

NETCO SOLUTION (2015)

(All flows are reported as revenues including the E. A. C s.)

Alternative 1: Overhaul

	Before Tax Op Costs	Capitalized Investment	Expensed Investment			
	-1500	545	440			
year end	after tax op costs	dep'n tax shield	expense tax shield	net cashflow	discount factor	P. V. net cashflow
2016	-975	161	154	-660	0.870	-574
2017	-1004	61		-943	0.756	-713
2018	-1034	37		-998	0.658	-656
2019	-1065	22		-1043	0.572	-597
2020	-1097	22		-1075	0.497	-535
2021	-1130	11		-1119	0.432	-484
2022	-1164			-1164	0.376	-438
2023	-1199			-1199	0.327	-392
					P. V. cashflow	-4388
					Init. Inv.	-985
					Oppor cost	-480
					PV Sal Val	21
					Tot al	-5832
		real rate	0.117		Ann. Fac.	5.029
					E. A. C. (Rev)	-1160

NOTES:

- Operating costs and tax shields are assumed to be flow at year end.
- Operating costs are expressed in nominal terms and hence increase at the inflation rate of 3% per year.
- 2015 depreciation tax shield includes \$122,250 from extra \$350,000 of depreciation.
- The incremental opportunity costs of not selling the old boat are calculated as \$550,000 less the tax liability of \$70,000 on a gain of \$200,000.

Al t e r n a t i v e 2: P u r c h a s e N e w B o a t

	Bef ore Tax Op Cost s	Cap i t a l i z e d I n v e s t m e n t	Expensed I n v e s t m e n t			
	- 1100	4400	0			
year end	after tax op cost s	dep' n tax shi el d	expense tax shi el d	net cashf l ow	di scount f act or	P. V. net cashf l ow
2016	- 715	308	0	- 407	0. 870	- 354
2017	- 736	493		- 244	0. 756	- 184
2018	- 759	296		- 463	0. 658	- 304
2019	- 781	177		- 604	0. 572	- 345
2020	- 805	177		- 627	0. 497	- 312
2021	- 829	89		- 740	0. 432	- 320
2022	- 854			- 854	0. 376	- 321
2023	- 879			- 879	0. 327	- 287
2024	- 906			- 906	0. 284	- 257
2025	- 933			- 933	0. 247	- 231
2026	- 961			- 961	0. 215	- 207
2027	- 990			- 990	0. 187	- 185
					P. V. cashf l ow i n i t i n v. t r a i n i n g t o t a l	- 3308 - 4400 - 91 - 7799
		real rate	0. 117		Ann. Fac. E. A. C. (Rev)	6. 296 - 1239

NOTES:

1. Operating costs and tax shields are assumed to be flow at year end.
2. Operating costs are expressed in nominal terms and hence increase at the inflation rate of 3% per year. Costs are reduced by extra revenue of \$150000.
3. The training costs are calculated using \$140,000 and are assumed to be paid at the start of 2016.

Conclusion:

To decide between alternative 1 (overhaul) and 2 (new boat) we need to use the equivalent annual cost (EAC) since alternative 2 has a longer life. Using a real rate of 11.7% we find that alternative 1 has an EAC of \$1,160,000 whereas alternative 2 has an EAC of \$1,239,000. A comparison of the EAC's leads us to choose the overhaul option.

Since the real costs are stable through time, the EAC is computed using the real rate of 11.7%.