

How Much Can You Afford

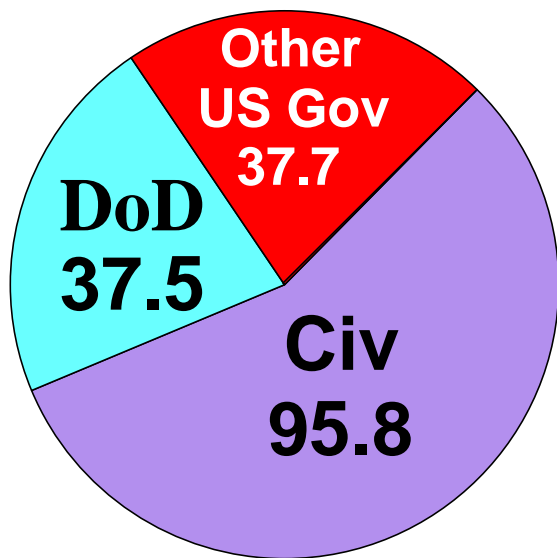
- How are investments in S & T made?
 - Long range - short ranges
 - Make - buy
- What constitutes “completion” of development?
- How is technology transition planned?
 - Influence of cycle time
- What mechanisms are used to aid transition?
 - Incentives or procedures

Make - Buy - or Waste

High	Acquire Capability Make or Buy	Exploit In House Capability Make	
Value	Divest This Technology Waste	Exploit In House But Don't Invest Waste	
Low			
	Poor	Average	Excellent
	In House Capability		

S & T Available Worldwide

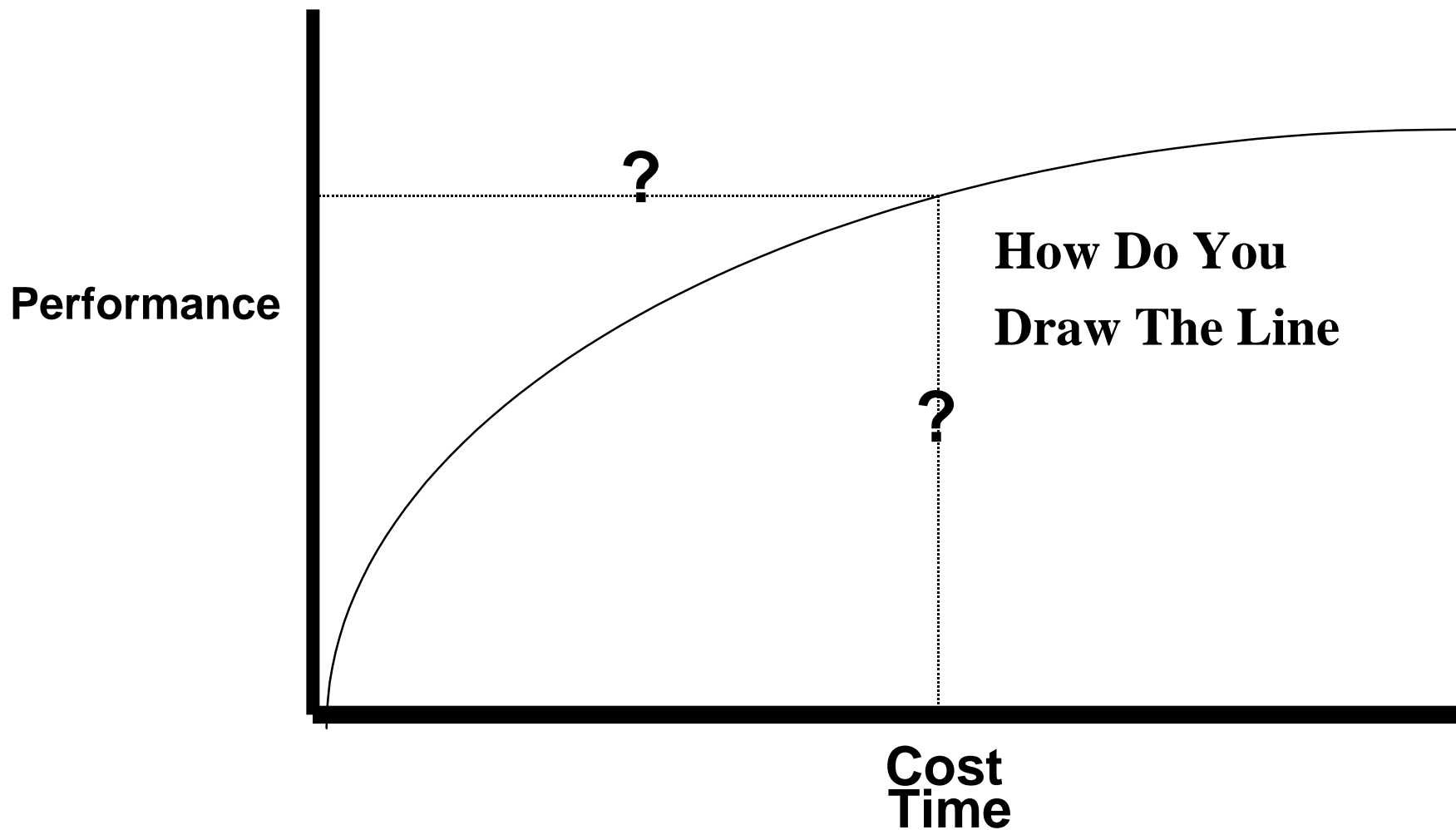
USA
\$171 B



World Wide
\$380 B



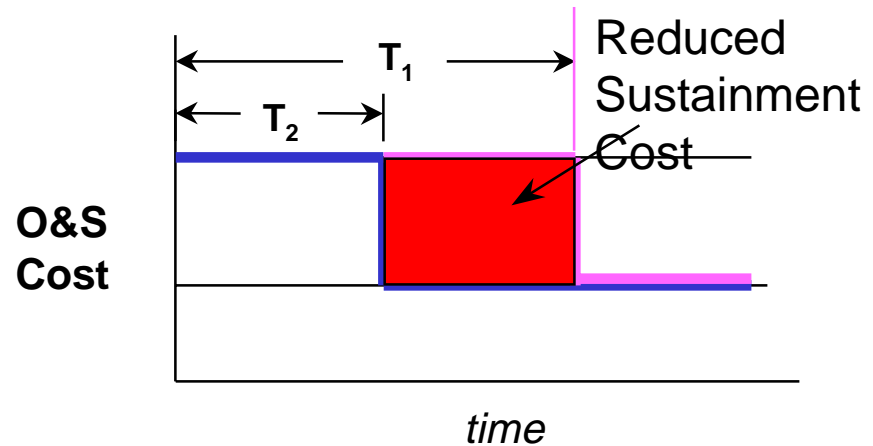
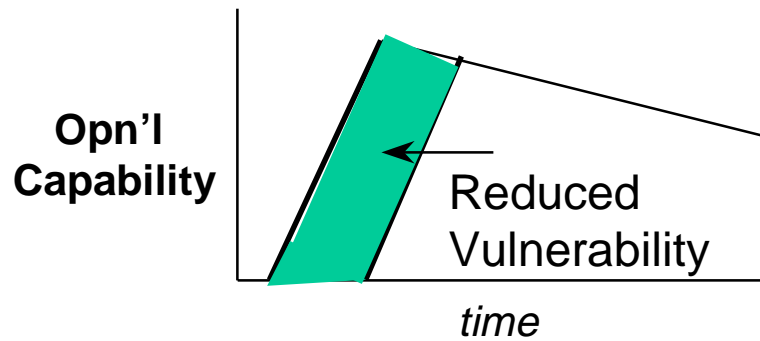
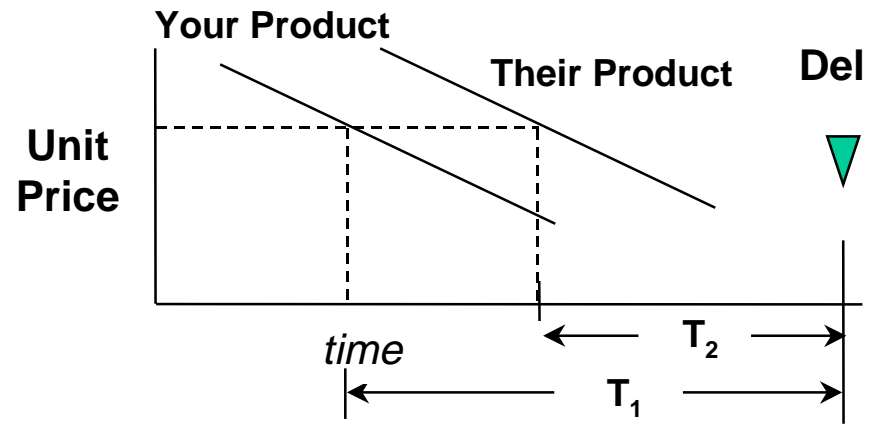
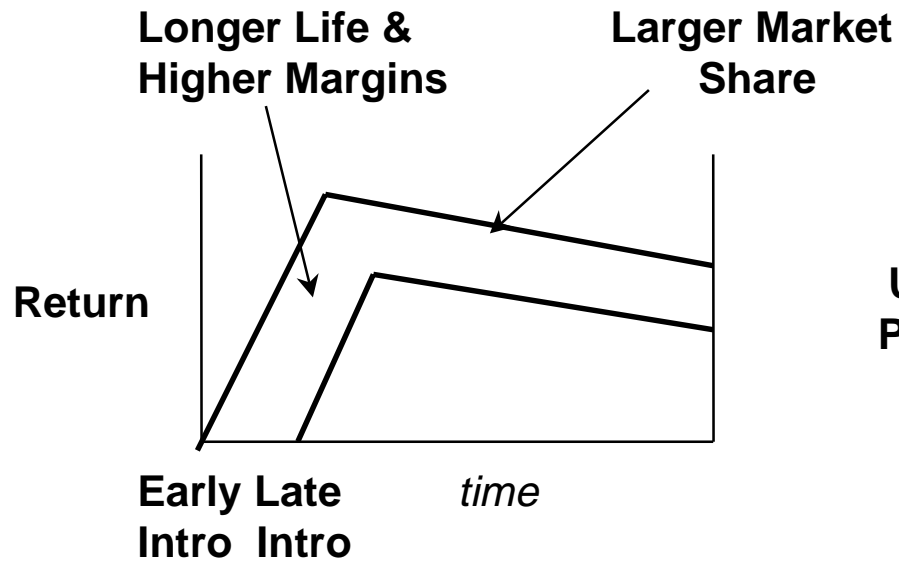
Marginal Return



Cycle Time Cost Benefits

- **Development and production benefits using metrics common to both commercial and military sectors:**
 - **50% reduction in cycle time associated with:**
 - **A 30% reduction in engineering hours (averaged over multiple studies)**
 - **A 20-25% reduction in cost of products (35-50% for “services)**
 - **2X Net Asset turns, 2-4X inventory turns, 50% higher sales to plant and equipment ratios**

Cycle Time Return Benefits



Cycle Time Benchmarks

Industry	Past	Current	Goal
Automobile	84 months	24 months	<18 months
Commercial Aircraft	8-10 years	5 years	2 1/2 years
Commercial Spacecraft	8 yrs	18 months	12 months
Consumer Electronics	2 yrs	6 months	<6 months

Transition Issues

- Customer involvement
 - Fund - advise - test
- Corporate process
 - Manufacturing - marketing - engineering - labs
- Risk reduction
 - Performance - cost - schedule
- Incentives
 - Who and how much