

REFERENCES

- Badan Pusat Statistik Indonesia. (2022). *Indonesia population 2018-2022*. Badan Pusat Statistik Indonesia.
- Brealey, R. A., Myers, S. C., & Allen, F. (2020). *Principles of corporate finance* (13th ed.). McGraw-Hill.
- Brealey, R. A., Myers, S. C., & Allen, F. (2020). *Principles of corporate finance* (13th ed.). McGraw-Hill.
- Brigham, E. F., & Ehrhardt, M. C. (2021). *Financial management: Theory & practice* (16th ed.). Cengage Learning.
- Brigham, E. F., & Ehrhardt, M. C. (2022). *Financial management: Theory & practice* (16th ed.). Cengage Learning.
- Cooperrider, D. L., & Srivastva, S. (1987). *Appreciative Inquiry in Organizational Life. Research in Organizational Change and Development*, 1, 129–169.
- Creswell, J. W. (2009). *Research design: Qualitative, quantitative, and mixed methods approaches* (3rd ed.). Sage Publications.
- Creswell, J. W., & Clark, V. L. P. (2017). *Designing and Conducting Mixed Methods Research*. SAGE Publications.
- Damodaran, A. (2012). *Investment valuation: Tools and techniques for determining the value of any asset* (3rd ed.). Wiley.
- Damodaran, A. (2012). *Investment valuation: Tools and techniques for determining the value of any asset* (3rd ed.). Wiley.
- Damodaran, A. (2020). *Investment philosophies: Successful strategies and the investors who made them work* (3rd ed.). Wiley.
- Daryanto, W. M. (2018). *The application of capital investment decisions in the academic journal*. Surabaya: Putra Media Nusantara. ISBN 978-602-1187-84-5

- Fernandez, P. (2019). *Valuation and common sense* (6th ed.). Academic Press.
- Hollis, M., Daryanto, W. M., & Zulkifli, M. (2022). Strategic acquisition of automated stacking machine for built core production: A case study of PT Trafcomp Indonesiaperkasa. *Journal of Industrial Engineering*, 5(1), 123-145.
- Irawati, W., & Daryanto, W. M. (2018). The application of capital budgeting model for cost efficiency in distribution pipeline: Case study in Greenland International Industrial Center (GIIC) Area Block B. *Journal of Engineering Economics*, 7(4), 89-101.
- Kementerian Pekerjaan Umum dan Perumahan Rakyat (PUPR). (2021). *Ministry of Public Works and People's Housing Budget Report 2021* [Unpublished report].
- Mentari, D., & Daryanto, W. M. (2018). Capital budgeting model and sensitivity analysis of the project feasibility in Vietnam for the period of 2019-2037. *Asian Journal of Project Management*, 6(2), 56-74.
- Merzy, A. M., & Daryanto, W. M. (2018). Financial feasibility studies for Perusahaan Gas Negara (PGN) project: A case study of city gas project in Indonesia for the period of 2018-2038. *Journal of Financial Management*, 12(3), 234-248.
- Miles, M. B., Huberman, A. M., & Saldaña, J. (2014). *Qualitative Data Analysis: A Methods Sourcebook*. SAGE Publications.
- Polit, D. F., & Beck, C. T. (2004). *Nursing research: Principles and methods* (7th ed.). Lippincott Williams & Wilkins.
- Prabu Aji, D., & Kartono, B. (2022). The role of sustainable development goals in achieving global prosperity. *Jurnal Pembangunan Berkelanjutan*, 13(2), 33-47. <https://doi.org/10.1016/j.jsp.2022.08>
- Rangkuti, F. (2002). *SWOT analysis: A tool for strategic management*. Gramedia Pustaka Utama.

- Rochman, F. (2019). *SWOT analysis for strategic management: Theory and applications*. Gadjah Mada University Press.
- Ross, S. A., Westerfield, R. W., & Jaffe, J. (2019). *Corporate Finance*. McGraw-Hill Education.
- Ross, S. A., Westerfield, R. W., & Jaffe, J. (2019). *Corporate finance* (12th ed.). McGraw-Hill.
- Ross, S. A., Westerfield, R. W., & Jaffe, J. (2019). *Corporate finance* (12th ed.). McGraw-Hill.
- Sekaran, U., & Bougie, R. (2017). *Research methods for business: A skill-building approach* (7th ed.). Wiley.
- Sumawinata, M., Djatmika, R., & Nurcahyati, S. (2022). Return on investment (ROI) as an indicator of investment feasibility. *Journal of Financial and Investment Analysis*, 19(3), 120-133. <https://doi.org/10.1016/j.fia.2022.011>
- Surya, S. (2020). *Capital budgeting techniques in project evaluation*. Universitas Brawijaya Press.
- Wika Supply Chain Management. (2023). *List of launcher gantry ownership in Indonesia* [Internal document].

APPENDIX 1

List of Questions and Answers

1. Gambaran Umum dan Tujuan Proyek

Q1 : Dapatkah Anda menjelaskan tujuan utama dari Proyek Jalan Tol Harbour Road 2?

A : Proyek Jalan Tol Harbour Road 2 bertujuan untuk meningkatkan konektivitas di Jakarta Utara dengan menyediakan jalan tol layang yang dapat mengurangi kemacetan dan meningkatkan mobilitas logistik. Proyek ini dirancang untuk memperlancar transportasi barang dan orang, yang pada akhirnya akan mendukung pertumbuhan ekonomi di wilayah metropolitan Jakarta.

Q2 : Apa saja tantangan utama yang dihadapi dalam pelaksanaan proyek ini?

A : Tantangan utama termasuk bekerja di lingkungan perkotaan yang padat, meminimalkan gangguan lalu lintas, memastikan kualitas struktur yang tinggi, serta mengelola biaya proyek agar tetap efisien. Selain itu, kompleksitas logistik terkait pengadaan alat berat, termasuk Launcher Gantry 1.000 Ton, menjadi tantangan yang signifikan.

Q3 : Bagaimana proyek ini sejalan dengan rencana pembangunan infrastruktur nasional Indonesia?

A : Proyek ini mendukung rencana induk infrastruktur nasional, yang menargetkan pengembangan jalan tol untuk meningkatkan konektivitas antar kota. Pembangunan jalan tol layang ini sejalan dengan upaya pemerintah dalam meningkatkan infrastruktur transportasi guna mendorong pertumbuhan ekonomi.

2. Peran Launcher Gantry 1.000 Ton

Q4 : Mengapa Launcher Gantry 1.000 Ton dipilih untuk proyek ini?

A : Proyek ini melibatkan konstruksi jembatan dengan bentang panjang dan elemen berat pada ketinggian yang signifikan. Launcher Gantry 1.000 Ton dipilih karena memiliki kapasitas angkat yang besar, presisi tinggi dalam pemasangan gelagar, serta mampu bekerja di ketinggian hingga 22 meter.

Q5 : Bagaimana Launcher Gantry berkontribusi terhadap efisiensi konstruksi jembatan?

A : Alat ini secara signifikan mempercepat pemasangan girder dibandingkan metode konvensional. Dengan kemampuan mengangkat dan memasang balok secara cepat, proses konstruksi menjadi lebih efisien dan proyek dapat diselesaikan tepat waktu.

Q6 : Apa saja spesifikasi teknis dari Launcher Gantry dan bagaimana perbandingannya dengan peralatan konvensional?

A : Kapasitas: 1.000 Ton, memungkinkan pengangkatan Precast Box Girder yang besar. Rentang Operasi: Hingga 50 meter, cocok untuk jembatan bentang panjang. Kemampuan Kemiringan: 5% longitudinal, 6% transversal, memungkinkan fleksibilitas di berbagai kondisi proyek. Dibandingkan dengan crane konvensional, alat ini lebih efisien dan presisi, serta dapat digunakan dalam area kerja terbatas tanpa membutuhkan ruang yang luas untuk manuver.

3. Pertimbangan Teknis dan Finansial

Q7 : Faktor apa saja yang dipertimbangkan dalam keputusan pengadaan Launcher Gantry 1.000 Ton?

A : Keputusan ini didasarkan pada kelayakan proyek, keselamatan, justifikasi keuangan, dan penggunaan jangka panjang. Dibutuhkan sistem pengangkatan berkapasitas tinggi yang dapat meningkatkan efisiensi waktu dan biaya.

Q8 : Bagaimana alat ini mempengaruhi biaya keseluruhan proyek, termasuk pengadaan, perawatan, dan operasional?

A : Meskipun biaya pengadaan awal cukup tinggi, penghematan dalam biaya tenaga kerja, durasi konstruksi, dan efisiensi proyek menjadikan investasi ini layak secara finansial dalam jangka panjang. Namun, biaya perawatan dan operasional harus dikelola dengan baik.

Q9 : Apakah ada alternatif peralatan lain yang dipertimbangkan sebelum memilih Launcher Gantry ini?

A : Ya, kami mempertimbangkan beberapa opsi, termasuk crane konvensional dan launcher gantry berkapasitas lebih kecil, tetapi tidak ada yang memenuhi kebutuhan proyek secara optimal. Model Comtec TCS dari Italia dipilih karena telah terbukti handal dalam proyek infrastruktur serupa.

Q10 : Bagaimana investasi ini mempengaruhi keberlanjutan finansial proyek dalam jangka panjang?

A : Dengan potensi penggunaan ulang untuk proyek lain, alat ini dapat memberikan manfaat jangka panjang. Selain itu, efisiensi konstruksi yang lebih tinggi memungkinkan pengelolaan anggaran yang lebih baik dan daya saing yang lebih tinggi dalam tender proyek masa depan.

4. Keunggulan Kompetitif dan Strategis

Q11 : Bagaimana kepemilikan Launcher Gantry ini memberikan keunggulan kompetitif bagi PT Wijaya Karya?

A : Dengan memiliki alat ini, kami dapat menangani proyek berskala besar yang tidak dapat dilakukan oleh banyak pesaing karena keterbatasan peralatan. Selain itu, kepemilikan alat ini mengurangi ketergantungan pada penyewaan pihak ketiga, sehingga meningkatkan efisiensi biaya dan waktu proyek.

Q12 : Bagaimana pengadaan ini sejalan dengan strategi jangka panjang PT Wijaya Karya?

A : PT Wijaya Karya menargetkan untuk menjadi pemimpin pasar dalam pembangunan infrastruktur, dan investasi dalam teknologi konstruksi canggih merupakan bagian dari strategi ini.

Q13 : Apakah Launcher Gantry ini dapat digunakan untuk proyek lain setelah Harbour Road 2?

A : Ya, alat ini dapat digunakan untuk proyek jalan tol layang lainnya, jembatan bentang panjang, serta infrastruktur kereta api, sehingga meningkatkan nilai investasi jangka panjangnya.

5. Keselamatan dan Manajemen Risiko

Q14 : Bagaimana Launcher Gantry meningkatkan keselamatan kerja di lokasi proyek?

A : Alat ini mengurangi risiko cedera akibat pengangkatan manual, membatasi eksposur pekerja ke area berbahaya, dan meningkatkan keamanan pemasangan struktur berat.

Q15 : Apa saja risiko potensial dalam pengoperasian alat ini dan bagaimana cara menguranginya?

A : Risiko utama meliputi kegagalan mekanis, kesalahan operator, dan keterbatasan ruang kerja. Risiko ini dikurangi melalui pemeliharaan berkala, pelatihan operator, dan evaluasi keselamatan proyek secara berkala.

Q16 : Apakah penggunaan Launcher Gantry ini telah mengurangi tingkat kecelakaan kerja?

A : Ya, kami melihat penurunan signifikan dalam kecelakaan kerja, terutama yang terkait dengan pengangkatan dan pemasangan elemen beton berat.

6. Pandangan Masa Depan dan Rekomendasi

Q17 : Apa pelajaran utama yang dapat diambil dari penggunaan Launcher Gantry 1.000 Ton dalam proyek ini?

A : Pentingnya perencanaan matang dalam pengadaan, logistik, dan pemeliharaan alat berat untuk memaksimalkan efisiensi proyek.

Q18 : Apakah alat serupa perlu dipertimbangkan untuk proyek jalan tol dan jembatan lainnya?

A : Ya, proyek infrastruktur berskala besar membutuhkan teknologi canggih untuk menyelesaikan pekerjaan dengan efisiensi tinggi dan kualitas yang baik.

Q19 : Apa rekomendasi bagi perusahaan lain yang mempertimbangkan investasi serupa?

A : Pastikan perencanaan jangka panjang, pelatihan operator, serta analisis biaya-manfaat yang komprehensif sebelum berinvestasi dalam alat berat seperti ini.

APPENDIX 2

Capital Budgeting Calculation in Microsoft Excel

A. DATA ALAT

Jenis Alat	Launcher Gantry / Overhead Launcher
Merk/Tipe	Comtec tcs
Kapasitas	1000T / 50m span, climbable slope 5% longitudinal, 6% slope transversal
Jumlah unit	1 unit brand new
Asal alat	Italy
Keterangan	Perubahan spesifikasi beban maksimum untuk memenuhi kebutuhan proyek yang diperoleh (pertama digunakan pada proyek Harbour Road II)

LAUNCHER GANTRY COMTEC SETS 1.000 TONS

Launcher Gantry Sets 1000 Tons	Rp	47.571.000,00	47.571.000,00
Launcher Gantry 1.000 Tons	Rp	35.489.000,00	Comtec
Contractor Engineering Service	Rp	4.362.000,00	Expert
Erection dan commissioning	Rp	7.720.000,00	Subkontraktor
Economif Life	10 Tahun		
Cost of Capital		12%	

Revenue & Exchange Rate

Moderate & Pesismistic

Period	Sales	Remarks
Tariff	Rp 390.500.000	Rp/Span

Operational Expenditure

Item	QTY	Cost	Total
B OPERATION			Rp 897.000.000
General Manager	1 Rp	18.000.000	Rp 234.000.000
Engineer S1	2 Rp	12.000.000	Rp 312.000.000
Operator LG	1 Rp	6.000.000	Rp 78.000.000
Helper	1 Rp	6.000.000	Rp 78.000.000
Administrator	1 Rp	7.500.000	Rp 97.500.000
Assistent Adm.	1 Rp	7.500.000	Rp 97.500.000

C MAINTENANCE

LG Equipment Maintenance	Rp 150.000.000
--------------------------	----------------

D DEPRECIATION

TOTAL	Rp 1.047.000.000
--------------	-------------------------

D ECONOMIC FACTOR

Indonesian Corporate Income Tax Rate	2,65%
Interest Rate	12,00%

PRODUCTION LG COMTECH

Maximum Gross Capacity	4	Span/month
Net Capacity	4	Span/month
Annual Sale	48	Span/year

Category	Unit	Year										
		Q1 2025	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Revenue												
Tarif	IDR/ Span		390.500.000	390.500.000	390.500.000	390.500.000	390.500.000	390.500.000	390.500.000	390.500.000	390.500.000	390.500.000
Annual Sales	Span/ Year		48	48	48	48	48	48	48	48	48	48
Total Revenue	IDR/ Year		18.744.000.000	18.744.000.000	18.744.000.000	18.744.000.000	18.744.000.000	18.744.000.000	18.744.000.000	18.744.000.000	18.744.000.000	18.744.000.000
Operational Expenditure												
OPERATIONS												
General Manager	IDR (Salary/ Year)		234.000.000	234.000.000	234.000.000	234.000.000	234.000.000	234.000.000	234.000.000	234.000.000	234.000.000	234.000.000
Engineer SI			312.000.000	312.000.000	312.000.000	312.000.000	312.000.000	312.000.000	312.000.000	312.000.000	312.000.000	312.000.000
Operator Mechanical			78.000.000	78.000.000	78.000.000	78.000.000	78.000.000	78.000.000	78.000.000	78.000.000	78.000.000	78.000.000
Operator Electrical			78.000.000	78.000.000	78.000.000	78.000.000	78.000.000	78.000.000	78.000.000	78.000.000	78.000.000	78.000.000
Administrator			97.500.000	97.500.000	97.500.000	97.500.000	97.500.000	97.500.000	97.500.000	97.500.000	97.500.000	97.500.000
Assistant Adm			97.500.000	97.500.000	97.500.000	97.500.000	97.500.000	97.500.000	97.500.000	97.500.000	97.500.000	97.500.000
MAINTENANCE			-	-	-	-	-	-	-	-	-	-
LG Equipment Maintenance	IDR		150.000.000	150.000.000	150.000.000	150.000.000	150.000.000	150.000.000	150.000.000	150.000.000	150.000.000	150.000.000
Total OPEx			1.047.000.000	1.047.000.000	1.047.000.000	1.047.000.000	1.047.000.000	1.047.000.000	1.047.000.000	1.047.000.000	1.047.000.000	1.047.000.000
Earning Before Interest, Taxes, Depreciation, and Amortization (EBITDA)	IDR		17.697.000.000	17.697.000.000	17.697.000.000	17.697.000.000	17.697.000.000	17.697.000.000	17.697.000.000	17.697.000.000	17.697.000.000	17.697.000.000
Depreciation and Amortization	IDR		4.757.100.000	4.757.100.000	4.757.100.000	4.757.100.000	4.757.100.000	4.757.100.000	4.757.100.000	4.757.100.000	4.757.100.000	4.757.100.000
Amortization (permanen2- tangible)												
Earning Before Interest and Taxes (EBIT)	IDR		12.939.900.000	12.939.900.000	12.939.900.000	12.939.900.000	12.939.900.000	12.939.900.000	12.939.900.000	12.939.900.000	12.939.900.000	12.939.900.000
Interest before tax	IDR		5.446.879.500	4.876.027.500	4.305.175.500	3.734.323.500	3.163.471.500	2.592.619.500	2.021.767.500	1.450.915.500	880.063.500	309.211.500
Earning Before Taxes (EBT)	IDR		7.493.020.500	8.063.872.500	8.634.724.500	9.205.576.500	9.776.428.500	10.347.280.500	10.918.132.500	11.488.984.500	12.059.836.500	12.630.688.500
Tax (2,65%)	IDR		496.716.000	496.716.000	496.716.000	496.716.000	496.716.000	496.716.000	496.716.000	496.716.000	496.716.000	496.716.000
Earning After Taxes (EAT)	IDR		6.996.304.500	7.567.156.500	8.138.008.500	8.708.860.500	9.279.712.500	9.850.564.500	10.421.416.500	10.992.268.500	11.563.120.500	12.133.972.500
Depreciation and Amortization			4.757.100.000	4.757.100.000	4.757.100.000	4.757.100.000	4.757.100.000	4.757.100.000	4.757.100.000	4.757.100.000	4.757.100.000	4.757.100.000
Net Cash Inflows from operating Activity	IDR		11.753.404.500	12.324.256.500	12.895.108.500	13.465.960.500	14.036.812.500	14.607.664.500	15.178.516.500	15.749.368.500	16.320.220.500	16.891.072.500
Net Cash Outflows for financing activity	IDR		- 2.743.188.284	- 3.314.040.284	- 3.884.892.284	- 4.455.744.284	- 5.026.596.284	- 5.597.448.284	- 6.168.300.284	- 6.739.152.284	- 7.310.004.284	- 7.880.856.284
Cash Outflows for investing activity	IDR		- 47.571.000.000	-	-	-	-	-	-	-	-	-
Net Cash Flow	IDR		- 47.571.000.000	14.496.592.784	15.638.296.784	16.780.000.784	17.921.704.784	19.063.408.784	20.205.112.784	21.346.816.784	22.488.520.784	23.630.224.784
Balance	IDR		- 33.074.407.216	- 17.436.110.432	- 656.109.649	17.265.595.135	36.329.003.919	56.534.116.703	77.880.933.486	100.369.454.270	123.999.679.054	148.771.607.838
Initial Investment	Rp		- 47.571.000.000									
Discount Factor			0.8954	0.8017	0.7179	0.6428	0.5756	0.5153	0.4614	0.4132	0.3700	0.3313
PV Yearly			12.980.241.027	12.537.850.456	12.045.988.070	11.519.843.745	10.971.970.904	10.412.671.870	9.850.331.442	9.291.705.430	8.742.169.219	8.205.933.552
Sum PV	Rp		106.658.705.614									
Discounted Payback Period	>Rp		- 34.590.758.973	- 22.053.908.517	- 10.006.920.447	- 1.512.933.298	- 12.484.804.202	22.897.566.071	32.747.897.513	42.039.602.844	50.781.772.063	58.987.705.614
Yearly ROI			14.71%	16.88%	19.60%	23.14%	27.97%	35.00%	46.22%	67.10%	119.93%	520.41%
Average ROI			89,10%									

Category	Result	Description
WACC	11,68%	
Payback Period	3,04 years	
ROI	89,10% average	
NPV	58.987.705.614,14	IDR
PI	3,24	
Discounted Payback Period	3,37 years	
IRR	34,25%	

APPENDIX 3

Capital Budgeting with Sensitivity Analysis Calculation in Microsoft Excel

Category	Unit	Year										
		Q1 2025	2025	2026	2027	2028	2029	2030	2031	2032	2033	2034
Revenue												
Tarif	IDR/ Span		390.500.000	390.500.000	390.500.000	390.500.000	390.500.000	390.500.000	390.500.000	390.500.000	390.500.000	390.500.000
Annual Sales	Span/ Year		48	48	48	48	48	48	48	48	48	48
Total Revenue	IDR/ Year		18.744.000.000	18.744.000.000	18.744.000.000	18.744.000.000	18.744.000.000	18.744.000.000	18.744.000.000	18.744.000.000	18.744.000.000	18.744.000.000
Operational Expenditure												
OPERATIONS												
General Manager	IDR (Salary/ Year)		234.000.000	245.700.000	257.985.000	270.884.250	284.428.403	298.649.886	313.582.380	329.261.499	345.724.574	363.010.803
Engineer SI			312.000.000	327.600.000	343.980.000	361.179.000	379.237.950	398.199.848	418.109.840	439.015.332	460.966.098	484.014.403
Operator Mechanical			78.000.000	81.900.000	85.995.000	90.294.750	94.809.488	99.549.902	104.527.460	109.753.833	115.241.525	121.003.601
Operator Electrical			78.000.000	81.900.000	85.995.000	90.294.750	94.809.488	99.549.902	104.527.460	109.753.833	115.241.525	121.003.601
Administrator			97.500.000	102.375.000	107.493.750	112.868.438	118.511.859	124.437.452	130.659.325	137.192.291	144.051.906	151.254.501
Assistant Adm.			97.500.000	102.375.000	107.493.750	112.868.438	118.511.859	124.437.452	130.659.325	137.192.291	144.051.906	151.254.501
MAINTENANCE			-	-	-	-	-	-	-	-	-	-
LO Equipment Maintenance	IDR		150.000.000	157.500.000	165.375.000	173.643.750	182.525.938	191.442.254	201.014.346	211.065.063	221.618.317	232.699.232
Total OPEx			1.047.000.000	1.099.350.000	1.154.317.500	1.212.033.375	1.272.635.044	1.336.266.796	1.403.080.136	1.473.234.143	1.546.995.850	1.624.240.642
Earning Before Interest, Taxes, Depreciation, and Amortization (EBITDA)	IDR		17.697.000.000	17.644.650.000	17.589.682.500	17.531.966.625	17.471.364.956	17.407.733.204	17.340.919.864	17.270.765.857	17.197.104.150	17.119.759.358
Depreciation and Amortization	IDR		4.757.100.000	4.757.100.000	4.757.100.000	4.757.100.000	4.757.100.000	4.757.100.000	4.757.100.000	4.757.100.000	4.757.100.000	4.757.100.000
Amortization (per year 2-2034)												
Earning Before Interest and Taxes (EBIT)	IDR		12.939.900.000	12.887.550.000	12.832.582.500	12.774.866.625	12.714.264.956	12.650.633.204	12.585.819.864	12.513.665.857	12.440.004.150	12.362.659.358
Interest before tax	IDR		5.446.879.500	4.876.027.500	4.305.175.500	3.734.323.500	3.163.471.500	2.592.619.500	2.021.767.500	1.450.915.500	880.063.500	309.211.500
Earning Before Taxes (EBT)	IDR		7.493.020.500	8.011.522.500	8.527.407.000	9.040.543.125	9.550.793.456	10.058.013.704	10.562.052.364	11.062.750.357	11.559.940.650	12.053.447.858
Tax (2.65%)	IDR		496.716.000	496.716.000	496.716.000	496.716.000	496.716.000	496.716.000	496.716.000	496.716.000	496.716.000	496.716.000
Earning After Taxes (EAT)	IDR		6.996.304.500	7.514.806.500	8.030.691.000	8.543.827.125	9.054.077.456	9.561.297.704	10.065.336.364	10.566.034.357	11.063.224.650	11.556.731.858
Depreciation and Amortization			4.757.100.000	4.757.100.000	4.757.100.000	4.757.100.000	4.757.100.000	4.757.100.000	4.757.100.000	4.757.100.000	4.757.100.000	4.757.100.000
Net Cash Inflows from operating Activity (8+9)	IDR		11.753.404.500	12.271.906.500	12.787.791.000	13.300.927.125	13.811.177.456	14.318.397.704	14.822.436.364	15.323.134.357	15.820.324.650	16.313.831.858
Net Cash Outflows for financing activity	IDR		- 2.743.188.284	- 3.314.040.284	- 3.884.892.284	- 4.455.744.284	- 5.026.596.284	- 5.597.448.284	- 6.168.300.284	- 6.739.152.284	- 7.310.004.284	- 7.880.856.284
Net Cash Outflows for investing activity	IDR		- 47.571.000.000	-	-	-	-	-	-	-	-	-
Net Cash Flow	IDR		- 47.571.000.000	14.496.592.784	15.585.946.784	16.672.683.284	17.756.671.409	18.837.773.740	19.915.845.988	20.990.756.648	22.062.286.641	23.130.328.934
Balance	IDR		- 33.074.407.216	- 17.488.480.432	- 815.777.149	16.940.894.260	35.778.668.000	55.694.513.988	76.685.250.636	98.747.537.277	121.877.866.211	146.072.554.353
Initial Investment	Rp		- 47.571.000.000									
Discount Factor			0.8954	0.8017	0.7179	0.6428	0.5756	0.5153	0.4614	0.4132	0.3709	0.3313
PV Yearly			12.980.241.027	12.495.879.359	11.968.947.251	11.413.762.302	10.842.106.347	10.263.598.699	9.686.020.885	9.115.595.835	8.557.229.204	8.014.717.180
Sum PV	Rp		105.338.098.150									
Discounted Payback Period	Rp		- 34.590.758.973	- 23.094.879.614	- 10.125.937.383	- 1.287.830.000	12.129.936.357	22.393.535.055	32.079.555.040	41.195.151.775	49.752.380.980	57.767.098.150
Yearly ROI			14.71%	16.78%	19.34%	22.71%	27.29%	33.97%	44.64%	64.50%	114.74%	405.65%
Average ROI			85.43%									

Category	Result	Description
WACC	11.68%	
Payback Period	3.05 years	
ROI	85.43% average	
NPV	57.767.098.150,04	IDR
PI	2,71	
Discounted Payback Period	3.89 years	
IRR	35.06%	

APPENDIX 4



Jakarta, 6 February 2025
No: 004/IPMI/AO/ThesisResearch/II/2025

To:

PT Wijaya Karya (Persero), Tbk.
Jl. DI. Panjaitan No.Kav. 9-10, RT.1/RW.11, Cipinang Cempedak, Kecamatan Jatinegara
Kota Jakarta Timur 13340

Subject: Request for Participation in 'Thesis Research'

Dear Sir/Madam,

IPMI Institute was founded in 1984, patterned after Harvard MBA Business School in the United States of America. Our programs are delivered in English, and use case study teaching methods. At present, IPMI has produced more than 3000 alumni.

In order to provide Graduate students with an education that is relevant to Indonesian business today, a significant portion of the programs is devoted to Thesis Course which involves real business world integration. This project offers our students an opportunity to assist a company in the formulation of a strategy or the resolution of managerial issues deemed important by management of the company.

The objectives of this project are:

1. As an integral part of IPMI Institute's program, it further develops the skills and attitude required in the present and future business environment.
2. It serves to strengthen the links between the business community and IPMI.
3. It develops specific recommendations aimed at improving the company's business performance.

IPMI Institute would like to invite your company to be involved in the Thesis by allowing our students to conduct project research focused on your company needs, resulting in a strategy that could bring your company great benefits if implemented. In the interest of contributing to the educational process, it is hoped that your company would be willing to join us in this venture.

The student's name for the project is: **Alfi Trianto (Student ID: 20222013, Class: EMBA March 2021)**

We assure you that all data gathered from your organization would be treated as strictly confidential and used for educational purposes only. Please let us know should you prefer to keep the organization's name confidential, as we would disguise it as anonymous.

Should you require more information or clarification regarding this project, you are welcome to contact us.

Sincerely,

Sidrotun Naim, M.P.A., Ph.D
Head of Graduate Program
IPMI Institute

Jl. Rawajati Timur I/1, Pancoran, Jakarta Selatan 12750 | ☎+62 21 797 8888 | www.ipmi.ac.id

📍 IPMI Campus 📍 IPMICampus 📍 ipmicampus | ipmi.bachelor | ipmi.probba f/in IPMI Institute

APPENDIX 5

IPMI INSTITUTE - GRADUATE PROGRAM

RECOMMENDATION

☒ **PROPOSAL DEFENSE OF THESES**
☐ **FINAL EXAMINATION OF THESES**

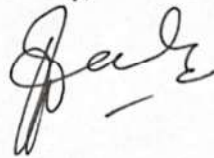
I am pleased to be the advisor of this thesis, and I certify that the students have faithfully achieved the requirements as specified in the *Guideline for the Preparation of Thesis 2023*.

Student Name (Student ID) : Alfi Trianto (20222013)
Title : Strategic Investment Decision And Evaluation To
Acquire 1,000 Ton Launcher Gantry For Toll Road
Harbour Road Project of PT Wijaya Karya (Persero),
Tbk. Indonesia
Date of Thesis Defense : January 13, 2025 (alt. 1)
January 17, 2025 (alt. 2)
Time of Thesis Defense : 07.30 PM WIB

The thesis has been checked and recommended for presentation and comprehensive oral defense towards a Master of Business Administration Degree at IPMI Institute.

Jakarta, January 7, 2025

Approved by,



(Prof. Dr. Wiwiek Mardawiyah D., SE., Ak., M.M.,
CMA)

APPENDIX 6

IPMI INSTITUTE - GRADUATE PROGRAM

RECOMMENDATION



PROPOSAL DEFENSE OF THESES

FINAL EXAMINATION OF THESES

I am pleased to be the advisor of this thesis, and I certify that the students have faithfully achieved the requirements as specified in the *Guideline for the Preparation of Thesis 2023*.

Student Name (Student ID) : Alfi Trianto (20222013)
Title : Strategic Investment Decision And Evaluation To
Acquire 1,000 Ton Launcher Gantry For Toll Road
Harbour Road Project of PT Wijaya Karya (Persero),
Tbk. Indonesia
Date of Thesis Defense : February 20, 2025 (alt. 1)
February 21, 2025 (alt. 2)
Time of Thesis Defense : 07.30 PM WIB

The thesis has been checked and recommended for presentation and comprehensive oral defense towards a Master of Business Administration Degree at IPMI Institute.

Jakarta, February 14, 2025

Approved by,



(Prof. Dr. Wiwick Mardawiyah D., SE., Ak., M.M.,
CMA)