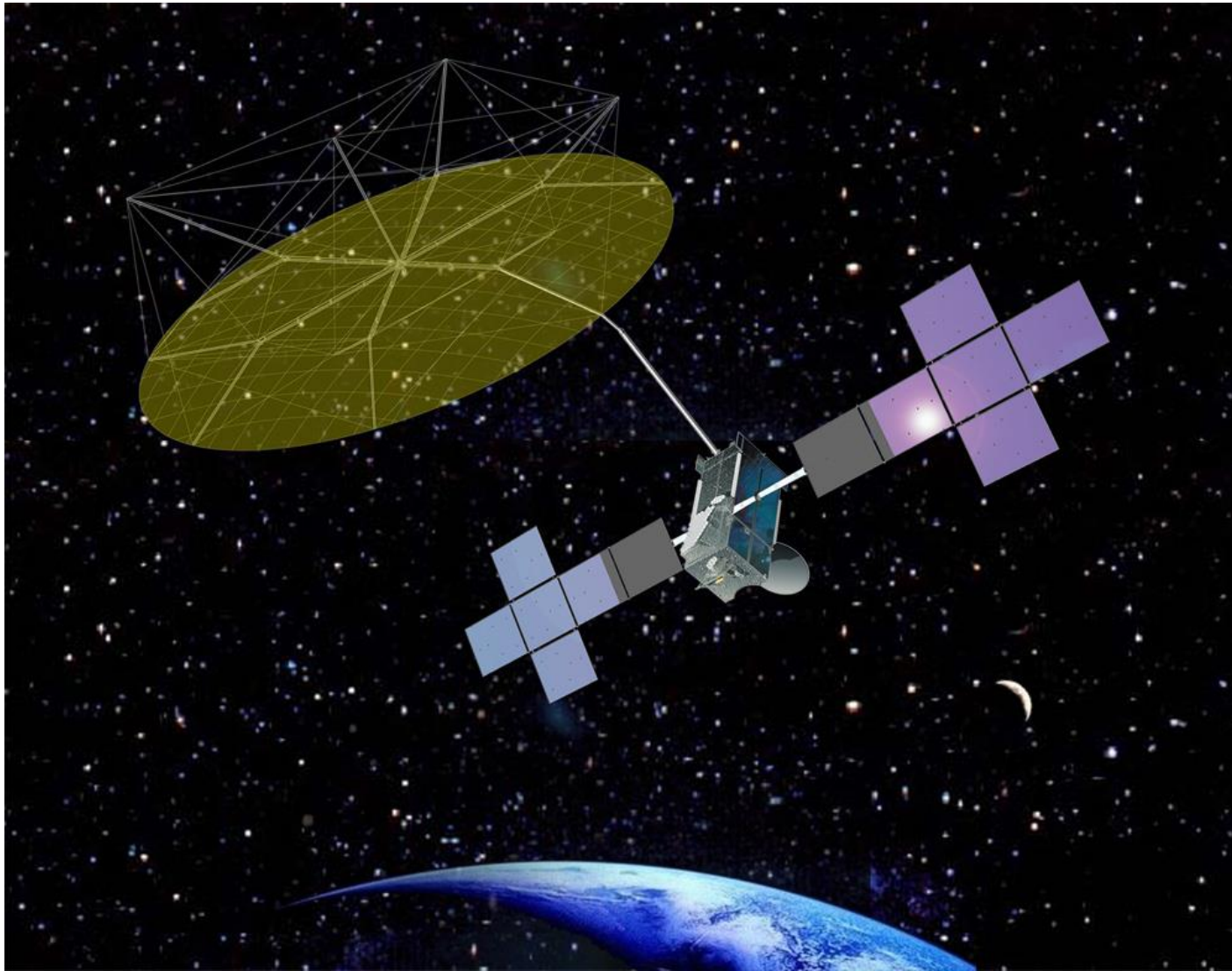
An Example of What Industry Can do Today



Echostar (formerly Terrestar) Satellite with 500 beams over North America, capable of accessing an iPhone size handsets



Terrestar Deployed In Orbit (Artist rendering)



And Now A Quick Look At the Industry As a Whole

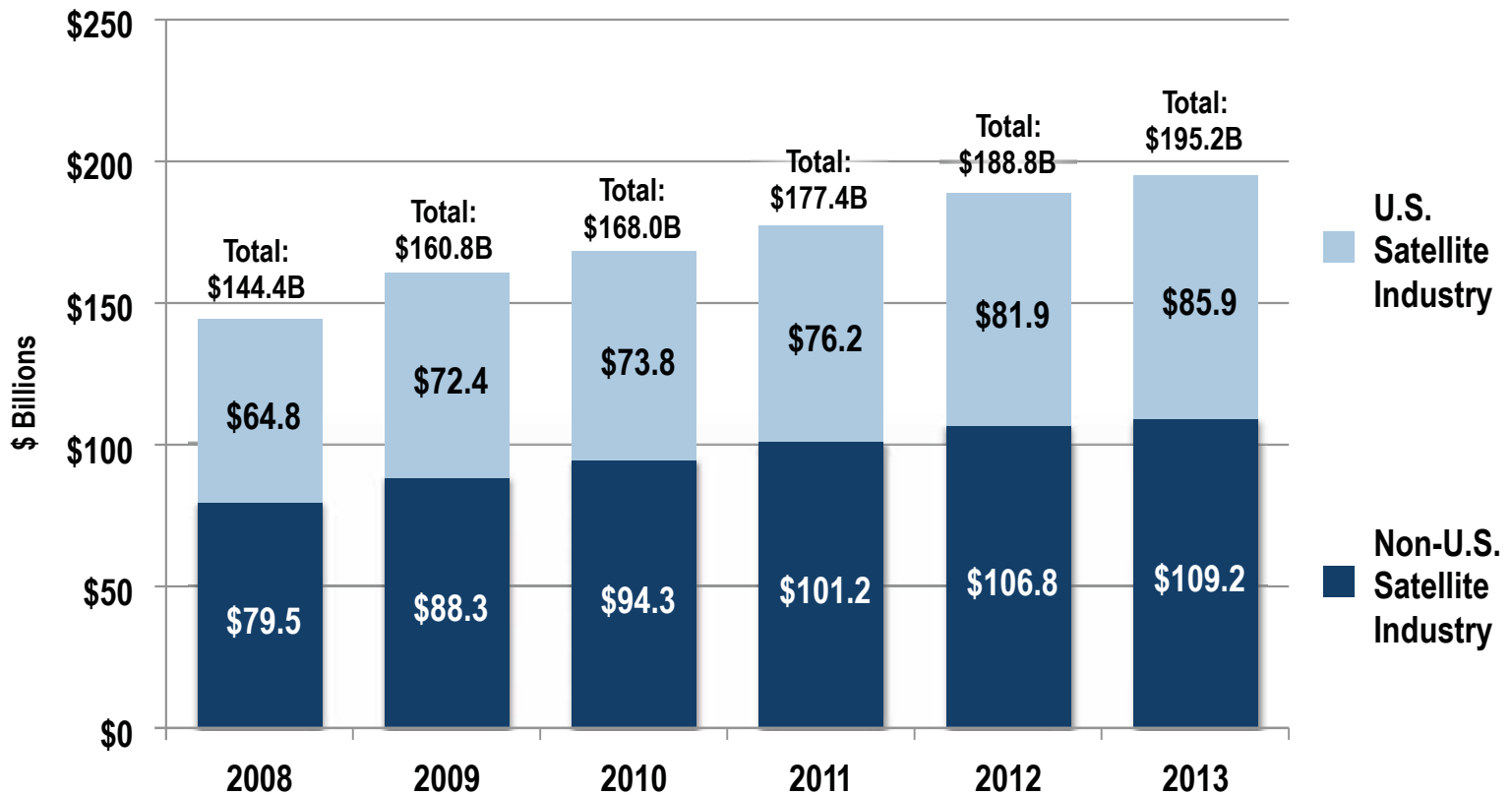
U.S. Portion of Global Satellite Industry Revenues



Average yearly
U.S. market share

44%

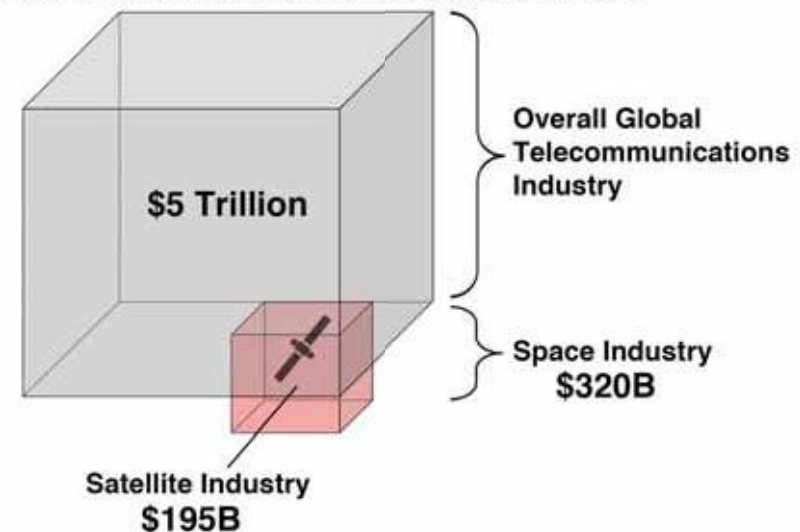
of global
industry



Growth Rate	19%	11%	4%	6%	6%	3%
U.S. Growth	26%	12%	2%	3%	7%	5%
Non-U.S. Growth	13%	11%	7%	7%	6%	2%

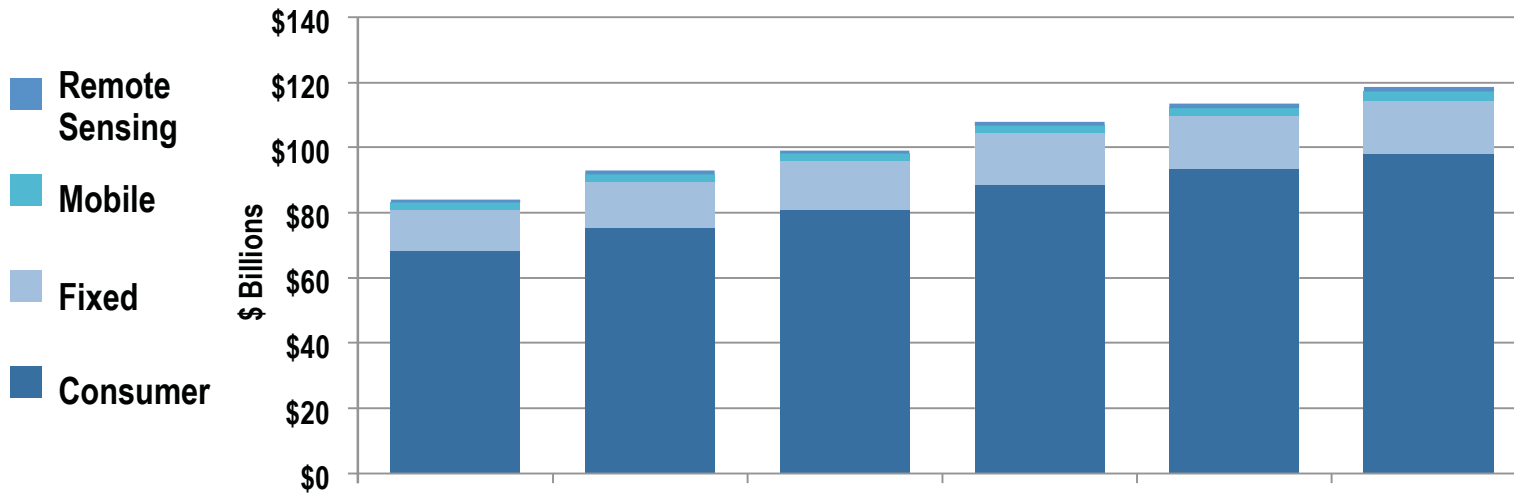
- The satellite industry is a subset of the telecommunications and space industries, representing:
 - » 60% of global space revenues
 - » 4% of global telecommunications revenues
- Non-satellite industry space revenues = human spaceflight, non-orbital spacecraft, government spending
- Satellite industry growth tracks with telecommunications and space industries' growth
 - » Telecommunications revenue up 7%
 - » Space revenue up 5%
 - » Satellite industry up 3%

The Satellite Industry in Context
(2013 revenues worldwide, in billions of U.S. dollars)





Global Satellite Services Revenue



2012 – 2013
Global
Growth

	2008	2009	2010	2011	2012	2013
Growth Rate	16%	10%	7%	9%	5%	5%
Total	\$84.1	\$92.8	\$99.2	\$107.8	\$113.5	\$118.6
Consumer	\$68.1	\$75.3	\$80.9	\$88.6	\$93.3	\$98.1
Satellite TV (DBS/DTH)	\$64.9	\$71.8	\$76.9	\$84.4	\$88.4	\$92.6
Satellite Radio (DARS)	\$2.4	\$2.5	\$2.8	\$3.0	\$3.4	\$3.8
Satellite Broadband	\$0.8	\$1.0	\$1.2	\$1.2	\$1.5	\$1.7
Fixed	\$13.0	\$14.4	\$15.0	\$15.7	\$16.4	\$16.4
Transponder Agreements (1)	\$10.2	\$11.0	\$11.1	\$11.4	\$11.8	\$11.8
Managed Services (2)	\$2.8	\$3.4	\$3.9	\$4.3	\$4.6	\$4.6
Mobile	\$2.2	\$2.2	\$2.3	\$2.4	\$2.4	\$2.6
Voice	\$0.9	\$0.7	\$0.7	\$0.7	\$0.7	\$0.8
Data	\$1.3	\$1.5	\$1.6	\$1.7	\$1.8	\$1.8
Remote Sensing	\$0.7	\$1.0	\$1.0	\$1.1	\$1.3	\$1.5

The U.S. share of
satellite services
revenue in 2013
was

41%

Current Market Dynamics



- Over 300 commercial satellites in GEO of which nearly half belong to the Top Five: Intelsat, SES, Eutelsat, Telesat and JSAT.
- LEO satellites are now entering second generation; several small satellites are being planned backed by deep pockets
- In MEO, we have now nearly 50 GPS satellites and the new O3b system
- Launch industry is undergoing transformation from two fronts: upstarts like Space-X are challenging the age-old stalwarts and all-electric satellites are reducing launch mass

But What about the Future?



- Even though the Big Five are ensuring long-term cash flow through transponder leases, the real money is in Consumer Services
- Our future marketplace patterns started unfolding over 5 years ago with the iPod Generation. The younger audience have started a revolt against centralized programming and started what is now maturing as the age of
[“Customized Content on the Move”](#)
- This trend has now spread to older generations as well via streaming videos. This is both good and bad news.
- It is good because a moving customer cannot be captured directly by Fiber. It is bad because we may really run out of spectrum.