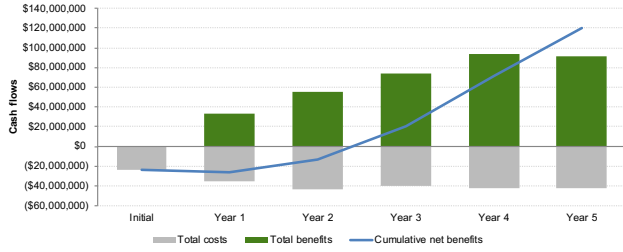


Financial Summary (risk-adjusted estimates)

ROI	Payback period (months)	Total benefits (PV)	Total costs (PV)	Net present value
42%	29.0	\$252,273,743	(\$177,339,809)	\$74,933,934

Financial Analysis (risk-adjusted)



Cash Flow Analysis (risk-adjusted estimates)

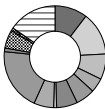
	Initial	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Present Value
Total costs	(\$23,924,800)	(\$35,822,551)	(\$42,959,479)	(\$40,211,644)	(\$41,898,436)	(\$42,705,172)	(\$227,522,083)	(\$177,339,809)
Total benefits	\$0	\$33,620,307	\$55,645,458	\$73,769,980	\$93,221,707	\$91,196,237	\$347,453,690	\$252,273,743
Net benefits	(\$23,924,800)	(\$2,202,244)	\$12,685,979	\$33,558,335	\$51,323,271	\$48,491,065	\$119,931,607	\$74,933,934
ROI								42%
Payback period (months)								29.0

Total Benefit

FORECAST

Ref	Metric	Calculation	Initial	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Present Value
A0	Technology savings: modernize data center hardware		\$0	\$6,912,000	\$6,912,000	\$6,912,000	\$6,912,000	\$6,912,000	\$34,560,000	\$26,201,918
B0	Technology savings: decommission data centers with cloud migration		\$0	\$3,456,000	\$6,912,000	\$10,368,000	\$13,824,000	\$13,824,000	\$46,394,000	\$34,669,441
C0	Technology savings: optimize resources with platform management		\$0	\$2,808,000	\$4,368,000	\$5,877,302	\$7,515,812	\$7,088,494	\$28,198,274	\$20,436,664
D0	Technology savings: optimize resources with app modernization		\$0	\$421,200	\$1,615,629	\$3,085,583	\$5,038,709	\$5,766,363	\$16,925,684	\$11,466,955
E0	Technology savings: avoid overprovisioning with cloud scalability		\$0	\$2,106,000	\$3,231,657	\$4,407,877	\$5,638,709	\$5,766,363	\$21,148,708	\$15,327,520
F0	Technology savings: reduce software licensing		\$0	\$1,965,038	\$3,160,493	\$4,608,944	\$6,734,146	\$6,888,773	\$23,360,889	\$16,741,203
G0	Technology savings: avoid infrastructure lock-in		\$0	\$0	\$0	\$267,710	\$661,115	\$2,592,038	\$3,960,862	\$4,421,661
H0	Operational efficiency		\$0	\$1,224,000	\$3,468,000	\$5,302,000	\$6,120,000	\$6,120,000	\$22,134,000	\$16,667,383
I0	Developer efficiency		\$0	\$7,142,720	\$11,738,520	\$15,588,400	\$19,094,400	\$14,851,200	\$68,386,240	\$50,147,880
J0	Attract, hire, and retain employees		\$0	\$644,640	\$815,280	\$815,280	\$815,280	\$815,280	\$3,055,760	\$2,035,425
K0	Dependency		\$0	\$2,736,000	\$3,420,000	\$4,104,000	\$4,788,000	\$4,788,000	\$19,836,000	\$14,640,305
L0	Security and compliance		\$0	\$528,448	\$803,342	\$877,240	\$791,137	\$791,137	\$3,310,302	\$2,468,198
M0	Business growth		\$0	\$3,871,794	\$9,458,486	\$11,945,543	\$14,432,600	\$14,432,600	\$53,940,993	\$38,048,900
	Total benefits (risk-adjusted)		\$0	\$33,620,307	\$55,845,458	\$73,769,980	\$90,221,707	\$91,198,237	\$347,433,690	\$252,273,743

Benefits by Category



Technology savings: modernize data center hardware

Ref	Metric	Calculation	Initial	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Present Value
A1	Number of data centers	Sample bank	2	2	2	2	2	2		
A2	Legacy server racks per data center with mission-critical data and apps	Sample bank	20	20	20	20	20	20		
A3	Percent of mission-critical servers replaced with IBM z Systems	Sample bank	0%	100%	100%	100%	100%	100%		
A4	Refresh rate for legacy servers	Formester	20%	20%	20%	20%	20%			
A5	One-time hardware, storage, and network equipment cost per rack	Formester	\$320,000	\$320,000	\$320,000	\$320,000	\$320,000	\$320,000		
A6	Avoided hardware refresh costs	A1*A2*A3*A4	\$2,560,000	\$2,560,000	\$2,560,000	\$2,560,000	\$2,560,000	\$2,560,000		
A7	Annual power, cooling, and facilities operational cost per rack	Formester	\$128,000	\$128,000	\$128,000	\$128,000	\$128,000	\$128,000		
A8	Avoided hardware operational costs	A1*A2*A3*A7	\$6,120,000	\$6,120,000	\$6,120,000	\$6,120,000	\$6,120,000	\$6,120,000		
A9	Technology savings: modernize data center hardware	A5-A6	\$0	\$7,680,000	\$7,680,000	\$7,680,000	\$7,680,000	\$7,680,000	\$38,400,000	\$28,113,242
	Risk adjustment		-10%							
A0	Technology savings: modernize data center hardware (risk-adjusted)		\$0	\$6,912,000	\$6,912,000	\$6,912,000	\$6,912,000	\$6,912,000	\$34,560,000	\$26,201,918

Technology savings: decommission data centers with cloud migration

Ref	Metric	Calculation	Initial	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Present Value
B1	Number of data centers	A1	2							
B2	Legacy server racks per data center with migratable workloads	Sample bank	40							
B3	Percent of workloads migrated to IBM Cloud from legacy servers	Sample bank	0%	25%	50%	75%	100%	100%		
B4	Cumulative decommissioned server racks from cloud migration	B1*B2*B3	20	40	60	80	80	80		
B5	Refresh rate for legacy servers	A4	20%	20%	20%	20%	20%			
B6	One-time hardware, storage, and network equipment cost per rack	Formester	\$320,000	\$320,000	\$320,000	\$320,000	\$320,000	\$320,000		
B7	Avoided hardware refresh costs for decommissioned servers	B4*B5*B6	\$1,280,000	\$2,560,000	\$3,840,000	\$5,120,000	\$5,120,000	\$5,120,000		
B8	Annual operational costs per rack	Formester	\$128,000	\$128,000	\$128,000	\$128,000	\$128,000	\$128,000		
B9	Avoided hardware operational costs	B4*B8	\$2,560,000	\$5,120,000	\$7,680,000	\$10,240,000	\$10,240,000	\$10,240,000		
B0	Technology savings: decommission data centers with cloud migration	B7-B9	\$0	\$3,840,000	\$7,680,000	\$11,520,000	\$15,360,000	\$15,360,000	\$53,760,000	\$38,521,601
	Risk adjustment		-10%							
B0	Technology savings: decommission data centers with cloud migration (risk-adjusted)		\$0	\$3,456,000	\$6,912,000	\$10,368,000	\$13,824,000	\$13,824,000	\$46,394,000	\$34,669,441

Technology savings: optimize resources with platform management

Ref	Metric	Calculation	Initial	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Present Value
C1	Cumulative decommissioned server racks from cloud migration	B4	20	40	60	80	80	80		
C2	VMS per server rack	Formester	32	32	32	32	32	32		
C3	VMS per application	Formester	16	16	16	16	16	16		
C4	Apps migrated to IBM Cloud	C1*C2*C3	40	80	120	160	160	160		
C5	Apps in IBM Cloud public cloud	Sample bank	40	40	40	40	40	40		
C6	Total number of cloud-hosted apps	C4-C5	0	40	80	120	160	200	200	
C7	Estimated cloud cost per app	Formester	\$195,000	\$195,450	\$204,073	\$206,767	\$210,969	\$215,969		
C8	Physical annual cloud cost with legacy platforms	C6*C7	\$15,600,000	\$23,938,200	\$32,051,680	\$41,753,400	\$42,713,800	\$42,713,800		
	Percent reduction in resource requirements with IBM and Red Hat multi-cloud container platform	Interview data	20%	20%	20%	20%	20%	20%	\$40,814,40	
C0	Technology savings: optimize resources with platform management	C8-C9	\$0	\$3,120,000	\$4,787,640	\$6,530,336	\$8,350,680	\$8,542,760	\$31,311,416	\$22,707,438
	Risk adjustment		-10%							
C0	Technology savings: optimize resources with platform management (risk-adjusted)		\$0	\$2,808,000	\$4,368,000	\$5,877,302	\$7,515,812	\$7,088,494	\$28,198,274	\$20,436,664

Technology savings: optimize resources with app modernization

Ref	Metric	Calculation	Initial	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Present Value
D1	Number of modernized cloud apps	D01	4	20	100	100	100	100		
D2	Estimated cloud cost per app	D7	\$195,000	\$195,450	\$204,073	\$206,767	\$210,969	\$215,969		
	Percent reduction in resources from app modernization	Interview data	30%	30%	30%	30%	30%	30%	\$61,221,90	
D0	Technology savings: optimize resources with app modernization	D1*D2*D3	\$0	\$468,000	\$1,795,365	\$3,438,426	\$6,263,010	\$6,407,070	\$18,381,871	\$12,741,061
	Risk adjustment		-10%							
D0	Technology savings: optimize resources with app modernization (risk-adjusted)		\$0	\$421,200	\$1,615,629	\$3,085,583	\$5,638,709	\$5,766,363	\$16,925,684	\$11,466,955

Technology savings: avoid overprovisioning with cloud scalability

Ref	Metric	Calculation	Initial	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Present Value
E1	Physical annual cloud cost with legacy platforms	C8	\$15,600,000	\$23,938,200	\$32,051,680	\$41,753,400	\$42,713,800	\$42,713,800		
E2	Percent avoided access cost for overprovisioning to handle spikes	Interview data	15%	15%	15%	15%	15%	15%		
E0	Technology savings: avoid overprovisioning with cloud scalability	E1-E2	\$0	\$2,106,000	\$3,560,730	\$4,807,752	\$6,263,010	\$6,407,070	\$21,498,762	\$15,030,576
	Risk adjustment		-10%							
E0	Technology savings: avoid overprovisioning with cloud scalability (risk-adjusted)		\$0	\$2,106,000	\$3,231,657	\$4,407,877	\$5,638,709	\$5,766,363	\$21,148,708	\$15,327,520

Technology savings: reduce software licensing

Ref	Metric	Calculation	Initial	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Present Value
F1	Baseline licensing cost per VM	Formester	\$4,800	\$4,910	\$5,020	\$5,130	\$5,207			
F2	Number of VMs migrated to hybrid multi-cloud container platform	A1*A2*C1*C2	2,560	3,200	3,840	4,480	4,480			
F3	Percent reduction in licensing	Interview data	10%	10%	10%	10%	10%			
F0	Reduced licensing from platform	F1*F2*F3	\$1,920,000	\$2,560,000	\$3,895,344	\$5,453,408	\$5,323,794			
F5	Percent of applications modernized	(F4)/(F4+F5)	8%	21%	35%	50%	50%			
F6	Percent reduction in licensing	Interview data	20%	20%	20%	20%	20%			
F7	Reduced licensing from platform	F0*F5*F6	\$384,000	\$1,154,632	\$2,227,801	\$4,028,976	\$4,121,488			
F0	Technology savings: reduce software licensing	F4-F7	\$0	\$1,877,264	\$3,511,632	\$5,121,644	\$7,482,384	\$7,484,192	\$25,965,921	\$18,611,203
	Risk adjustment		-10%							
F0	Technology savings: reduce software licensing (risk-adjusted)		\$0	\$1,695,038	\$3,160,493	\$4,608,944	\$6,734,146	\$6,888,773	\$23,360,889	\$16,741,203

Technology savings: avoid infrastructure lock-in

Ref	Metric	Calculation	Initial	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Present Value
G1	Non-optimized annual cloud costs	G0	\$15,600,000	\$23,938,200	\$32,051,680	\$41,753,400	\$42,713,800	\$42,713,800		
G2	Non-optimized annual license costs	F2*F1	\$12,288,000	\$15,712,000	\$19,288,320	\$22,022,720	\$23,551,360			

Ref	Metric	Calculation	Initial	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Present Value
G3	Total annual costs	G11-G2	\$27,888,000	\$26,635,200	\$31,945,000	\$34,976,120	\$39,265,160		\$191,709,380	\$2,981,360
G4	Projected cumulative price increases (fixed to inflation)	CAGR of 2.3%	0.00%	2.30%	4.60%	7.06%	9.52%			
GR	Incremental price increase	G3-G2(1+G4)	\$0	\$891,451	\$2,307,803	\$4,271,619	\$6,790,083		\$14,261,766	\$187,389
GR	Likelihood to consider alternative solutions based on pricing pressure and new market dynamics	Interview data	0%	0%	10%	20%	50%			
G1	Technology savings avoid infrastructure lock-in	G17-G2	\$0	\$0	\$0	\$20,739	\$1,087,903	\$2,893,042	\$4,118,736	\$2,981,360
	Risk adjustment	>10%								
G1	Technology savings avoid infrastructure lock-in (risk-adjusted)		\$0	\$0	\$0	\$207,710	\$981,115	\$2,592,038	\$3,760,862	\$2,421,961

Operational efficiency

Ref	Metric	Calculation	Initial	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Present Value
H1	Baseline infrastructure address for mission-critical hardware	Sample bank	20	20	20	20	20	20		
H1	Percent of address modernized	Interview data	0%	10.0%	20.0%	30.0%	30.0%	30.0%		
H2	Modernized infrastructure address	H1*H2	0	2	6	6	6	6		
H1	Baseline infrastructure address for non-mission-critical hardware	Sample bank	30	30	30	30	30	30		
H2	Percent of address modernized	Interview data	0%	25%	50%	75%	100%	100%		
H1	Modernized infrastructure address	H1*H2	0	8	15	23	30	30		
H2	Number of applications address	Sample bank	30	30	30	30	30	30		
H1	Modernized infrastructure address	Interview data	0%	0%	40%	80%	80%	80%		
H1	Modernized infrastructure address	H1*H2	0	0	8	18	18	18		
H2	Number of applications address	Sample bank	30	30	30	30	30	30		
H1	Percent increase in productivity	Interview data	0%	15%	30%	40%	50%	50%		
H2	Productivity increase rate	Formular	50%	50%	50%	50%	50%	50%		
H1	Modernized infrastructure address	H1*H2	0	0	0	0	0	0		
H2	Total modernized address	H1*H2*H3	0	12	30	31	31	30		
H1	Annual fully burdened compensation	Formular	\$120,000	\$120,000	\$120,000	\$120,000	\$120,000	\$120,000		
H1	Operational efficiency	H4*H5	\$0	\$1,490,000	\$4,080,000	\$6,120,000	\$7,200,000	\$7,200,000	\$26,090,000	\$18,907,360
	Risk adjustment	>10%								
H1	Operational efficiency (risk-adjusted)		\$0	\$1,224,000	\$3,468,000	\$5,102,000	\$6,120,000	\$6,120,000	\$22,134,000	\$16,967,283

Developer efficiency

Ref	Metric	Calculation	Initial	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Present Value
I1	Average size of development team	Formular	8	8	8	8	8	8		
I2	Baseline weeks to develop an app	Formular	24	24	24	24	24	24		
I3	Percent increase in speed	Interview data	0%	50%	50%	50%	50%	50%		
I4	Avoided weeks of labor	I2*I3	12.0	12.0	12.0	12.0	12.0	12.0		
I5	Average fully burdened hourly salary	Formular	\$65	\$65	\$65	\$65	\$65	\$65		
I6	Cost savings per app developed	I4*I5*10^4	\$240,000	\$240,000	\$240,000	\$240,000	\$240,000	\$240,000		
I7	Number of new apps developed	APP1	5	15	20	20	0			
I8	App development savings	I6*I7	\$0	\$1,200,000	\$3,744,000	\$4,960,000	\$4,960,000	\$0		
I9	Baseline weeks for app maintenance and updates per app per year	APP2	8	8	8	8	8			
I10	Improved productivity for modern app maintenance	Interview data	50%	50%	50%	50%	50%			
I11	Avoided weeks of labor	I9*I10	4.0	4.0	4.0	4.0	4.0			
I12	Average fully burdened hourly salary	Formular	\$65	\$65	\$65	\$65	\$65			
I13	Cost savings per modern app	I11*I12*10^4	\$85,200	\$85,200	\$85,200	\$85,200	\$85,200			
I14	Cumulative number of legacy apps in IBM/PAF platform	APP4-APP12	12	42	80	140	140			
I15	Modern app maintenance savings	APP13	\$98,400	\$3,494,400	\$6,958,800	\$11,648,000	\$11,648,000			
I16	Avoided weeks of labor	Interview data	2%	2%	2%	2%	2%			
I17	Avoided weeks of labor	APP16	2.0	2.0	2.0	2.0	2.0			
I18	Average fully burdened hourly salary	Formular	\$65	\$65	\$65	\$65	\$65			
I19	Cost savings per modern app	I17*I18*10^4	\$1,300	\$1,300	\$1,300	\$1,300	\$1,300			
I20	Cumulative number of legacy apps in IBM/PAF platform	APP4-APP12	148	158	160	140	140			
I21	Modern app maintenance savings	APP16	\$6,156,000	\$6,372,800	\$6,456,000	\$6,924,000	\$6,924,000			
I1	Developer efficiency	I18*I21	\$0	\$8,493,200	\$13,811,200	\$18,324,000	\$22,464,000	\$22,464,000	\$80,494,400	\$58,207,320
	Risk adjustment	>10%								
I1	Developer efficiency (risk-adjusted)		\$0	\$7,142,720	\$11,739,520	\$15,958,400	\$19,094,400	\$19,094,400	\$68,596,240	\$50,147,880

Attract, hire, and retain employees

Ref	Metric	Calculation	Initial	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Present Value
J1	Average IT/ops salary	Formular	\$120,000	\$120,000	\$120,000	\$120,000	\$120,000	\$120,000		
J2	Baseline cost to recruit, IT/ops	J1*J2%	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000	\$60,000		
J3	Hiring cost improvement	Interview data	10%	10%	10%	10%	10%	10%		
J4	Improved cost to recruit, IT/ops	J2*J3	\$54,000	\$54,000	\$54,000	\$54,000	\$54,000	\$54,000		
J5	Average salary, development	Formular	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000	\$150,000		
J6	Baseline cost to recruit, dev	J5*J6%	\$87,500	\$87,500	\$87,500	\$87,500	\$87,500	\$87,500		
J7	Hiring cost improvement	Interview data	1%	1%	1%	1%	1%	1%		
J8	Improved cost to recruit, dev	J6*J7	\$86,750	\$86,750	\$86,750	\$86,750	\$86,750	\$86,750		
J9	Baseline retention rate	Formular	80.0%	80.0%	80.0%	80.0%	80.0%	80.0%		
J10	Retention rate increase	Interview data	2%	2%	2%	2%	2%			
J11	Improved retention rate	J9*J10	80.8%	81.6%	81.6%	81.6%	81.6%	81.6%		
J12	IT/operations FTEs	Sample bank	100	100	100	100	100	100		
J13	Development FTEs	Sample bank	100	100	100	100	100	100		
J14	Expected IT/ops retiring cost	J12*J11*J12	\$1,200,000	\$1,200,000	\$1,200,000	\$1,200,000	\$1,200,000	\$1,200,000		
J15	Improved IT/ops retiring cost	J12*J11*J12	\$1,200,000	\$993,600	\$993,600	\$993,600	\$993,600	\$993,600		
J16	Expected IT/ops retiring cost	J12*J11*J12	\$4,725,000	\$4,725,000	\$4,725,000	\$4,725,000	\$4,725,000	\$4,725,000		
J17	Improved IT/ops retiring cost	J12*J11*J12	\$4,725,000	\$3,975,300	\$3,975,300	\$3,975,300	\$3,975,300	\$3,975,300		
J1	Attract, hire, and retain employees	J16-J15*J17	\$0	\$809,800	\$1,018,100	\$1,018,100	\$1,018,100	\$1,018,100	\$4,882,200	\$3,993,282
	Risk adjustment	>10%								
J1	Attract, hire, and retain employees (risk-adjusted)		\$0	\$694,640	\$875,280	\$875,280	\$875,280	\$875,280	\$3,905,760	\$3,226,420

Dependability

Ref	Metric	Calculation	Initial	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Present Value
K1	Average annual cost of operational downtime for outages	Formular	\$5,000,000	\$5,000,000	\$5,000,000	\$5,000,000	\$5,000,000	\$5,000,000		
K2	Percent of environment in IBM and Red Hat hybrid multi-cloud platform	F2*F2%	5%	5%	5%	5%	5%	5%		
K3	Reduction in operational downtime with IBM and Red Hat platform	Interview data	95%	95%	95%	95%	95%	95%		
K1	Dependability	K1*K2*K3	\$0	\$3,940,000	\$3,940,000	\$3,940,000	\$3,940,000	\$3,940,000	\$22,940,000	\$14,267,281
	Risk adjustment	>10%								
K1	Dependability (risk-adjusted)		\$0	\$2,738,000	\$3,420,000	\$4,104,000	\$4,788,000	\$4,788,000	\$19,836,000	\$14,640,300

Security and compliance

Ref	Metric	Calculation	Initial	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Present Value
L1	Annual revenue	Sample bank	\$5,000,000,000	\$5,000,000,000	\$5,000,000,000	\$5,000,000,000	\$5,000,000,000	\$5,000,000,000		
L2	Net profit margin, banking	Item # M10	30.5%	30.5%	30.5%	30.5%	30.5%	30.5%		
L3	Number of FTEs with at least one data breach in the past year	Formular	5%	5%	5%	5%	5%	5%		
L4	Percent of breaches leading to lost customers	Formular	10%	10%	10%	10%	10%	10%		
L5	Percent of breaches averted	Formular	1.0%	1.0%	1.0%	1.0%	1.0%	1.0%		
L6	Percent of environment in IBM and Red Hat hybrid multi-cloud platform	K2	5%	5%	5%	5%	5%	5%		
L7	Reduction in number of breaches in IBM and Red Hat platform	Interview data	80%	80%	80%	80%	80%	80%		
L8	Avoided lost sales from breaches	L1*L2*L3*L4*L5	\$309,450	\$481,827	\$254,220	\$648,000	\$648,000	\$648,000		
L9	Reduced compliance fee exposure	Formular	\$202,261	\$202,261	\$202,261	\$202,261	\$202,261	\$202,261		
L1	Security and compliance	L8*L9	\$0	\$681,807	\$754,118	\$850,260	\$1,050,261	\$1,050,261	\$4,148,337	\$3,065,246
	Risk adjustment	>20%								
L1	Security and compliance (risk-adjusted)		\$0	\$528,446	\$603,342	\$677,240	\$791,137	\$791,137	\$3,110,302	\$2,469,136

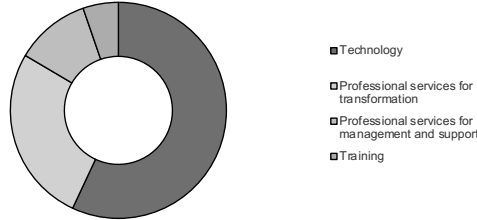
Business growth

Ref	Metric	Calculation	Initial	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Present Value
M1	Annual revenue	Sample bank	\$5,000,000,000	\$5,000,000,000	\$5,000,000,000	\$5,000,000,000	\$5,000,000,000	\$5,000,000,000		
M2	Percent of environment in IBM and Red Hat hybrid multi-cloud platform	K2	5%	5%	5%	5%	5%	5%		
M3	Reduction in acquisition revenue from customers in IBM and Red Hat platform	Interview data	0.5%	0.5%	0.5%	0.5%	0.5%	0.5%		
M4	Net profit margin, banking	Item # M10	30.5%	30.5%	30.5%	30.5%	30.5%	30.5%		
M5	Business growth from CR	M1*M2*M3*M4	\$4,397,149	\$10,589,867	\$10,589,867	\$10,589,867	\$10,589,867	\$10,589,867	\$51,200,000	\$35,200,000
M6	Cumulative number of new apps modernized with modern architecture	APP4	5	20	40	40	40			
M7	Percent of new apps that provide customer-facing services	Sample bank	20%	20%	20%	20%	20%			
M8	Additional acquisition revenue opportunity per app	Sample bank	\$10,000,000	\$10,000,000	\$10,000,000	\$10,000,000	\$10,000,000			
M9	Net profit margin, banking	Item # M10	30.5%	30.5%	30.5%	30.5%	30.5%	30.5%		
M10	Operational fee income	Sample bank	20%	20%	20%	20%	20%			
M11	Business growth from CR	M1*M2*M3*M4*M5	\$22,953	\$200,220	\$1,880,500	\$2,790,750	\$2,790,750			
M1	Business growth	M6*M11	\$0	\$4,396,705	\$11,823,107	\$14,831,939	\$18,040,750	\$18,040,750	\$67,428,241	\$46,086,163
	Risk adjustment	>20%								
M1	Business growth (risk-adjusted)		\$0	\$3,971,764	\$9,458,496	\$11,949,543	\$14,432,600	\$14,432,600	\$53,940,993	\$36,944,500

Total Cost

Ref.	Cost	Initial	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Present Value
Ntr	Technology	\$3,150,000	\$13,596,975	\$20,790,047	\$28,585,596	\$35,545,356	\$36,352,092	\$138,020,067	\$101,019,271
Otr	Professional services for transformation	\$15,750,000	\$15,750,000	\$15,750,000	\$5,250,000	\$0	\$0	\$52,500,000	\$47,029,113
Ptr	Professional services for management and support	\$0	\$5,250,000	\$5,250,000	\$5,250,000	\$5,250,000	\$5,250,000	\$26,250,000	\$19,901,631
Qtr	Training	\$5,024,800	\$1,225,576	\$1,169,432	\$1,126,048	\$1,103,080	\$1,103,080	\$10,752,016	\$9,389,794
Total costs (risk-adjusted)		\$23,924,800	\$35,822,551	\$42,959,479	\$40,211,644	\$41,898,436	\$42,705,172	\$227,522,083	\$177,339,809

Costs by Category



Technology

Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Present Value
N1	Number of IBM Z systems	Sample bank	6							
N2	Cost per system	Sample bank	\$500,000							
N3	Hardware purchase cost	N1*N2	\$3,000,000							
N4	Cost per system	Sample bank		15%	15%	15%	15%	15%		
N5	Hardware support cost	N3*N4		\$450,000	\$450,000	\$450,000	\$450,000	\$450,000		
N6	Application resource-equivalents (number of apps adjusted to reflect resource reduction from benefits)	(AP10+AP14)*(1-C9-D3)+AP12*(1-C9)		64	97	131	160	160		
N7	Cloud and platform cost per app	Sample bank		\$195,000	\$199,485	\$204,073	\$208,767	\$213,569		
N8	Cloud hosting and platform subscription costs	N6*N7		\$12,499,500	\$19,350,045	\$26,774,378	\$33,402,720	\$34,171,040		
N9	Additional subscriptions/licensing	Sample bank		\$0	\$0	\$0	\$0	\$0		
N10	Subscription and licensing costs	N9		\$0	\$0	\$0	\$0	\$0		
Nt	Technology	N3+N5+N8+N10	\$3,000,000	\$12,949,500	\$19,800,045	\$27,224,378	\$33,852,720	\$34,621,040	\$131,447,683	\$96,208,829
	Risk adjustment	↑5%								
Ntr	Technology (risk-adjusted)		\$3,150,000	\$13,596,975	\$20,790,047	\$28,585,596	\$35,545,356	\$36,352,092	\$138,020,067	\$101,019,271

Professional services for transformation

Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Present Value
O1	Professional services, including IBM Services and Red Hat Container Adoption Program	Interview data	\$15,000,000	\$15,000,000	\$15,000,000	\$5,000,000				
Ot	Professional services for transformation	O1	\$15,000,000	\$15,000,000	\$15,000,000	\$5,000,000	\$0	\$0	\$50,000,000	\$44,789,632
	Risk adjustment	↑5%								
Otr	Professional services for transformation (risk-adjusted)		\$15,750,000	\$15,750,000	\$15,750,000	\$5,250,000	\$0	\$0	\$52,500,000	\$47,029,113

Professional services for management and support

Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Present Value
P1	Professional services			\$5,000,000	\$5,000,000	\$5,000,000	\$5,000,000	\$5,000,000		
P2	Note: no additional internal labor costs, as existing IT teams replace existing work with the new platform			\$0	\$0	\$0	\$0	\$0		
Pt	Professional services for management and support	P1+P2	\$0	\$5,000,000	\$5,000,000	\$5,000,000	\$5,000,000	\$5,000,000	\$25,000,000	\$18,953,934
	Risk adjustment	↑5%								
Ptr	Professional services for management and support (risk-adjusted)		\$0	\$5,250,000	\$5,250,000	\$5,250,000	\$5,250,000	\$5,250,000	\$26,250,000	\$19,901,631

Training

CostDetails

Ref.	Metric	Calculation	Initial	Year 1	Year 2	Year 3	Year 4	Year 5	Total	Present Value
Q1	Hours of training per employee	Interview data	160	40	40	40	40	40		
Q2	Number of IT/operations admins	H1+H4+H7+H10-H14	100	88	66	49	40	40		
Q3	Fully burdened hourly salary	Sample bank	\$58	\$58	\$58	\$58	\$58	\$58		
Q4	IT training costs	Q1*Q2*Q3	\$928,000	\$204,160	\$153,120	\$113,680	\$92,800	\$92,800		
Q5	Number of developers	Sample bank	350	350	350	350	350	350		
Q6	Fully burdened hourly salary	Sample bank	\$65	\$65	\$65	\$65	\$65	\$65		
Q7	Developer training costs	Q1*Q5*Q6	\$3,640,000	\$910,000	\$910,000	\$910,000	\$910,000	\$910,000		
Qt	Training	Q4+Q7	\$4,568,000	\$1,114,160	\$1,063,120	\$1,023,680	\$1,002,800	\$1,002,800	\$9,774,560	\$8,536,176
	Risk adjustment	↑10%								
Qtr	Training (risk-adjusted)		\$5,024,800	\$1,225,576	\$1,169,432	\$1,126,048	\$1,103,080	\$1,103,080	\$10,752,016	\$9,389,794