

NETCO SOLUTION (2014)

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

Alternative 1: Overhaul

	Before Tax Op Costs	Capitalized Investment	Expensed Investment			
	-1800	545	440			
year end	after tax op costs	dep'n tax shield	expense tax shield	net cashflow	discount factor	P. V. net cashflow
2015	-1170	161	154	-855	0.870	-744
2016	-1205	61		-1144	0.756	-865
2017	-1241	37		-1205	0.658	-792
2018	-1278	22		-1257	0.572	-718
2019	-1317	22		-1295	0.497	-644
2020	-1356	11		-1345	0.432	-582
2021	-1397			-1397	0.376	-525
2022	-1439			-1439	0.327	-470
					P. V. cashflow	-5340
					Init. Inv.	-985
					Oppor cost	-480
					PV Salv	21
					Total	-6784
		real rate	0.117		Ann. Fac.	5.029
					E. A. C. (Rev)	-1349

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.
3. 2015 depreciation tax shield includes \$122,250 from extra \$350,000 of depreciation.
4. 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 o r e T a x Op C o s t s	C a p 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			
	- 1200	4400	0			
year end	a f t e r t a x o p c o s t s	d e p' n t a x s h i e l d	e x p e n s e t a x s h i e l d	n e t c a s h f l o w	d i s c o u n t f a c t o r	P. V. n e t c a s h f l o w
2015	- 780	308	0	- 472	0. 870	- 410
2016	- 803	493		- 311	0. 756	- 235
2017	- 828	296		- 532	0. 658	- 350
2018	- 852	177		- 675	0. 572	- 386
2019	- 878	177		- 700	0. 497	- 348
2020	- 904	89		- 816	0. 432	- 353
2021	- 931			- 931	0. 376	- 350
2022	- 959			- 959	0. 327	- 314
2023	- 988			- 988	0. 284	- 281
2024	- 1018			- 1018	0. 247	- 252
2025	- 1048			- 1048	0. 215	- 225
2026	- 1080			- 1080	0. 187	- 202
					P. V. c a s h f l o w i n i t i n v. t r a i n i n g t o t a l	- 3705 - 4400 - 91 - 8196
		r e a l r a t e	0. 117		Ann. Fac. E. A. C. (Rev)	6. 296 - 1302

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 2015.

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 \$1,349,000 whereas alternative 2 has an EAC of \$1,302,000. A comparison of the EAC's leads us to choose the new boat option.

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