



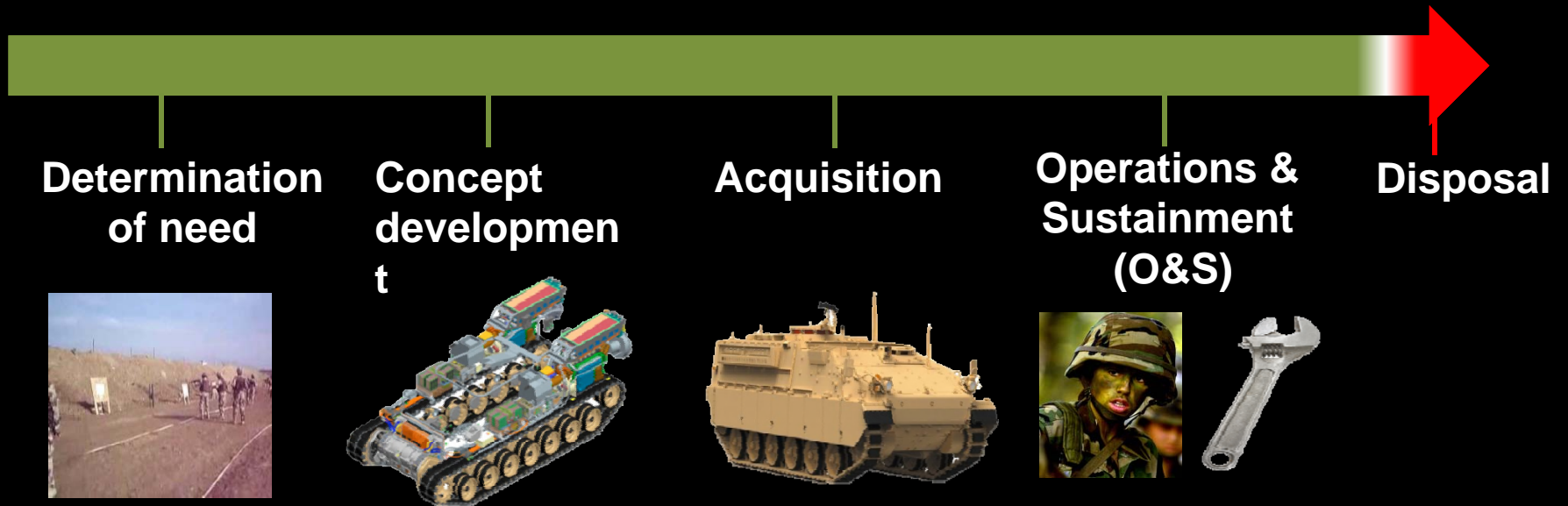
Can DoD Inflation Indices & Discounting Processes Be Improved?

Kathryn Connor & James Dryden

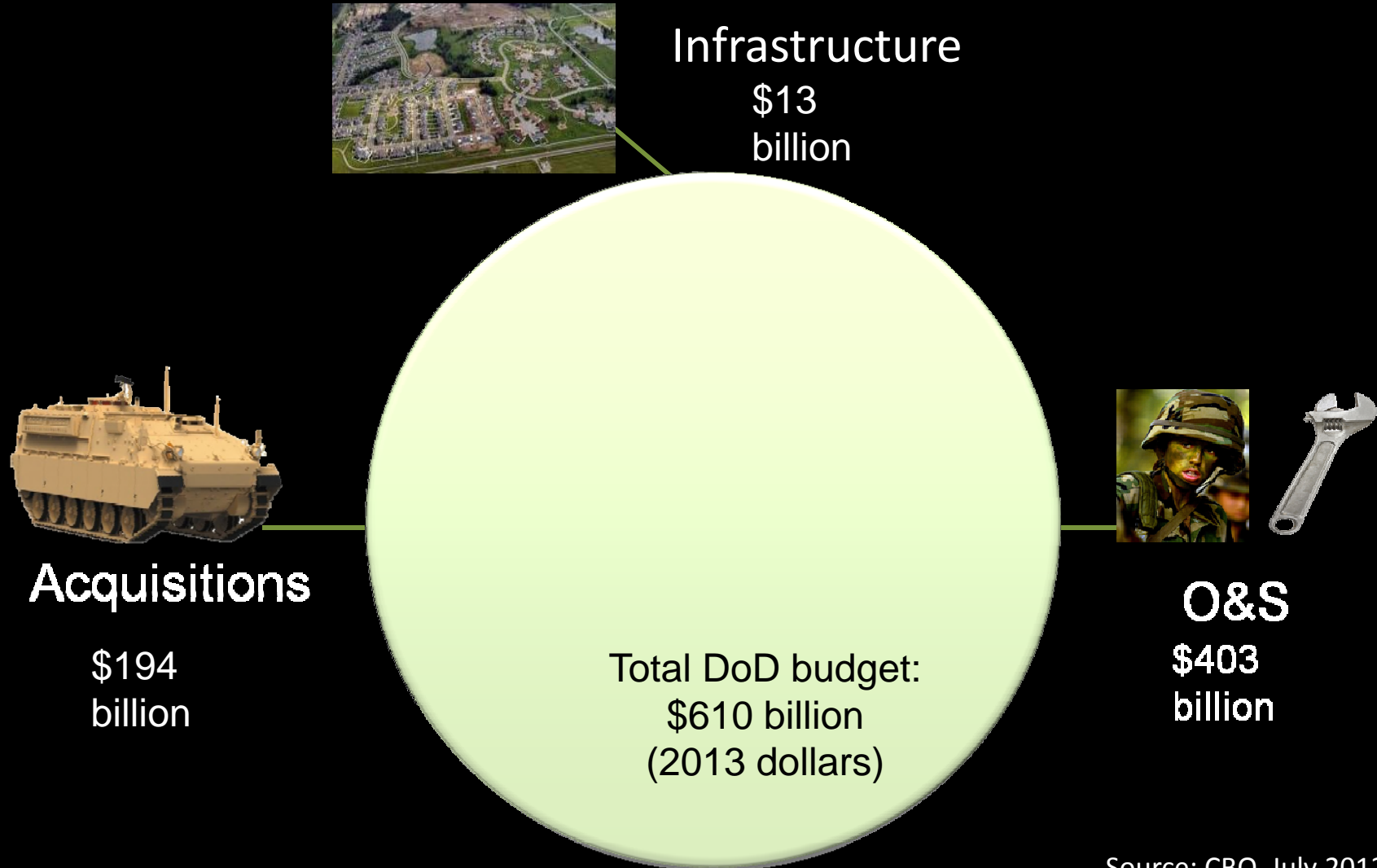


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Weapon system cost estimates reflect system life- cycle



Of estimated total DoD 2013-2030 budget, O&S may be most expensive

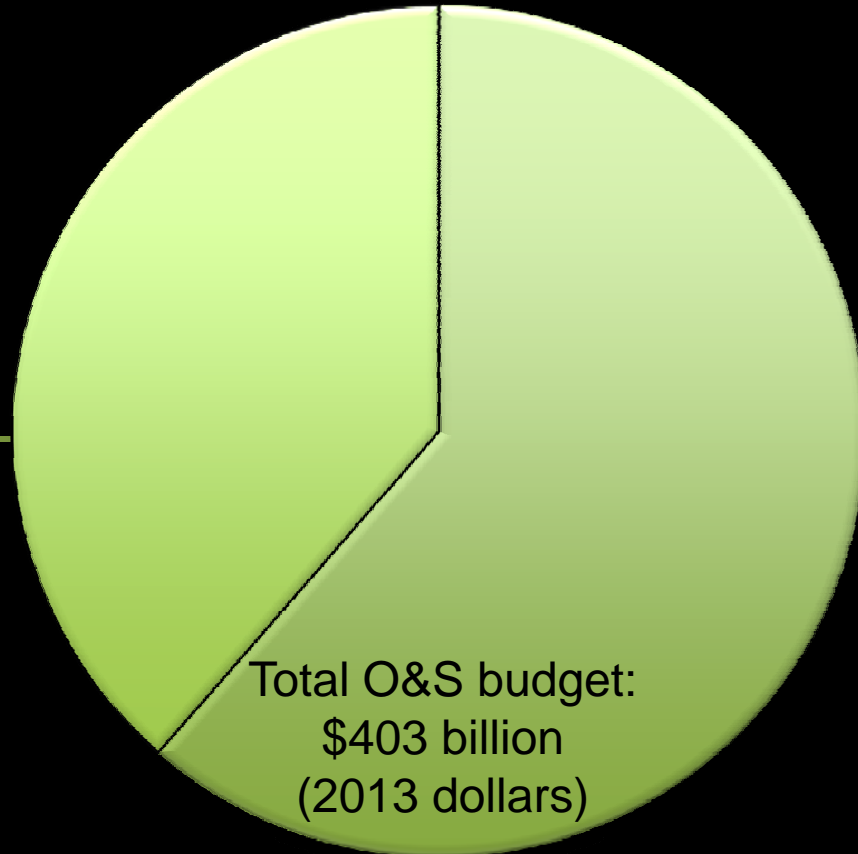


Of estimated O&S budget, Operations and Maintenance may be most expensive



Personnel

\$156
billion



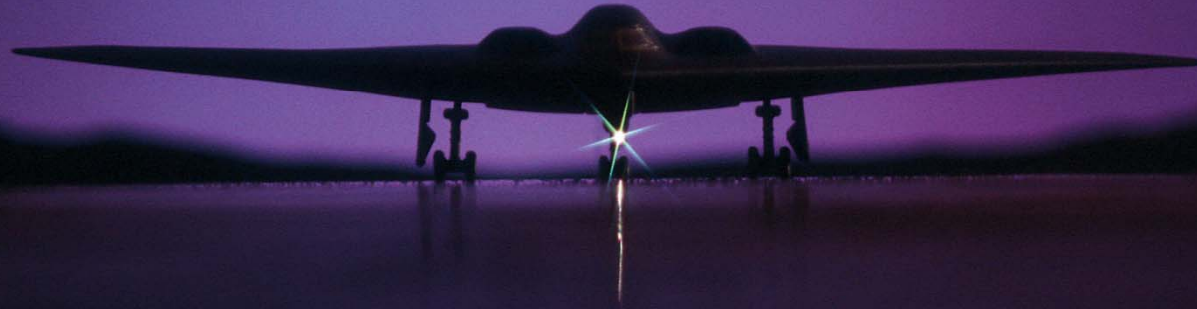
Total O&S budget:
\$403 billion
(2013 dollars)



**Operations &
Maintenance**

\$248
billion

Source: CBO, July 2012



Accurate cost estimates for O&S are critical, given the nation's financial climate

We assessed effectiveness of two cost practices:

- DoD inflation indices

- Discounting guidance

NATIONAL DEFENSE BUDGET ESTIMATES FOR FY 2013



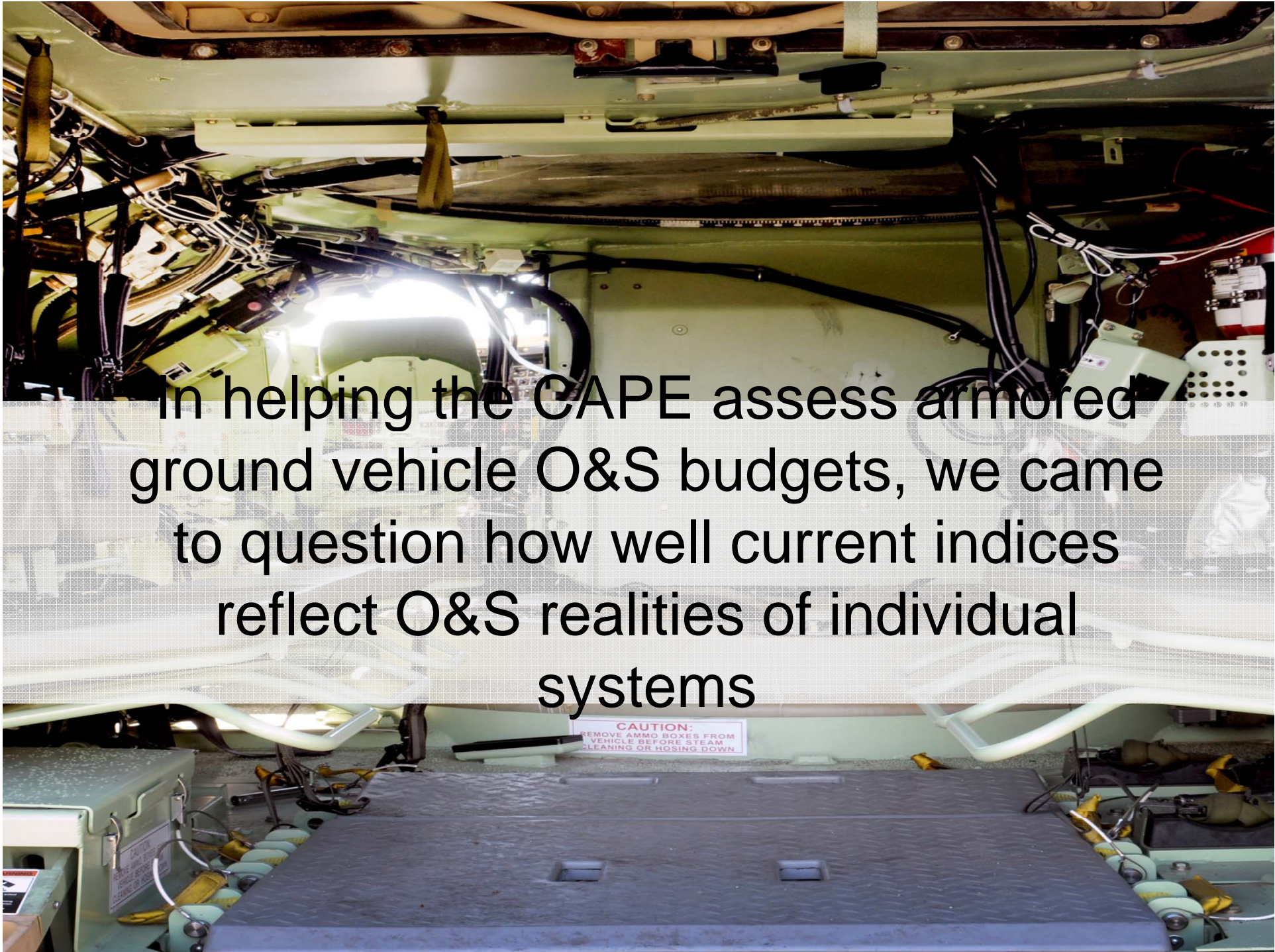
DoD's inflation indices are primarily published in the "Green Book" for each year

Inflation in the Green Book is defined:

Chapter 5: Treatment of Inflation

OFFICE OF THE UNDER SECRETARY
(COMPTROLLER)
MARCH 2012

Inflation is an increase in the general level of prices in the economy. Inflation does not mean that prices rise evenly or that all prices are rising. Some prices may be constant and others actually may be falling.



In helping the CAPE assess armored ground vehicle O&S budgets, we came to question how well current indices reflect O&S realities of individual systems

We created inflation estimates for vehicles using three methods

Equal weighted index: “One of each type,” measures underlying price change, but not the actual effects of inflation on a single weapons system as all parts are not used at same rate – labeled “single” on following charts

Marshall-Edgewood Index: “Basket of goods,” Weight NIINS by frequency of parts purchased-labeled “basket” on following charts

Geometric mean: Most complex method; characterized as the n th root of the product of n items – labeled “basket geometric” on following charts

We Used Data from the OSMIS System

- **AMDF Price:** The price of a new part from the supplier plus surcharge
- **Cost to Consumer:** Also know as Single Stock Fund Price this is $(\text{Serviceable Value} * \text{Serviceable Rate}) + (\text{Unserviceable Value} * \text{Unserviceable Rate})$
- **Quantity**
- **NIIN**
- **Fiscal Years: 2001-2010**



Bradley parts we assessed that impact inflation the most tend to be:

- Reparable rather than consumable
- Correlated with modifications of system over time
- Tracks, sights/scopes, circuit cards, transmissions, and engines

The cumulative effect of AMDF Price inflation shows overall price changes throughout the different methods

We found that the AMDF geometric index
for Bradley happens to hover
around the official inflation figures

The AMDF inflation picture for Bradley changed when we examined a constant basket of goods over a shorter 5-year period of time

Five-year inflation calculations may be appropriate in some cases



Can ensure that
baskets are
relevant to current
system



Can account for
rapid & dramatic
changes in
repair costs



Not appropriate for
systems with longer
upgrade and
modification cycles

From a program perspective the cost to consumer price may be more relevant. An example from Abrams

It appears that repairing Abrams parts is increasing in cost faster than purchasing new from the industrial base

The difference between AMDF and cost to consumer Pricing varies by program. For Bradley the impact was the opposite.

The Bradley cost to consumer may be affected
by contingency funding

Surcharges or Cost Recovery Rates vary widely depending on estimated overhead and estimated sales of managing organization



We assessed effectiveness of two cost practices:

DoD inflation indices

Discounting guidance



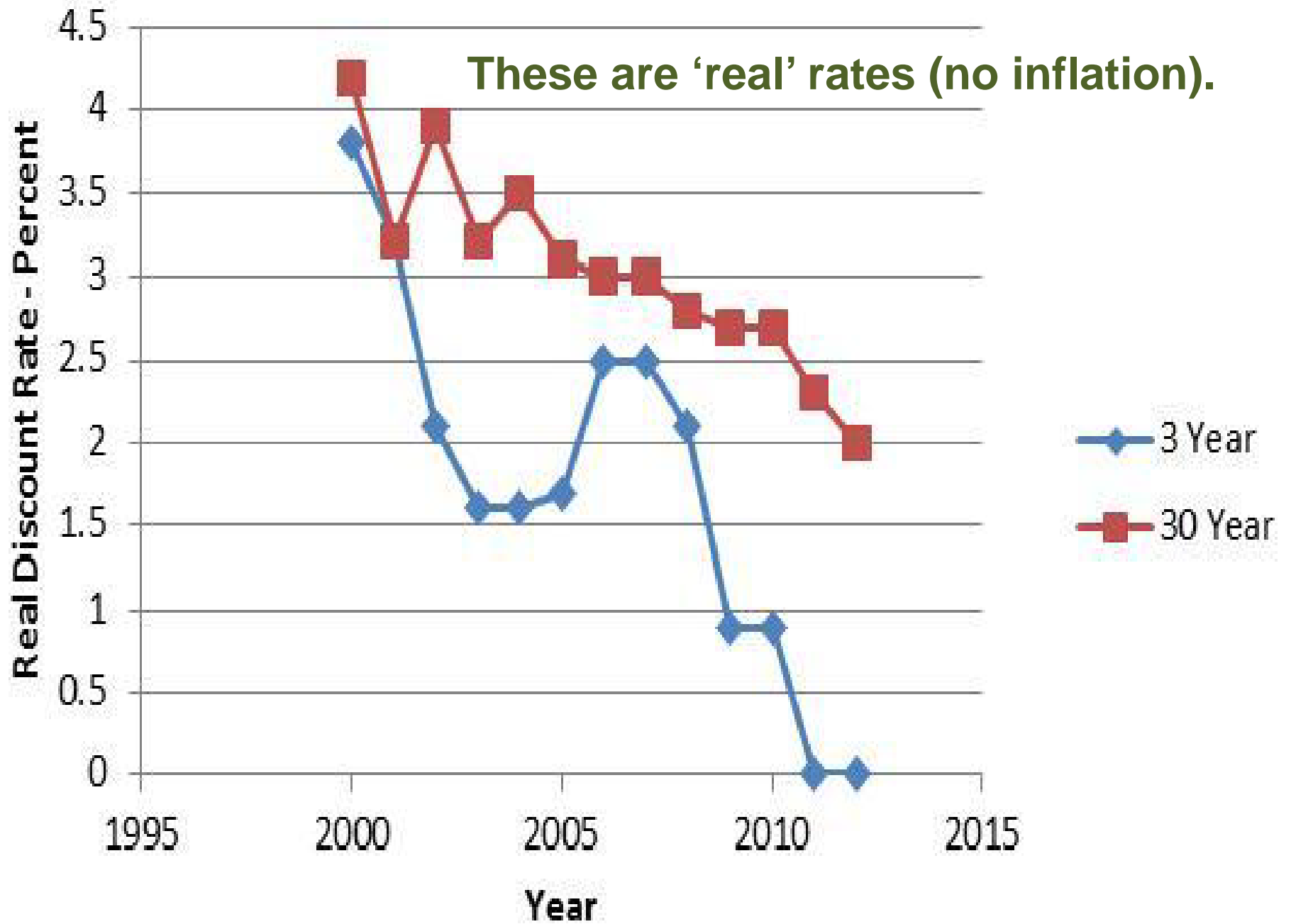
Discounting is the opposite of earning interest – a dollar promised a year from now is worth less today.

An investment is profitable if the sum of the discounted stream of costs and profits is positive.

Businesses discount at their cost of capital.



DoD discounts at the Treasury's borrowing rates which vary by length of project and year.





DoD decisions affect Treasury borrowing when the total DoD budget is impacted.

This rarely happens – most decisions result in a reallocation of funds within the DoD topline



At the current real rate of 1.1% DoD can only spend \$17M to modify a system to save \$2M a year for the next 10 years.

The opportunity to save one million dollars is foregone even though DoD and the Treasury do not realize a savings in interest expense.

Discounted cost streams emphasize early cost impact and typically de-emphasize O&S costs

	Discounted	Non- discounted	Modification	Operate										
Option A	93.2	100	0	10	10	10	10	10	10	10	10	10	10	10
Option B	93.3	99	19	8	8	8	8	8	8	8	8	8	8	8
Option C	92.3	98	18	8	8	8	8	8	8	8	8	8	8	8

Option A: No Modification

Option B Modification Would Save Money in Long Run, but would not be selected based on Discounting

Option C would be selected with or without discounting

Acquisition-related discounting practices may need to be rethought



Treasury's cost of borrowing varies, which may affect decisions made early in program life-cycle



Discounting makes sense only where decisions are made at the margin of financial program and where Treasury borrowing is affected

Recommendations: Inflation



Revisit O&M costs annually with a 5-year moving average inflation to understand program specific trends



Show how variation in working capital surcharges may impact program

Recommendations: Discounting



Address the disconnect between discounting incentives of the government and DoD.



Consider shifting single discount rate to a range that accounts for potential variation and perspective.

Recommendations: Discounting



Consider alternative discounting practice

Calculate net present values of constant dollar alternatives using appropriate Treasury rate



Develop range of recent discount rates to use in sensitivity analysis



Compare undiscounted constant dollar costs of alternatives.





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OMB Circular A-94 offers specific discounting guidance

For government investment or regulations that affect the private economy, the “...**marginal pre-tax rate of return on an average investment in the private sector...**” is the basis for the discount rate. This is a starting point for analysis.

OMB Circular A-94 offers specific discounting guidance

For cost effectiveness, lease-purchase, internal government investment and asset sales analysis, the **Treasury's borrowing rate** should be used as the discount rate.