

Costs/Factor	Effect	Quantified Data	Fig. 4	Effect Size	Study	Qualitative Support
Clone & own Strategy						
Development	Decreased	35% of reused code		-35%	[29]	[3, 36, 56]
		50-80% reused code			[31]	
Adaptation	Increased					[18]
Maintenance	Increased					[18, 36, 42]
Maintenance	Decreased					[2, 3, 36]
Productivity	Improved			+37%	[29]	[47]
Productivity	Indecisive				[23]	
Bugs identified	Reduced			-35%	[29]	
				-66.7%	[47]	
Time to market	Reduced			-30%	[47]	[2, 19, 32]
		Factors of three to five			[31]	
Migration						
Adoption	Investment	4 PM pilot → 2 products; 12 PM → 23 products		0.5 PM/product	[5, 30]	
		36 months 80% code → 12 months 100% code → 24 months platform (tools, FM)		—	[22]	
		>3 months; tool train. 8.67%, FM 8.67%, DA 17.83%, FM 5.67%, IMPL 47.5%, OTH 11.67%			[45]	
		\$235,200; 14.5 PM (\$336,000) beforehand			[21]	
		4.2 PY			[57]	
		break even after eight months			[35]	
Staffing	Reduced		S:	-66.6%	[42]	
		20 instead of 150	S:	-86.7%	[43]	
			S:	-75%	[48]	
Staffing	Increased					[37]
Development	Reduced	(Products)	VD:	-50%	[5, 30]	[20, 53]
		<300 a year over 1,600 to >2,500	VD:	-88-81%	[22]	
		40-70% reuse			[33, 34]	
		70% reuse	VD:	-67%	[48]	
Development	Equal					[37]
		42-60% code reuse			[31]	
Bugs identified	Reduced	~80 a year down to ~40	IB:	-50%	[22]	
			IB:	-23.6%	[47]	
Testing costs	Reduced	-\$908,100			[21]	
		Saved \$80 + \$39 million + integration testing costs over 3 years			[27]	
			QA:	-96%	[48]	
Maintenance	Reduced	Code base from 11,985 to 10,584 SLOC		-17%	[39]	[10, 20, 41]
		-\$1.98 million (removed code redundancy/cloned units)			[21]	
		Code size for component from 91,106 LOC to 31,932		-65%	[57]	
Maintenance	Equal		QA:	0%		[37]
Derivation	Reduced	1 day → 1 hour		-95.83%	[28]	
		-\$630.900 (build cost), -\$334.400 (fewer build fails), -\$4.28 million (distribution/scoping)			[21]	
Release	Increased	2.5 PM (\$58,800) per product release (slight increase)			[21]	[27, 42]
Integration	Reduced					[28]
Productivity	Increased	improvement of 3 to 5		+200-400%	[48]	[28, 42]
Time to market	Reduced	24 → 10 months, 19 → 8, 17 → 5	TM:	-57.9%—70.6%	[20]	[37]
		90 days estimated to be 2.5 times faster	TM:	-60%	[33, 34]	
		2 years → 3 months	TM:	-87.5%	[42]	
		3 years → 1.5 years → 3.5 months	TM:	-90.3%	[43]	
Overall	Reduced	-\$3.67 million → -\$4.23 million a year	Total:	-7-3%	[21, 47]	
		Savings of 8.8 PY, ROI: 110%	Total:	-52.3%	[57]	
		break even after 3 products			[34]	
		savings of \$166 million over 4 years			[26]	

Costs/Factor	Effect	Quantified Data	Fig. 4	Effect Size	Study	Qualitative Support
Platform Strategy						
Adoption	Investment	26 man-months (6 products), \$0.3 million 107 man-months, \$1.3 million 2 PM \$3.5 million break even after 2 years break even after 5 products			[44] [44] [9] [15] [14, 24] [55]	[8]
Integration	Reduced	\$0.07 million compared to \$0.36 million of developing anew Builds in weeks instead of months		-80.56%	[44] [11, 14]	[7, 12, 51]
	Increased	119% of developing not for reuse \$12.56 per LOC compared to \$10 (estimated)		+19% +20.4%	[44] [15]	
Development	Reduced	6,728 SLOC saved from 217 KSLOC 31% & 38% code reuse for one product 5–10% of single system (190 PM) Code size reduced by 34–88% (76% for concrete product) Almost 80% reuse, cost ratio of 20% compared to 65%		-3.1% -38% & -31% VD: -90–95% -34–88%	[7, 14] [44] [9, 13] [11]	[3, 4, 12, 49, 52]
			VD:	-45%	[8]	
			VD:	-50%	[15]	
			VD:	-10–30%	[14]	
		over 75% reuse		-25%	[14]	
			VD:	-66.7%	[51]	
			VD:	-83.3%	[54]	
Development	Indecisive	effort reduced by a factor of 6 on average Saved 43.3 man-days, lost 31.5 days (drastic exception)			[44]	
Development	Increased	111% of costs developing for reuse 160% of costs developing for reuse 150% developing assets 25% costs of reusing		FD: +11% FD: +60% FD: +50%	[44] [54] [4]	
				+25%	[4]	
Maintenance	Reduced	54 man-months, \$0.7 million 99 man-months, \$1.3 million			[44] [44]	[3, 7, 12, 48, 55]
			QA:	-60%	[54]	
			QA:	-60%	[55]	
Staffing	Reduced	10x products, 5x developers 25% of the staff 15 compared to 100		S: -50% S: -75% S: -85% S: -75% S: -90% S: -75% S: -75%	[22] [1] [11, 14] [16] [1] [14] [14]	[21, 38]
		50 developers in contrast to 200				
Dependencies	Increased					[6]
Productivity	Improved	0.7 & 1.1 KSLOC/man-month 3.6 instead of 1 product		+40% & +57% 360%	[44] [14]	[8]
Productivity	Indecisive	100% LOC/man-month → 135% (1 year) → 78% (5 years)		-22–35%	[46]	
Bugs identified	Reduced	1.3 & 2.0 bugs/KSLOC (single examples)		-24% & -51%	[44]	[12, 49]
			IB:	-96%	[1]	
			IB:	-90%	[11, 14]	
		defects cut in half	IB:	-50%	[1]	
			IB:	-90%	[1]	
Time to market	Reduced	21 instead of 36 months 1/3 of the time		TM: -42% TM: -66.7% TM: -50%	[44] [1] [11, 14]	[4, 14, 25, 52, 55]
		From years to months 1 year down to 1 week over 50% reduction			[15] [1] [1] [51] [54] [55]	
			TM:	-98.1%	[1]	
			TM:	-50%	[1]	
			TM:	-71.7%	[51]	
			TM:	-50%	[54]	
			TM:	-50–75%	[55]	
Quality	Reduced	2–4 more times would be needed otherwise				
Release	Reduced	Savings in second year of \$0.06 million			[44]	[51]
Overall	Reduced	Installation from 16 hours → 15 min 80 man-months, \$1 Mil; saved 328 man-months, \$4.1 Mil; ROI 410%, break even: 2 years 206 man-months, \$2.6 Mil; saved 446 man-months, \$5.6 Mil; ROI 216%, break even: 6 years		-98.4% -80.39%	[38] [44]	[14] [50]
			Total:	-53.81%	[44]	
			Total:	-50%	[11, 14]	
		Savings of over \$300 million Savings of \$15 million 12 instead of 3 products \$4 million of savings a year savings of \$340 million over eight years			[12] [15] [1] [1] [17, 40]	
			Total:	-75%	[1]	

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