



LAMPIRAN

LAMPIRAN 1 : Data downtime kerusakan conveyor pada mesin DTE 2, DTE 3, DTE 4

Jenis Kerusakan	Mesin	Menit	Jam	Start	Finish
Conveyor Problem	DTE2	5.33	0.09	19-Jan-16 08:49:28	19-Jan-16 08:44:08
Conveyor Problem	DTE2	5.8	0.1	23-Jan-16 10:33:14	23-Jan-16 10:27:26
Conveyor Problem	DTE2	10.78	0.18	24-Jan-16 12:43:29	24-Jan-16 12:32:42
Conveyor Problem	DTE3	1.7	0.03	03-Jan-16 21:55:47	03-Jan-16 21:54:05
Conveyor Problem	DTE3	34.08	0.57	06-Jan-16 12:50:35	06-Jan-16 12:16:30
Conveyor Problem	DTE3	28.67	0.48	06-Jan-16 13:19:32	06-Jan-16 12:50:52
Conveyor Problem	DTE3	69.45	1.16	31-Jan-16 09:58:30	31-Jan-16 08:49:03
Conveyor Problem	DTE4	15.38	0.26	18-Jan-16 08:39:21	18-Jan-16 08:23:58
Conveyor Problem	DTE4	1.83	0.03	22-Jan-16 10:20:16	22-Jan-16 10:18:26
Conveyor Problem	DTE4	2.1	0.04	30-Jan-16 03:14:14	30-Jan-16 03:12:08
Conveyor Problem	DTE4	17.62	0.29	30-Jan-16 02:41:50	30-Jan-16 02:24:13
Conveyor Problem	DTE4	8.45	0.14	30-Jan-16 02:50:23	30-Jan-16 02:41:56
Conveyor Problem	DTE4	8.28	0.14	30-Jan-16 03:56:56	30-Jan-16 03:48:39
Conveyor Problem	DTE4	33.82	0.56	30-Jan-16 03:48:16	30-Jan-16 03:14:27
Conveyor Problem	DTE4	2.27	0.04	30-Jan-16 17:48:32	30-Jan-16 17:46:16
Conveyor Problem	DTE4	5.27	0.09	30-Jan-16 15:47:31	30-Jan-16 15:42:15
Conveyor Problem	DTE4	53.17	0.89	30-Jan-16 20:55:25	30-Jan-16 20:02:15
Conveyor Problem	DTE4	0.07	0	30-Jan-16 08:34:11	30-Jan-16 08:34:07
Conveyor Problem	DTE4	15.08	0.25	30-Jan-16 15:37:23	30-Jan-16 15:22:18
Conveyor Problem	DTE2	14.48	0.24	06-Feb-16 14:24:50	06-Feb-16 14:10:21
Conveyor Problem	DTE2	56.97	0.95	26-Feb-16 08:06:43	26-Feb-16 07:09:45
Conveyor Problem	DTE3	3.62	0.06	02-Feb-16 04:14:30	02-Feb-16 04:10:53
Conveyor Problem	DTE3	3.73	0.06	02-Feb-16 09:33:30	02-Feb-16 09:29:46
Conveyor Problem	DTE3	0.37	0.01	25-Feb-16 21:39:33	25-Feb-16 21:39:11
Conveyor Problem	DTE3	1.3	0.02	25-Feb-16 08:54:08	25-Feb-16 08:52:50
Conveyor Problem	DTE3	45.2	0.75	25-Feb-16 13:38:43	25-Feb-16 12:53:31
Conveyor Problem	DTE3	18.92	0.32	30-Feb-16 04:23:45	30-Feb-16 04:04:50
Conveyor Problem	DTE3	12.58	0.21	30-Feb-16 04:52:02	30-Feb-16 04:39:27
Conveyor Problem	DTE3	5.08	0.08	30-Feb-16 03:45:03	30-Feb-16 03:39:58
Conveyor Problem	DTE3	0.52	0.01	30-Feb-16 09:05:04	30-Feb-16 09:04:33
Conveyor Problem	DTE4	29.52	0.49	05-Feb-16 01:38:46	05-Feb-16 01:09:15
Conveyor Problem	DTE4	15.85	0.26	15-Feb-16 12:19:13	15-Feb-16 12:03:22
Conveyor Problem	DTE4	0.43	0.01	15-Feb-16 12:20:03	15-Feb-16 12:19:37
Conveyor Problem	DTE4	25.82	0.43	15-Feb-16 11:52:21	15-Feb-16 11:26:32
Conveyor Problem	DTE4	28.77	0.48	15-Feb-16 12:49:02	15-Feb-16 12:20:16
Conveyor Problem	DTE4	11.23	0.19	15-Feb-16 13:01:40	15-Feb-16 12:50:26
Conveyor Problem	DTE4	1.87	0.03	16-Feb-16 21:49:27	16-Feb-16 21:47:35
Conveyor Problem	DTE4	8.18	0.14	16-Feb-16 21:47:03	16-Feb-16 21:38:52
Conveyor Problem	DTE4	198.7	3.31	31-Feb-16 20:04:48	31-Feb-16 16:46:06
Conveyor Problem	DTE2	26.7	0.45	22-Mar-16 09:46:35	22-Mar-16 09:19:53
Conveyor Problem	DTE2	94.95	1.58	24-Mar-16 05:09:11	24-Mar-16 03:34:14

Conveyor Problem	DTE2	0.18	0	24-Mar-16 03:33:38	24-Mar-16 03:33:27
Conveyor Problem	DTE3	52.98	0.88	26-Mar-16 20:10:59	26-Mar-16 19:18:00
Conveyor Problem	DTE3	7.75	0.13	27-Mar-16 07:50:44	27-Mar-16 07:42:59
Conveyor Problem	DTE3	160.72	2.68	30-Mar-16 12:04:42	30-Mar-16 09:23:59
Conveyor Problem	DTE4	12.38	0.21	02-Mar-16 08:19:02	02-Mar-16 08:06:39
Conveyor Problem	DTE4	21.15	0.35	02-Mar-16 08:40:48	02-Mar-16 08:19:39
Conveyor Problem	DTE4	97.37	1.62	03-Mar-16 14:22:57	03-Mar-16 12:45:35
Conveyor Problem	DTE4	25.42	0.42	07-Mar-16 14:41:29	07-Mar-16 14:16:04
Conveyor Problem	DTE4	1.33	0.02	11-Mar-16 20:03:03	11-Mar-16 20:01:43
Conveyor Problem	DTE4	6.2	0.1	11-Mar-16 20:09:40	11-Mar-16 20:03:28
Conveyor Problem	DTE4	6.43	0.11	11-Mar-16 20:16:18	11-Mar-16 20:09:52
Conveyor Problem	DTE4	37.5	0.63	16-Mar-16 19:01:51	16-Mar-16 18:24:21
Conveyor Problem	DTE4	48.67	0.81	16-Mar-16 20:04:27	16-Mar-16 19:15:47
Conveyor Problem	DTE4	3.8	0.06	16-Mar-16 20:31:30	16-Mar-16 20:27:42
Conveyor Problem	DTE4	5.68	0.09	16-Mar-16 19:07:37	16-Mar-16 19:01:56
Conveyor Problem	DTE4	6.52	0.11	16-Mar-16 21:52:22	16-Mar-16 21:45:51
Conveyor Problem	DTE4	15.6	0.26	21-Mar-16 11:05:48	21-Mar-16 10:50:12
Conveyor Problem	DTE4	87.8	1.46	26-Mar-16 00:28:00	25-Mar-16 23:00:12
Conveyor Problem	DTE4	223.25	3.72	25-Mar-16 22:58:25	25-Mar-16 19:15:10
Conveyor Problem	DTE4	36.42	0.61	26-Mar-16 09:20:39	26-Mar-16 08:44:14
Conveyor Problem	DTE4	3.28	0.05	29-Mar-16 02:34:56	29-Mar-16 02:31:39

LAMPIRAN 2 : Data TTR dan TBF mesin DTE 4 dan DTE 6Data TTR dan TBF pada *cooling conveyor* mesin DTE 4

No	Start	Finish	TTR (jam)	TBF (jam)
1	05/09/2013 02:00:50	05/09/2013 05:00:50	3,67	
2	05/23/2013 20:30:00	05/23/2013 21:30:00	1,00	351.5000
3	05/26/2013 21:55:00	05/26/2013 22:25:07	0,50	72.4167
4	05/28/2013 01:50:32	05/28/2013 02:30:32	0,75	27.4167
5	05/28/2013 16:00:00	05/28/2013 16:50:00	0,83	13.5000
6	06/04/2013 08:40:00	06/04/2013 11:00:00	2,33	159.8333
7	06/05/2013 08:10:00	06/05/2013 11:00:00	2,83	21.1667
8	08/19/2013 09:00:00	08/19/2013 10:30:00	1,50	1798.0000
9	08/19/2013 12:30:42	08/19/2013 16:30:42	4,00	2.0000
10	05/14/2014 11:00:00	05/14/2014 12:00:00	1,00	6426.5000
11	06/05/2014 12:45:02	06/05/2014 14:00:14	1,25	528.7500
12	06/09/2014 13:20:00	06/09/2014 14:50:00	1,50	1.5833
13	08/07/2014 22:01:51	08/07/2014 23:01:51	1,00	1423.1833
14	08/08/2014 19:00:51	08/08/2014 20:00:43	1,00	19.9833
15	08/22/2014 15:00:00	08/22/2014 16:00:00	1,00	331.0000
16	09/06/2014 11:05:00	09/06/2014 12:00:00	0,92	355.0833
17	09/19/2014 21:12:55	09/19/2014 22:12:55	1,00	321.2000
18	09/20/2014 05:30:17	09/20/2014 06:30:17	1,00	7.3000
19	03/14/2015 13:00:00	03/14/2015 15:00:00	2,00	4206.5000
20	03/14/2015 20:00:26	03/14/2015 20:30:08	0,50	5.0000
21	05/15/2015 13:00:49	05/15/2015 14:30:49	1,50	1480.5000
22	07/02/2015 08:21:31	07/02/2015 09:21:31	1,00	1145.8500
23	08/05/2015 08:00:00	08/05/2015 23:00:00	15,00	814.6500
24	08/22/2015 00:30:00	08/22/2015 01:25:00	0,95	385.5000
25	10/27/2015 21:00:00	10/27/2015 21:43:00	0,72	1603.5833
26	11/08/2015 08:31:56	11/08/2015 09:31:09	0,98	274.8000
27	12/20/2015 23:30:00	12/21/2015 00:32:00	1,03	1021.9833

Data TTR dan TBF pada *cooling conveyor* mesin DTE 6

No	Start	Finish	TTR (jam)	TBF (jam)
1	06/03/2013 20:00:09	06/03/2013 16:00:09	1.00	
2	06/04/2013 09:51:20	06/04/2013 10:51:20	1.00	12.85
3	06/04/2013 15:20:00	06/04/2013 14:30:00	1.50	4.483333
4	10/20/2013 09:00:00	10/20/2013 09:50:00	0.83	3304.167
5	10/21/2013 13:05:00	10/21/2013 13:30:00	0.42	27.25
6	02/17/2014 23:30:00	02/17/2014 13:00:00	1.50	289
7	03/27/2014 13:50:12	03/27/2014 14:50:12	1.00	912.8333
8	04/16/2014 15:20:00	04/16/2014 17:00:00	1.67	480.5
9	04/21/2014 18:30:25	04/21/2014 16:30:25	1.00	121.3333
11	04/23/2014 01:00:00	04/23/2014 01:10:00	0.17	29.5
12	05/28/2014 10:15:00	05/28/2014 12:40:00	2.00	849.5833
13	06/30/2014 13:51:18	06/30/2014 14:51:18	1.00	793.6
14	07/24/2014 19:00:00	07/24/2014 20:00:00	1.00	580.15
15	08/04/2014 18:45:00	08/04/2014 20:30:00	1.75	262.75
16	08/15/2014 09:00:00	08/15/2014 10:40:00	1.67	252.5
17	09/18/2014 16:30:00	09/18/2014 16:00:00	1.00	821.8333
18	08/07/2015 16:55:00	08/07/2015 17:48:00	0.88	8495.417
19	08/11/2015 09:45:05	08/11/2015 10:30:05	0.75	87.95
20	08/12/2015 04:33:50	08/12/2015 06:33:50	2.00	18.05
21	08/17/2015 15:10:00	08/17/2015 16:00:00	0.83	128.6167
22	08/19/2015 13:35:00	08/19/2015 14:27:00	0.87	45.58333
23	08/31/2015 10:00:43	08/31/2015 10:59:49	0.98	283.55
24	09/10/2015 20:00:51	09/10/2015 20:45:50	0.75	249.0167
25	09/25/2015 08:30:00	09/25/2015 09:27:00	0.95	347.75
26	11/03/2015 12:40:00	11/03/2015 14:08:00	1.47	939.2167
27	11/04/2015 12:04:00	11/04/2015 12:31:00	0.45	21.93333

LAMPIRAN 3 : Data penggantian conveyor selama 5 tahun

Tabel data conveyor rubber belt putus DTE 4

No	Item	Waktu Penggantian	Lama Penggantian (jam)
1	Conveyor Cooling 3 putus	Maret 2011	12
2	Conveyor Cooling 5 putus	Agustus 2012	12
3	Conveyor Cooling 1 putus	September 2013	12
4	Conveyor Cooling 2 putus	Juni 2014	12
5	Conveyor Cooling 4 putus	Juli 2015	12

(sumber : Maitenance Engineering Department PT. PQR, 2016)

Tabel data conveyor plastic modular belt putus DTE 6

No	Item	Waktu Penggantian	Lama Penggantian (jam)
1	Conveyor Cooling 1 putus	Februari 2011	5
2	Conveyor Cooling 4 putus	Juni 2012	5
3	Conveyor Cooling 3 putus	Mei 2013	5
4	Conveyor Cooling 2 putus	April 2014	5
5	Conveyor Cooling 5 putus	Februari 2015	5

(sumber : Maitenance Engineering Department PT. PQR, 2016)

LAMPIRAN 4 : Tabel Penerapan Fungsi TBF DTE 4

- Distribusi Normal

$$F(T_i) = (i - 0,3)(n + 0,4)$$

$$X_i = T_i$$

$Y_i = \Phi^{-1}[F(t_i)]$, diperoleh dari tabel *standardized normal probabilities*.

n	Ti (ranked)	Xi	F(Ti)	Yi	Xi*Yi	Xi^2	Yi^2
1	1.58	1.58	0.02652	-1.93467	-3.06323	2.50694	3.74296
2	2.00	2.00	0.06439	-1.51890	-3.03780	4.00000	2.30705
3	5.00	5.00	0.10227	-1.26871	-6.34354	25.00000	1.60962
4	7.30	7.30	0.14015	-1.07964	-7.88136	53.29000	1.16562
5	13.50	13.50	0.17803	-0.92290	-12.45912	182.25000	0.85174
6	19.98	19.98	0.21591	-0.78608	-15.70858	399.33361	0.61793
7	21.17	21.17	0.25379	-0.66262	-14.02540	448.02778	0.43906
8	27.42	27.42	0.29167	-0.54852	-15.03865	751.67361	0.30088
9	72.42	72.42	0.32955	-0.44117	-31.94796	5244.17361	0.19463
10	159.83	159.83	0.36742	-0.33868	-54.13285	25546.69444	0.11471
11	274.80	274.80	0.40530	-0.23964	-65.85424	75515.04000	0.05743
12	321.20	321.20	0.44318	-0.14291	-45.90173	103169.44000	0.02042
13	331.00	331.00	0.48106	-0.04749	-15.71981	109561.00000	0.00226
14	351.50	351.50	0.51894	0.04749	16.69339	123552.25000	0.00226
15	355.08	355.08	0.55682	0.14291	50.74389	126084.17361	0.02042
16	385.50	385.50	0.59470	0.23964	92.38286	148610.25000	0.05743
17	528.75	528.75	0.63258	0.33868	179.07868	279576.56250	0.11471
18	814.65	814.65	0.67045	0.44117	359.39804	663654.62250	0.19463
19	1021.98	1021.98	0.70833	0.54852	560.58063	1044449.93361	0.30088
20	1145.85	1145.85	0.74621	0.66262	759.25991	1312972.22250	0.43906
21	1423.18	1423.18	0.78409	0.78608	1118.74188	2025450.80028	0.61793
22	1480.50	1480.50	0.82197	0.92290	1366.34980	2191880.25000	0.85174
23	1603.58	1603.58	0.85985	1.07964	1731.29088	2571479.50694	1.16562
24	1798.00	1798.00	0.89773	1.26871	2281.13584	3232804.00000	1.60962
25	4206.50	4206.50	0.93561	1.51890	6389.24935	17694642.25000	2.30705
26	6426.50	6426.50	0.97348	1.93467	12433.18298	41299902.25000	3.74296
Total	22798.78333	22798.78333	13.00000	0.00000	27046.97386	73035961.50194	22.84861

LAMPIRAN 4 : Tabel Penerapan Fungsi TBF DTE 4 (lanjutan)

- Distribusi Lognormal

$$F(T_i) = (i - 0,3)(n + 0,4)$$

$$X_i = \ln(T_i)$$

$Y_i = \Phi^{-1}[F(t_i)]$, diperoleh dari tabel *standardized normal probabilities*.

n	Ti (ranked)	Xi	F(Ti)	Yi	Xi*Yi	Xi^2	Yi^2
1	1.58	0.46	0.026515	-1.934674	-0.889045	0.211170	3.742964
2	2.00	0.69	0.064394	-1.518899	-1.052821	0.480453	2.307055
3	5.00	1.61	0.102273	-1.268707	-2.041906	2.590290	1.609618
4	7.30	1.99	0.140152	-1.079639	-2.146186	3.951644	1.165620
5	13.50	2.60	0.178030	-0.922898	-2.402016	6.773994	0.851740
6	19.98	2.99	0.215909	-0.786084	-2.354242	8.969418	0.617928
7	21.17	3.05	0.253788	-0.662617	-2.022591	9.317314	0.439062
8	27.42	3.31	0.291667	-0.548522	-1.816240	10.963722	0.300877
9	72.42	4.28	0.329545	-0.441169	-1.889277	18.339262	0.194630
10	159.83	5.07	0.367424	-0.338683	-1.718523	25.746812	0.114706
11	274.80	5.62	0.405303	-0.239644	-1.345853	31.539945	0.057429
12	321.20	5.77	0.443182	-0.142907	-0.824868	33.316723	0.020422
13	331.00	5.80	0.481061	-0.047492	-0.275553	33.664578	0.002255
14	351.50	5.86	0.518939	0.047492	0.278407	34.365503	0.002255
15	355.08	5.87	0.556818	0.142907	0.839200	34.484524	0.020422
16	385.50	5.95	0.594697	0.239644	1.426972	35.456561	0.057429
17	528.75	6.27	0.632576	0.338683	2.123718	39.319368	0.114706
18	814.65	6.70	0.670455	0.441169	2.957047	44.926972	0.194630
19	1021.98	6.93	0.708333	0.548522	3.800985	48.017977	0.300877
20	1145.85	7.04	0.746212	0.662617	4.667411	49.616555	0.439062
21	1423.18	7.26	0.784091	0.786084	5.707483	52.717059	0.617928
22	1480.50	7.30	0.821970	0.922898	6.737277	53.291973	0.851740
23	1603.58	7.38	0.859848	1.079639	7.967730	54.464341	1.165620
24	1798.00	7.49	0.897727	1.268707	9.508239	56.166484	1.609618
25	4206.50	8.34	0.935606	1.518899	12.674281	69.628782	2.307055
26	6426.50	8.77	0.973485	1.934674	16.963581	76.881074	3.742964
Total	22798.78	134.44	13.00000	0.00000	54.87321	835.20250	22.84861

LAMPIRAN 4 : Tabel Penerapan Fungsi TBF DTE 4 (lanjutan)

- Distribusi Eksponensial

$$F(T_i) = (i - 0,3)(n + 0,4)$$

$$X_i = T_i$$

$$Y_i = \left[\ln \left[\frac{1}{1-F(t_i)} \right] \right]$$

n	Ti (ranked)	Xi	F(Ti)	Yi	Xi*Yi	Xi^2	Yi^2
1	1.58	1.58	0.026515	0.026873	0.042549	2.506944	0.000722
2	2.00	2.00	0.064394	0.066561	0.133122	4.000000	0.004430
3	5.00	5.00	0.102273	0.107889	0.539445	25.000000	0.011640
4	7.30	7.30	0.140152	0.150999	1.102293	53.290000	0.022801
5	13.50	13.50	0.178030	0.196052	2.646699	182.250000	0.038436
6	19.98	19.98	0.215909	0.243230	4.860552	399.333611	0.059161
7	21.17	21.17	0.253788	0.292745	6.196444	448.027778	0.085700
8	27.42	27.42	0.291667	0.344840	9.454377	751.673611	0.118915
9	72.42	72.42	0.329545	0.399799	28.952138	5244.173611	0.159840
10	159.83	159.83	0.367424	0.457955	73.196521	25546.694444	0.209723
11	274.80	274.80	0.405303	0.519703	142.814466	75515.040000	0.270092
12	321.20	321.20	0.443182	0.585517	188.067905	103169.440000	0.342830
13	331.00	331.00	0.481061	0.655968	217.125467	109561.000000	0.430294
14	351.50	351.50	0.518939	0.731762	257.214349	123552.250000	0.535476
15	355.08	355.08	0.556818	0.813775	288.957999	126084.173611	0.662230
16	385.50	385.50	0.594697	0.903120	348.152864	148610.250000	0.815626
17	528.75	528.75	0.632576	1.001238	529.404658	279576.562500	1.002478
18	814.65	814.65	0.670455	1.110041	904.294888	663654.622500	1.232191
19	1021.98	1021.98	0.708333	1.232144	1259.230307	1044449.933611	1.518178
20	1145.85	1145.85	0.746212	1.371256	1571.254242	1312972.222500	1.880344
21	1423.18	1423.18	0.784091	1.532898	2181.594651	2025450.800278	2.349776
22	1480.50	1480.50	0.821970	1.725802	2555.049123	2191880.250000	2.978391
23	1603.58	1603.58	0.859848	1.965031	3151.091267	2571479.506944	3.861348
24	1798.00	1798.00	0.897727	2.280112	4099.641802	3232804.000000	5.198912
25	4206.50	4206.50	0.935606	2.742736	11537.317971	17694642.250000	7.522599
26	6426.50	6426.50	0.973485	3.630039	23328.445338	41299902.250000	13.177183
Total	22798.78	22798.78	13.00000	25.08809	52686.78143	73035961.50194	44.48931

LAMPIRAN 4 : Tabel Penerapan Fungsi TBF DTE 4 (lanjutan)

- Distribusi Weibull

$$F(T_i) = (i - 0,3)(n + 0,4)$$

$$X_i = \ln(t_i)$$

$$Y_i = \ln \left[\ln \left[\frac{1}{1-F(t_i)} \right] \right]$$

n	Ti (ranked)	Xi	F(Ti)	Yi	Xi*Yi	Xi^2	Yi^2
1	1.58	0.46	0.02652	-3.61663	-1.66196	0.21117	13.08003
2	2.00	0.69	0.06439	-2.70964	-1.87818	0.48045	7.34215
3	5.00	1.61	0.10227	-2.22665	-3.58366	2.59029	4.95798
4	7.30	1.99	0.14015	-1.89048	-3.75804	3.95164	3.57392
5	13.50	2.60	0.17803	-1.62938	-4.24076	6.77399	2.65487
6	19.98	2.99	0.21591	-1.41375	-4.23403	8.96942	1.99868
7	21.17	3.05	0.25379	-1.22845	-3.74976	9.31731	1.50909
8	27.42	3.31	0.29167	-1.06467	-3.52529	10.96372	1.13353
9	72.42	4.28	0.32955	-0.91679	-3.92611	18.33926	0.84051
10	159.83	5.07	0.36742	-0.78098	-3.96281	25.74681	0.60994
11	274.80	5.62	0.40530	-0.65450	-3.67568	31.53995	0.42837
12	321.20	5.77	0.44318	-0.53526	-3.08956	33.31672	0.28650
13	331.00	5.80	0.48106	-0.42164	-2.44642	33.66458	0.17778
14	351.50	5.86	0.51894	-0.31230	-1.83077	34.36550	0.09753
15	355.08	5.87	0.55682	-0.20607	-1.21012	34.48452	0.04247
16	385.50	5.95	0.59470	-0.10190	-0.60677	35.45656	0.01038
17	528.75	6.27	0.63258	0.00124	0.00776	39.31937	0.00000
18	814.65	6.70	0.67045	0.10440	0.69975	44.92697	0.01090
19	1021.98	6.93	0.70833	0.20876	1.44657	48.01798	0.04358
20	1145.85	7.04	0.74621	0.31573	2.22395	49.61656	0.09968
21	1423.18	7.26	0.78409	0.42716	3.10146	52.71706	0.18247
22	1480.50	7.30	0.82197	0.54569	3.98362	53.29197	0.29778
23	1603.58	7.38	0.85985	0.67551	4.98525	54.46434	0.45631
24	1798.00	7.49	0.89773	0.82422	6.17709	56.16648	0.67935
25	4206.50	8.34	0.93561	1.00896	8.41912	69.62878	1.01799
26	6426.50	8.77	0.97348	1.28924	11.30432	76.88107	1.66215
Total	22798.78	134.44	13.00000	-14.30820	-5.03103	835.20250	43.19394

LAMPIRAN 5 : Tabel Penerapan Fungsi TTR DTE 4

- Distribusi Normal

$$F(T_i) = (i - 0,3)(n + 0,4)$$

$$X_i = T_i$$

$Y_i = \Phi^{-1}[F(t_i)]$, diperoleh dari tabel *standardized normal probabilities*.

n	Ti (ranked)	Xi	F(Ti)	Yi	Xi*Yi	Xi^2	Yi^2
1	0.5	0.5	0.02555	-1.95068	-0.97534	0.25000	3.80516
2	0.5	0.5	0.06204	-1.53784	-0.76892	0.25000	2.36495
3	0.72	0.72	0.09854	-1.28991	-0.92874	0.51840	1.66388
4	0.75	0.75	0.13504	-1.10289	-0.82717	0.56250	1.21638
5	0.83	0.83	0.17153	-0.94813	-0.78694	0.68890	0.89894
6	0.92	0.92	0.20803	-0.81328	-0.74822	0.84640	0.66142
7	0.95	0.95	0.24453	-0.69182	-0.65723	0.90250	0.47861
8	0.98	0.98	0.28102	-0.57981	-0.56821	0.96040	0.33618
9	1	1	0.31752	-0.47465	-0.47465	1.00000	0.22529
10	1	1	0.35401	-0.37450	-0.37450	1.00000	0.14025
11	1	1	0.39051	-0.27799	-0.27799	1.00000	0.07728
12	1	1	0.42701	-0.18400	-0.18400	1.00000	0.03386
13	1	1	0.46350	-0.09161	-0.09161	1.00000	0.00839
14	1	1	0.50000	0.00000	0.00000	1.00000	0.00000
15	1	1	0.53650	0.09161	0.09161	1.00000	0.00839
16	1	1	0.57299	0.18400	0.18400	1.00000	0.03386
17	1.03	1.03	0.60949	0.27799	0.28633	1.06090	0.07728
18	1.25	1.25	0.64599	0.37450	0.46813	1.56250	0.14025
19	1.5	1.5	0.68248	0.47465	0.71197	2.25000	0.22529
20	1.5	1.5	0.71898	0.57981	0.86971	2.25000	0.33618
21	1.5	1.5	0.75547	0.69182	1.03773	2.25000	0.47861
22	2	2	0.79197	0.81328	1.62656	4.00000	0.66142
23	2.33	2.33	0.82847	0.94813	2.20913	5.42890	0.89894
24	2.83	2.83	0.86496	1.10289	3.12119	8.00890	1.21638
25	3.67	3.67	0.90146	1.28991	4.73399	13.46890	1.66388
26	4	4	0.93796	1.53784	6.15136	16.00000	2.36495
27	15	15	0.97445	1.95068	29.26023	225.00000	3.80516
Total	50.76	50.76	13.5000	0.0000	43.0884	294.2592	23.8212

LAMPIRAN 5 : Tabel Penerapan Fungsi TTR DTE 4 (lanjutan)

- Distribusi Lognormal

$$F(T_i) = (i - 0,3)(n + 0,4)$$

$$X_i = \ln(T_i)$$

$Y_i = \Phi^{-1}[F(t_i)]$, diperoleh dari tabel *standardized normal probabilities*.

n	Ti (ranked)	Xi	F(Ti)	Yi	Xi*Yi	Xi^2	Yi^2
1	0.5	-0.69	0.02555	-1.95068	1.35211	0.48045	3.80516
2	0.5	-0.69	0.06204	-1.53784	1.06595	0.48045	2.36495
3	0.72	-0.33	0.09854	-1.28991	0.42374	0.10791	1.66388
4	0.75	-0.29	0.13504	-1.10289	0.31728	0.08276	1.21638
5	0.83	-0.19	0.17153	-0.94813	0.17666	0.03472	0.89894
6	0.92	-0.08	0.20803	-0.81328	0.06781	0.00695	0.66142
7	0.95	-0.05	0.24453	-0.69182	0.03549	0.00263	0.47861
8	0.98	-0.02	0.28102	-0.57981	0.01171	0.00041	0.33618
9	1	0.00	0.31752	-0.47465	0.00000	0.00000	0.22529
10	1	0.00	0.35401	-0.37450	0.00000	0.00000	0.14025
11	1	0.00	0.39051	-0.27799	0.00000	0.00000	0.07728
12	1	0.00	0.42701	-0.18400	0.00000	0.00000	0.03386
13	1	0.00	0.46350	-0.09161	0.00000	0.00000	0.00839
14	1	0.00	0.50000	0.00000	0.00000	0.00000	0.00000
15	1	0.00	0.53650	0.09161	0.00000	0.00000	0.00839
16	1	0.00	0.57299	0.18400	0.00000	0.00000	0.03386
17	1.03	0.03	0.60949	0.27799	0.00822	0.00087	0.07728
18	1.25	0.22	0.64599	0.37450	0.08357	0.04979	0.14025
19	1.5	0.41	0.68248	0.47465	0.19245	0.16440	0.22529
20	1.5	0.41	0.71898	0.57981	0.23509	0.16440	0.33618
21	1.5	0.41	0.75547	0.69182	0.28051	0.16440	0.47861
22	2	0.69	0.79197	0.81328	0.56372	0.48045	0.66142
23	2.33	0.85	0.82847	0.94813	0.80199	0.71549	0.89894
24	2.83	1.04	0.86496	1.10289	1.14732	1.08218	1.21638
25	3.67	1.30	0.90146	1.28991	1.67714	1.69050	1.66388
26	4	1.39	0.93796	1.53784	2.13190	1.92181	2.36495
27	15	2.71	0.97445	1.95068	5.28254	7.33354	3.80516
Total	50.76	7.10	13.50000	0.00000	15.85521	14.96413	23.82119

LAMPIRAN 5 : Tabel Penerapan Fungsi TTR DTE 4 (lanjutan)

- Distribusi Eksponensial

$$F(T_i) = (i - 0,3)(n + 0,4)$$

$$X_i = T_i$$

$$Y_i = \left[\ln \left[\frac{1}{1-F(t_i)} \right] \right]$$

n	Ti (ranked)	Ti	F(Ti)	Yi	Xi*Yi	Xi^2	Yi^2
1	0.5	0.5	0.025547	0.025879	0.012940	0.250000	0.000670
2	0.5	0.5	0.062044	0.064052	0.032026	0.250000	0.004103
3	0.72	0.72	0.098540	0.103740	0.074693	0.518400	0.010762
4	0.75	0.75	0.135036	0.145068	0.108801	0.562500	0.021045
5	0.83	0.83	0.171533	0.188178	0.156188	0.688900	0.035411
6	0.92	0.92	0.208029	0.233231	0.214572	0.846400	0.054397
7	0.95	0.95	0.244526	0.280409	0.266389	0.902500	0.078629
8	0.98	0.98	0.281022	0.329924	0.323326	0.960400	0.108850
9	1	1	0.317518	0.382019	0.382019	1.000000	0.145939
10	1	1	0.354015	0.436978	0.436978	1.000000	0.190950
11	1	1	0.390511	0.495134	0.495134	1.000000	0.245158
12	1	1	0.427007	0.556882	0.556882	1.000000	0.310118
13	1	1	0.463504	0.622696	0.622696	1.000000	0.387750
14	1	1	0.500000	0.693147	0.693147	1.000000	0.480453
15	1	1	0.536496	0.768941	0.768941	1.000000	0.591270
16	1	1	0.572993	0.850954	0.850954	1.000000	0.724123
17	1.03	1.03	0.609489	0.940299	0.968508	1.060900	0.884163
18	1.25	1.25	0.645985	1.038417	1.298021	1.562500	1.078310
19	1.5	1.5	0.682482	1.147220	1.720830	2.250000	1.316114
20	1.5	1.5	0.718978	1.269323	1.903984	2.250000	1.611180
21	1.5	1.5	0.755474	1.408435	2.112653	2.250000	1.983691
22	2	2	0.791971	1.570077	3.140154	4.000000	2.465141
23	2.33	2.33	0.828467	1.762981	4.107745	5.428900	3.108100
24	2.83	2.83	0.864964	2.002210	5.666255	8.008900	4.008846
25	3.67	3.67	0.901460	2.317291	8.504459	13.468900	5.369839
26	4	4	0.937956	2.779915	11.119659	16.000000	7.727926
27	15	15	0.974453	3.667218	55.008269	225.000000	13.448488
Total	50.76	50.76	13.50000	26.08062	101.54622	294.25920	46.39142

LAMPIRAN 5 : Tabel Penerapan Fungsi TTR DTE 4 (lanjutan)

- Distribusi Weibull

$$F(T_i) = (i - 0,3)(n + 0,4)$$

$$X_i = \ln(t_i)$$

$$Y_i = \ln \left[\ln \left[\frac{1}{1-F(t_i)} \right] \right]$$

n	Ti (ranked)	Xi	F(Ti)	Yi	Xi*Yi	Xi^2	Yi^2
1	0.5	-0.69315	0.02555	-3.65431	2.53297	0.48045	13.35395
2	0.5	-0.69315	0.06204	-2.74806	1.90481	0.48045	7.55183
3	0.72	-0.32850	0.09854	-2.26587	0.74435	0.10791	5.13417
4	0.75	-0.28768	0.13504	-1.93055	0.55539	0.08276	3.72703
5	0.83	-0.18633	0.17153	-1.67037	0.31124	0.03472	2.79012
6	0.92	-0.08338	0.20803	-1.45573	0.12138	0.00695	2.11914
7	0.95	-0.05129	0.24453	-1.27150	0.06522	0.00263	1.61672
8	0.98	-0.02020	0.28102	-1.10889	0.02240	0.00041	1.22964
9	1	0.00000	0.31752	-0.96228	0.00000	0.00000	0.92599
10	1	0.00000	0.35401	-0.82787	0.00000	0.00000	0.68537
11	1	0.00000	0.39051	-0.70293	0.00000	0.00000	0.49411
12	1	0.00000	0.42701	-0.58540	0.00000	0.00000	0.34269
13	1	0.00000	0.46350	-0.47370	0.00000	0.00000	0.22439
14	1	0.00000	0.50000	-0.36651	0.00000	0.00000	0.13433
15	1	0.00000	0.53650	-0.26274	0.00000	0.00000	0.06903
16	1	0.00000	0.57299	-0.16140	0.00000	0.00000	0.02605
17	1.03	0.02956	0.60949	-0.06156	-0.00182	0.00087	0.00379
18	1.25	0.22314	0.64599	0.03770	0.00841	0.04979	0.00142
19	1.5	0.40547	0.68248	0.13734	0.05569	0.16440	0.01886
20	1.5	0.40547	0.71898	0.23848	0.09670	0.16440	0.05687
21	1.5	0.40547	0.75547	0.34248	0.13886	0.16440	0.11729
22	2	0.69315	0.79197	0.45112	0.31270	0.48045	0.20351
23	2.33	0.84587	0.82847	0.56701	0.47961	0.71549	0.32150
24	2.83	1.04028	0.86496	0.69425	0.72221	1.08218	0.48199
25	3.67	1.30019	0.90146	0.84040	1.09268	1.69050	0.70627
26	4	1.38629	0.93796	1.02242	1.41738	1.92181	1.04534
27	15	2.70805	0.97445	1.29943	3.51893	7.33354	1.68853
Total	50.76	7.09924	13.50000	-14.87903	14.09910	14.96413	45.06996

LAMPIRAN 6 : Tabel Penerapan Fungsi TBF DTE 6

- Distribusi Normal

$$F(T_i) = (i - 0,3)(n + 0,4)$$

$$X_i = T_i$$

$Y_i = \Phi^{-1}[F(t_i)]$, diperoleh dari tabel *standardized normal probabilities*.

n	Ti (ranked)	Xi	F(Ti)	Yi	Xi*Yi	Xi^2	Yi^2
1	4.48	4.48	0.02756	-1.91794	-8.59878	20.10028	3.67851
2	12.85	12.85	0.06693	-1.49906	-19.26291	165.12250	2.24718
3	18.05	18.05	0.10630	-1.24645	-22.49846	325.80250	1.55364
4	21.93	21.93	0.14567	-1.05519	-23.14383	481.07111	1.11343
5	27.25	27.25	0.18504	-0.89633	-24.42488	742.56250	0.80340
6	29.50	29.50	0.22441	-0.75739	-22.34287	870.25000	0.57363
7	45.58	45.58	0.26378	-0.63174	-28.79666	2077.84028	0.39909
8	87.95	87.95	0.30315	-0.51536	-45.32620	7735.20250	0.26560
9	121.33	121.33	0.34252	-0.40560	-49.21233	14721.77778	0.16451
10	128.62	128.62	0.38189	-0.30052	-38.65205	16542.24694	0.09031
11	249.02	249.02	0.42126	-0.19867	-49.47253	62009.30028	0.03947
12	252.50	252.50	0.46063	-0.09885	-24.95884	63756.25000	0.00977
13	262.75	262.75	0.50000	0.00000	0.00000	69037.56250	0.00000
14	283.55	283.55	0.53937	0.09885	28.02803	80400.60250	0.00977
15	289.00	289.00	0.57874	0.19867	57.41608	83521.00000	0.03947
16	347.75	347.75	0.61811	0.30052	104.50629	120930.06250	0.09031
17	480.50	480.50	0.65748	0.40560	194.88894	230880.25000	0.16451
18	580.15	580.15	0.69685	0.51536	298.98799	336574.02250	0.26560
19	793.60	793.60	0.73622	0.63174	501.34611	629800.96000	0.39909
20	821.83	821.83	0.77559	0.75739	622.44471	675410.02778	0.57363
21	849.58	849.58	0.81496	0.89633	761.50353	721791.84028	0.80340
22	912.83	912.83	0.85433	1.05519	963.21231	833264.69444	1.11343
23	939.22	939.22	0.89370	1.24645	1170.68869	882127.94694	1.55364
24	3304.17	3304.17	0.93307	1.49906	4953.14153	10917517.36111	2.24718
25	8495.42	8495.42	0.97244	1.91794	16293.73356	72172104.34028	3.67851
Total	19359.42	19359.42	12.50000	0.00000	25593.20743	87922808.19750	21.87708

LAMPIRAN 6 : Tabel Penerapan Fungsi TBF DTE 6 (lanjutan)

- Distribusi Lognormal

$$F(T_i) = (i - 0,3)(n + 0,4)$$

$$X_i = \ln(T_i)$$

$Y_i = \Phi^{-1}[F(t_i)]$, diperoleh dari tabel *standardized normal probabilities*.

n	Ti	Xi	F(Ti)	Yi	Xi*Yi	Xi^2	Yi^2
1	4.48	1.50	0.027559	-1.917944	-2.877620	2.251101	3.678509
2	12.85	2.55	0.066929	-1.499059	-3.827614	6.519565	2.247179
3	18.05	2.89	0.106299	-1.246452	-3.606168	8.370292	1.553643
4	21.93	3.09	0.145669	-1.055190	-3.258434	9.535791	1.113425
5	27.25	3.31	0.185039	-0.896326	-2.962405	10.923379	0.803400
6	29.50	3.38	0.224409	-0.757386	-2.563288	11.454097	0.573633
7	45.58	3.82	0.263780	-0.631737	-2.412944	14.588902	0.399091
8	87.95	4.48	0.303150	-0.515363	-2.307162	20.041456	0.265599
9	121.33	4.80	0.342520	-0.405596	-1.946270	23.026001	0.164508
10	128.62	4.86	0.381890	-0.300521	-1.459583	23.588860	0.090313
11	249.02	5.52	0.421260	-0.198672	-1.096174	30.443025	0.039470
12	252.50	5.53	0.460630	-0.098847	-0.546763	30.596510	0.009771
13	262.75	5.57	0.500000	0.000000	0.000000	31.038303	0.000000
14	283.55	5.65	0.539370	0.098847	0.558227	31.892997	0.009771
15	289.00	5.67	0.578740	0.198672	1.125758	32.108391	0.039470
16	347.75	5.85	0.618110	0.300521	1.758496	34.239863	0.090313
17	480.50	6.17	0.657480	0.405596	2.504486	38.128491	0.164508
18	580.15	6.36	0.696850	0.515363	3.279404	40.491418	0.265599
19	793.60	6.68	0.736220	0.631737	4.217839	44.576715	0.399091
20	821.83	6.71	0.775591	0.757386	5.083222	45.044737	0.573633
21	849.58	6.74	0.814961	0.896326	6.045490	45.491599	0.803400
22	912.83	6.82	0.854331	1.055190	7.192757	46.465399	1.113425
23	939.22	6.85	0.893701	1.246452	8.532023	46.854657	1.553643
24	3304.17	8.10	0.933071	1.499059	12.146786	65.657630	2.247179
25	8495.42	9.05	0.972441	1.917944	17.352181	81.853313	3.678509
Total	19359.42	131.94	12.500000	0.000000	40.932244	775.182492	21.877084

LAMPIRAN 6 : Tabel Penerapan Fungsi TBF DTE 6 (lanjutan)

- Distribusi Eksponensial

$$F(T_i) = (i - 0,3)(n + 0,4)$$

$$X_i = T_i$$

$$Y_i = \left[\ln \left[\frac{1}{1-F(t_i)} \right] \right]$$

n	Ti (ranked)	Xi	F(Ti)	Yi	Xi*Yi	Xi^2	Yi^2
1	4.48	4.48	0.02756	0.02795	0.12529	20.10028	0.00078
2	12.85	12.85	0.06693	0.06927	0.89017	165.12250	0.00480
3	18.05	18.05	0.10630	0.11238	2.02854	325.80250	0.01263
4	21.93	21.93	0.14567	0.15744	3.45312	481.07111	0.02479
5	27.25	27.25	0.18504	0.20462	5.57577	742.56250	0.04187
6	29.50	29.50	0.22441	0.25413	7.49685	870.25000	0.06458
7	45.58	45.58	0.26378	0.30623	13.95879	2077.84028	0.09377
8	87.95	87.95	0.30315	0.36118	31.76618	7735.20250	0.13045
9	121.33	121.33	0.34252	0.41934	50.87998	14721.77778	0.17585
10	128.62	128.62	0.38189	0.48109	61.87599	16542.24694	0.23145
11	249.02	249.02	0.42126	0.54690	136.18763	62009.30028	0.29910
12	252.50	252.50	0.46063	0.61735	155.88172	63756.25000	0.38113
13	262.75	262.75	0.50000	0.69315	182.12442	69037.56250	0.48045
14	283.55	283.55	0.53937	0.77516	219.79671	80400.60250	0.60087
15	289.00	289.00	0.57874	0.86451	249.84207	83521.00000	0.74737
16	347.75	347.75	0.61811	0.96262	334.75225	120930.06250	0.92664
17	480.50	480.50	0.65748	1.07143	514.82026	230880.25000	1.14795
18	580.15	580.15	0.69685	1.19353	692.42576	336574.02250	1.42451
19	793.60	793.60	0.73622	1.33264	1057.58441	629800.96000	1.77593
20	821.83	821.83	0.77559	1.49428	1228.05158	675410.02778	2.23288
21	849.58	849.58	0.81496	1.68719	1433.40567	721791.84028	2.84660
22	912.83	912.83	0.85433	1.92642	1758.49706	833264.69444	3.71108
23	939.22	939.22	0.89370	2.24150	2105.25172	882127.94694	5.02431
24	3304.17	3304.17	0.93307	2.70412	8934.86622	10917517.36111	7.31227
25	8495.42	8495.42	0.97244	3.59142	30510.64431	72172104.34028	12.89833
Sigma	19359.42	19359.42	12.50000	24.09584	49692.18247	87922808.19750	42.59040

LAMPIRAN 6 : Tabel Penerapan Fungsi TBF DTE 6 (lanjutan)

- Distribusi Weibull

$$F(T_i) = (i - 0,3)(n + 0,4)$$

$$X_i = \ln(t_i)$$

$$Y_i = \ln \left[\ln \left[\frac{1}{1-F(t_i)} \right] \right]$$

n	Ti	Xi	F(Ti)	Yi	Xi*Yi	Xi^2	Yi^2
1	4.48	1.50	0.02756	-3.57748	-5.36754	2.25110	12.79839
2	12.85	2.55	0.06693	-2.66968	-6.81662	6.51956	7.12721
3	18.05	2.89	0.10630	-2.18583	-6.32393	8.37029	4.77786
4	21.93	3.09	0.14567	-1.84873	-5.70889	9.53579	3.41780
5	27.25	3.31	0.18504	-1.58662	-5.24387	10.92338	2.51737
6	29.50	3.38	0.22441	-1.36991	-4.63630	11.45410	1.87665
7	45.58	3.82	0.26378	-1.18343	-4.52017	14.58890	1.40051
8	87.95	4.48	0.30315	-1.01837	-4.55899	20.04146	1.03707
9	121.33	4.80	0.34252	-0.86907	-4.17028	23.02600	0.75529
10	128.62	4.86	0.38189	-0.73170	-3.55377	23.58886	0.53539
11	249.02	5.52	0.42126	-0.60349	-3.32975	30.44303	0.36420
12	252.50	5.53	0.46063	-0.48231	-2.66788	30.59651	0.23263
13	262.75	5.57	0.50000	-0.36651	-2.04192	31.03830	0.13433
14	283.55	5.65	0.53937	-0.25469	-1.43831	31.89300	0.06486
15	289.00	5.67	0.57874	-0.14560	-0.82502	32.10839	0.02120
16	347.75	5.85	0.61811	-0.03809	-0.22290	34.23986	0.00145
17	480.50	6.17	0.65748	0.06899	0.42601	38.12849	0.00476
18	580.15	6.36	0.69685	0.17691	1.12576	40.49142	0.03130
19	793.60	6.68	0.73622	0.28716	1.91727	44.57671	0.08246
20	821.83	6.71	0.77559	0.40165	2.69567	45.04474	0.16132
21	849.58	6.74	0.81496	0.52306	3.52792	45.49160	0.27359
22	912.83	6.82	0.85433	0.65566	4.46935	46.46540	0.42989
23	939.22	6.85	0.89370	0.80714	5.52494	46.85466	0.65148
24	3304.17	8.10	0.93307	0.99478	8.06062	65.65763	0.98958
25	8495.42	9.05	0.97244	1.27855	11.56739	81.85331	1.63469
Total	19359.42	131.94	12.50000	-13.73762	-22.11121	775.18249	41.32129

LAMPIRAN 7 : Tabel Penerapan Fungsi TTR DTE 6

- Distribusi Normal

$$F(T_i) = (i - 0,3)(n + 0,4)$$

$$X_i = T_i$$

$Y_i = \Phi^{-1}[F(t_i)]$, diperoleh dari tabel *standardized normal probabilities*.

n	Ti (ranked)	Xi	F(Ti)	Yi	Xi*Yi	Xi^2	Yi^2
1	0.17	0.17	0.02652	-1.93467	-0.32245	0.02778	3.74296
2	0.42	0.42	0.06439	-1.51890	-0.63287	0.17361	2.30705
3	0.45	0.45	0.10227	-1.26871	-0.57092	0.20250	1.60962
4	0.75	0.75	0.14015	-1.07964	-0.80973	0.56250	1.16562
5	0.75	0.75	0.17803	-0.92290	-0.69217	0.56250	0.85174
6	0.83	0.83	0.21591	-0.78608	-0.65507	0.69444	0.61793
7	0.83	0.83	0.25379	-0.66262	-0.55218	0.69444	0.43906
8	0.87	0.87	0.29167	-0.54852	-0.47539	0.75111	0.30088
9	0.88	0.88	0.32955	-0.44117	-0.38970	0.78028	0.19463
10	0.95	0.95	0.36742	-0.33868	-0.32175	0.90250	0.11471
11	0.98	0.98	0.40530	-0.23964	-0.23565	0.96694	0.05743
12	1.00	1.00	0.44318	-0.14291	-0.14291	1.00000	0.02042
13	1.00	1.00	0.48106	-0.04749	-0.04749	1.00000	0.00226
14	1.00	1.00	0.51894	0.04749	0.04749	1.00000	0.00226
15	1.00	1.00	0.55682	0.14291	0.14291	1.00000	0.02042
16	1.00	1.00	0.59470	0.23964	0.23964	1.00000	0.05743
17	1.00	1.00	0.63258	0.33868	0.33868	1.00000	0.11471
18	1.00	1.00	0.67045	0.44117	0.44117	1.00000	0.19463
19	1.47	1.47	0.70833	0.54852	0.80450	2.15111	0.30088
20	1.50	1.50	0.74621	0.66262	0.99393	2.25000	0.43906
21	1.50	1.50	0.78409	0.78608	1.17913	2.25000	0.61793
22	1.67	1.67	0.82197	0.92290	1.53816	2.77778	0.85174
23	1.67	1.67	0.85985	1.07964	1.79940	2.77778	1.16562
24	1.75	1.75	0.89773	1.26871	2.22024	3.06250	1.60962
25	2.00	2.00	0.93561	1.51890	3.03780	4.00000	2.30705
26	3.00	3.00	0.97348	1.93467	5.80402	9.00000	3.74296
Total	29.43	29.43	13.00000	0.00000	12.73879	41.58778	22.84861

LAMPIRAN 7 : Tabel Penerapan Fungsi TTR DTE 6 (lanjutan)

- Distribusi Lognormal

$$F(T_i) = (i - 0,3)(n + 0,4)$$

$$X_i = \ln(T_i)$$

$Y_i = \Phi^{-1}[F(t_i)]$, diperoleh dari tabel *standardized normal probabilities*.

n	Ti (ranked)	Xi	F(Ti)	Yi	Xi*Yi	Xi^2	Yi^2
1	0.17	-1.79	0.02652	-1.93467	3.46647	3.21040	3.74296
2	0.42	-0.88	0.06439	-1.51890	1.32975	0.76645	2.30705
3	0.45	-0.80	0.10227	-1.26871	1.01307	0.63761	1.60962
4	0.75	-0.29	0.14015	-1.07964	0.31059	0.08276	1.16562
5	0.75	-0.29	0.17803	-0.92290	0.26550	0.08276	0.85174
6	0.83	-0.18	0.21591	-0.78608	0.14332	0.03324	0.61793
7	0.83	-0.18	0.25379	-0.66262	0.12081	0.03324	0.43906
8	0.87	-0.14	0.29167	-0.54852	0.07849	0.02048	0.30088
9	0.88	-0.12	0.32955	-0.44117	0.05473	0.01539	0.19463
10	0.95	-0.05	0.36742	-0.33868	0.01737	0.00263	0.11471
11	0.98	-0.02	0.40530	-0.23964	0.00403	0.00028	0.05743
12	1.00	0.00	0.44318	-0.14291	0.00000	0.00000	0.02042
13	1.00	0.00	0.48106	-0.04749	0.00000	0.00000	0.00226
14	1.00	0.00	0.51894	0.04749	0.00000	0.00000	0.00226
15	1.00	0.00	0.55682	0.14291	0.00000	0.00000	0.02042
16	1.00	0.00	0.59470	0.23964	0.00000	0.00000	0.05743
17	1.00	0.00	0.63258	0.33868	0.00000	0.00000	0.11471
18	1.00	0.00	0.67045	0.44117	0.00000	0.00000	0.19463
19	1.47	0.38	0.70833	0.54852	0.21008	0.14668	0.30088
20	1.50	0.41	0.74621	0.66262	0.26867	0.16440	0.43906
21	1.50	0.41	0.78409	0.78608	0.31873	0.16440	0.61793
22	1.67	0.51	0.82197	0.92290	0.47144	0.26094	0.85174
23	1.67	0.51	0.85985	1.07964	0.55151	0.26094	1.16562
24	1.75	0.56	0.89773	1.26871	0.70999	0.31317	1.60962
25	2.00	0.69	0.93561	1.51890	1.05282	0.48045	2.30705
26	3.00	1.10	0.97348	1.93467	2.12546	1.20695	3.74296
Total	29.43	-0.17	13.00000	0.00000	12.51283	7.88319	22.84861

LAMPIRAN 7 : Tabel Penerapan Fungsi TTR DTE 6 (lanjutan)

- Distribusi Eksponensial

$$F(T_i) = (i - 0,3)(n + 0,4)$$

$$X_i = T_i$$

$$Y_i = \left[\ln \left[\frac{1}{1 - F(t_i)} \right] \right]$$

n	Ti (ranked)	Xi	F(Ti)	Yi	Xi*Yi	Xi^2	Yi^2
1	0.17	0.17	0.02652	0.02687	0.00448	0.02778	0.00072
2	0.42	0.42	0.06439	0.06656	0.02773	0.17361	0.00443
3	0.45	0.45	0.10227	0.10789	0.04855	0.20250	0.01164
4	0.75	0.75	0.14015	0.15100	0.11325	0.56250	0.02280
5	0.75	0.75	0.17803	0.19605	0.14704	0.56250	0.03844
6	0.83	0.83	0.21591	0.24323	0.20269	0.69444	0.05916
7	0.83	0.83	0.25379	0.29275	0.24395	0.69444	0.08570
8	0.87	0.87	0.29167	0.34484	0.29886	0.75111	0.11891
9	0.88	0.88	0.32955	0.39980	0.35316	0.78028	0.15984
10	0.95	0.95	0.36742	0.45796	0.43506	0.90250	0.20972
11	0.98	0.98	0.40530	0.51970	0.51104	0.96694	0.27009
12	1.00	1.00	0.44318	0.58552	0.58552	1.00000	0.34283
13	1.00	1.00	0.48106	0.65597	0.65597	1.00000	0.43029
14	1.00	1.00	0.51894	0.73176	0.73176	1.00000	0.53548
15	1.00	1.00	0.55682	0.81378	0.81378	1.00000	0.66223
16	1.00	1.00	0.59470	0.90312	0.90312	1.00000	0.81563
17	1.00	1.00	0.63258	1.00124	1.00124	1.00000	1.00248
18	1.00	1.00	0.67045	1.11004	1.11004	1.00000	1.23219
19	1.47	1.47	0.70833	1.23214	1.80714	2.15111	1.51818
20	1.50	1.50	0.74621	1.37126	2.05688	2.25000	1.88034
21	1.50	1.50	0.78409	1.53290	2.29935	2.25000	2.34978
22	1.67	1.67	0.82197	1.72580	2.87634	2.77778	2.97839
23	1.67	1.67	0.85985	1.96503	3.27505	2.77778	3.86135
24	1.75	1.75	0.89773	2.28011	3.99020	3.06250	5.19891
25	2.00	2.00	0.93561	2.74274	5.48547	4.00000	7.52260
26	3.00	3.00	0.97348	3.63004	10.89012	9.00000	13.17718
Total	29.43	29.43	13.00000	25.08809	40.86778	41.58778	44.48931

LAMPIRAN 7 : Tabel Penerapan Fungsi TTR DTE 6 (lanjutan)

- Distribusi Weibull

$$F(T_i) = (i - 0,3)(n + 0,4)$$

$$X_i = \ln(t_i)$$

$$Y_i = \ln \left[\ln \left[\frac{1}{1-F(t_i)} \right] \right]$$

n	Ti (ranked)	Xi	F(Ti)	Yi	Xi*Yi	Xi^2	Yi^2
1	0.17	-1.79	0.02652	-3.61663	6.48014	3.21040	13.08003
2	0.42	-0.88	0.06439	-2.70964	2.37221	0.76645	7.34215
3	0.45	-0.80	0.10227	-2.22665	1.77800	0.63761	4.95798
4	0.75	-0.29	0.14015	-1.89048	0.54386	0.08276	3.57392
5	0.75	-0.29	0.17803	-1.62938	0.46874	0.08276	2.65487
6	0.83	-0.18	0.21591	-1.41375	0.25776	0.03324	1.99868
7	0.83	-0.18	0.25379	-1.22845	0.22397	0.03324	1.50909
8	0.87	-0.14	0.29167	-1.06467	0.15236	0.02048	1.13353
9	0.88	-0.12	0.32955	-0.91679	0.11373	0.01539	0.84051
10	0.95	-0.05	0.36742	-0.78098	0.04006	0.00263	0.60994
11	0.98	-0.02	0.40530	-0.65450	0.01100	0.00028	0.42837
12	1.00	0.00	0.44318	-0.53526	0.00000	0.00000	0.28650
13	1.00	0.00	0.48106	-0.42164	0.00000	0.00000	0.17778
14	1.00	0.00	0.51894	-0.31230	0.00000	0.00000	0.09753
15	1.00	0.00	0.55682	-0.20607	0.00000	0.00000	0.04247
16	1.00	0.00	0.59470	-0.10190	0.00000	0.00000	0.01038
17	1.00	0.00	0.63258	0.00124	0.00000	0.00000	0.00000
18	1.00	0.00	0.67045	0.10440	0.00000	0.00000	0.01090
19	1.47	0.38	0.70833	0.20876	0.07995	0.14668	0.04358
20	1.50	0.41	0.74621	0.31573	0.12802	0.16440	0.09968
21	1.50	0.41	0.78409	0.42716	0.17320	0.16440	0.18247
22	1.67	0.51	0.82197	0.54569	0.27875	0.26094	0.29778
23	1.67	0.51	0.85985	0.67551	0.34507	0.26094	0.45631
24	1.75	0.56	0.89773	0.82422	0.46125	0.31317	0.67935
25	2.00	0.69	0.93561	1.00896	0.69935	0.48045	1.01799
26	3.00	1.10	0.97348	1.28924	1.41638	1.20695	1.66215
Total	29.43	-0.17	13.00000	-14.30820	16.02378	7.88319	43.19394

LAMPIRAN 8 : Perhitungan MTBF DTE 6

- Index of Fit

$$r = \frac{n \sum X_i Y_i - \sum X_i \sum Y_i}{\sqrt{(n \sum X_i^2 - (\sum X_i)^2)(n \sum Y_i^2 - (\sum Y_i)^2)}}$$

a. Distribusi Normal

$$r = \frac{25 \times (25593.20743) - 19359.42 \times (0.00000)}{\sqrt{(25 \times 87922808.19750 - 19359.42^2) \times (25 \times (21.87708) - (0.00000)^2)}}$$

$$r = 0.64073$$

b. Distribusi Lognormal

$$r = \frac{25 \times 40932244 - 131.94 \times 0.0000}{\sqrt{(25 \times 775.182492 - 131.94^2) \times (25 \times 21.877084 - 0.00000^2)}}$$

$$r = 0.98577$$

c. Distribusi Eksponensial

$$r = \frac{25 \times 49692.18247 - 19359.42 \times 24.09584}{\sqrt{(25 \times 87922808.19750 - 19359.42^2) \times (25 \times 42.59040 - 24.09584^2)}}$$

$$r = 0.82574$$

d. Distribusi Weibull

$$r = \frac{25 \times (-22.11121) - 131.94 \times (-13.73762)}{\sqrt{(25 \times 775.18249 - 131.94^2) \times (25 \times (41.32129) - (-13.73762)^2)}}$$

$$r = 0.976771$$

Jadi, Dipilih distribusi **Lognormal**

- Perhitungan MTBF

a. Penentuan Parameter

$$b = \frac{n \sum X_i Y_i - \sum X_i \sum Y_i}{n \sum X_i^2 - (\sum X_i)^2}$$

$$b = \frac{25 \times (40.932244) - 131.94 \times (0.00000)}{25 \times 775.182492 - 131.94^2}$$

$$b = 0.519370089$$

LAMPIRAN 8 : Perhitungan MTBF DTE 6 (lanjutan)

$$a = \frac{\sum Y_i - b \sum X_i}{n}$$

$$a = \frac{0.00000 - 0.519370089 \times 131.94}{25} = -2.741115409$$

$$s = \frac{1}{b}$$

$$s = \frac{1}{0.519370089} = 1.925409301$$

$$t_{med} = e^{-sa}$$

$$t_{med} = e^{-1.925409301 \times (-2.741115409)} = 195.9322831$$

b. MTBF

$$MTBF = t_{med} e^{\frac{s^2}{2}} = 195.9322831 \times e^{\frac{1.925409301^2}{2}} = 1250.5886$$

LAMPIRAN 9 : Perhitungan MTTR DTE 4

- Index of Fit

$$r = \frac{n \sum X_i Y_i - \sum X_i \sum Y_i}{\sqrt{(n \sum X_i^2 - (\sum X_i)^2)(n \sum Y_i^2 - (\sum Y_i)^2)}}$$

a. Distribusi Normal

$$r = \frac{26 \times (12.73879) - 29.43 \times (0.00000)}{\sqrt{(26 \times 4158778 - 29.43^2) \times (26 \times (22.84861) - (0.00000)^2)}}$$

$$r = 0.92684$$

b. Distribusi Lognormal

$$r = \frac{26 \times 412.51283 - (-0.17) \times 0.0000}{\sqrt{(26 \times 7.88319 - (-0.17)^2) \times (26 \times 22.84861 - 0.00000^2)}}$$

$$r = 0.93241$$

c. Distribusi Eksponensial

$$r = \frac{26 \times 40.86778 - 29.43 \times 25.08809}{\sqrt{(26 \times 4158778 - 29.43^2) \times (26 \times 25.08809 - 44.48931^2)}}$$

$$r = 0.94241$$

d. Distribusi Weibull

$$r = \frac{26 \times (16.02378) - (-0.17) \times (-14.3082)}{\sqrt{(26 \times 7.88319 - (0.17)^2) \times (26 \times (-14.3082)(-14.3082^2)}}$$

$$r = 0.95462$$

Jadi, Dipilih distribusi **Weibull**

- Perhitungan MTTR

a. Penentuan Parameter

$$\beta = b = \frac{26 \times (16.02378) - (-0.17) \times (-14.30820)}{26 \times 7.88319 - (-0.17)^2} = 2.0208$$

$$\alpha = a = \frac{-14.30820 - 2.0208 \times (-0.17)}{26} = -3.096584$$

$$\theta = e^{-\alpha/\beta} = e^{-(2.0208)/-3.096584} = 1.30425$$

LAMPIRAN 9 : Perhitungan MTTR DTE 4 (lanjutan)

b. MTTR


$$MT = \theta \Gamma\left(1 + \frac{1}{|\beta|}\right) = 1.30425 \times \Gamma\left(1 + \frac{1}{|2.0208|}\right)$$

$$MT = 1.30435 \times \Gamma(1.49485) = 538,2801857 \times 0.886071494$$


$$MTBF = 1.15566$$

: Diperoleh dari tabel nilai gamma (Lihat Lampiran 14)

LAMPIRAN 10 : Quotation Modifikasi Conveyor



PT. T MASA H
Indonesia



To : [Redacted]
Fax : [Redacted]
Attn Name : [Redacted]

Subject : **MODULAR CONVEYOR**
Final User : [Redacted]
Term of Payment : [Redacted]

Delivery Time : [Redacted]
Status Order : **INDENT**
Validity : 7 Days
Price : **IDR**

QUOTATION

PR No. : [Redacted]
RFQ No. : [Redacted]
Our Ref : [Redacted]
Date : [Redacted]

We're pleased to offer as follow :

No	DESCRIPTION OF GOODS	Q'TY	PRICE	TOTAL PRICE
	UPGRADE, PENGADAAN DAN PEMASANGAN MODULAR CONVEYOR LINE COOLING - 3 MESIN DTE-1 MODULAR HEAVY DUTY 1. CONVEYOR UP-WARD W600X19000L 2. CONVEYOR DOWN-WARD : W600X15000L 3. CONVEYOR COOLING 1 : W600X52000L 4. CONVEYOR COOLING 2 : W600X6200L 5. CONVEYOR COOLING 3 : W600X83000L PEKERJAAN TERMASUK SINKRONISASI ANTAR CONVEYOR OLEH KARENA ITU KAMI TIDAK BISA MEMBERIKAN HARGA TERPISAH PER ITEM.			
1	MATERIAL DM HEAVY DUTY MODULAR CONVEYOR (Bill of Q'ty terlampir lengkap)	1	Lot 3,000,000,000.00	3,000,000,000.00
2	FABRIKASI, PENGANTIAN, PEMASANGAN DAN SINKRONISASI Notes : Replacement conveyor only with modular frame conveyor 1. Sistem Basah (celup) 2. Cooling bak pakai exiting 3. water spray exiting	1	Lot 330,000,000.00	330,000,000.00
TOTAL Price EX WORKS TANGERANG EXCLUDE VAT 10% and PPH				3,330,000,000.00

Thank you very much for your inquiry, please do not hesitate to contact us for further information

LAMPIRAN 11 : Data Biaya

Data	Ammount
<i>Average Sallery Worker (engineering)</i>	<i>Rp. 3.200.000,- / month</i>
<i>Overhead Cost per Tire</i>	<i>Rp. 85.705,- / tire</i>
<i>Average Tire Selling Price</i>	<i>Rp. 400.000,- / tire</i>
<i>Operation Profit</i>	<i>10 %</i>

(sumber : Costing Department PT. PQR)

LAMPIRAN 12 : Data Biaya Part

Data	Ammount
<i>Rubber belt for tread extruder</i>	<i>Rp. 54.375.600,-</i>
<i>Plastic modular belt for tread extruder (flush grid) each segment</i>	<i>Rp. 4.794.457,-</i>

(sumber : Maitenance Engineering Department PT. PQR, 2016)

LAMPIRAN 13 : Kapasitas Mesin

Data	Ammount
<i>Available Capacity for DTE 4</i>	8530 tire/day

(sumber : Industrial Engineering Department PT. PQR, 2016)

LAMPIRAN 14 : Tabel Gamma ()

TABLE A.9
Gamma function

x	$\Gamma(x)$	x	$\Gamma(x)$	x	$\Gamma(x)$	x	$\Gamma(x)$
1.01	.99433	1.51	.88659	2.01	1.00427	2.51	1.33875
1.02	.98884	1.52	.88704	2.02	1.00862	2.52	1.34830
1.03	.98355	1.53	.88757	2.03	1.01306	2.53	1.35798
1.04	.97844	1.54	.88818	2.04	1.01758	2.54	1.36779
1.05	.97350	1.55	.88887	2.05	1.02218	2.55	1.37775
1.06	.96874	1.56	.88964	2.06	1.02687	2.56	1.38784
1.07	.96415	1.57	.89049	2.07	1.03164	2.57	1.39807
1.08	.95973	1.58	.89142	2.08	1.03650	2.58	1.40844
1.09	.95546	1.59	.89243	2.09	1.04145	2.59	1.41896
1.10	.95135	1.60	.89352	2.10	1.04649	2.60	1.42962
1.11	.94740	1.61	.89468	2.11	1.05161	2.61	1.44044
1.12	.94359	1.62	.89592	2.12	1.05682	2.62	1.45140
1.13	.93993	1.63	.89724	2.13	1.06212	2.63	1.46251
1.14	.93642	1.64	.89864	2.14	1.06751	2.64	1.47377
1.15	.93304	1.65	.90012	2.15	1.07300	2.65	1.48519
1.16	.92980	1.66	.90167	2.16	1.07857	2.66	1.49677
1.17	.92670	1.67	.90330	2.17	1.08424	2.67	1.50851
1.18	.92373	1.68	.90500	2.18	1.09000	2.68	1.52040
1.19	.92089	1.69	.90678	2.19	1.09585	2.69	1.53246
1.20	.91817	1.70	.90864	2.20	1.10180	2.70	1.54469
1.21	.91558	1.71	.91057	2.21	1.10785	2.71	1.55708
1.22	.91311	1.72	.91258	2.22	1.11399	2.72	1.56964
1.23	.91075	1.73	.91467	2.23	1.12023	2.73	1.58237
1.24	.90852	1.74	.91683	2.24	1.12657	2.74	1.59528
1.25	.90640	1.75	.91906	2.25	1.13300	2.75	1.60836
1.26	.90440	1.76	.92137	2.26	1.13954	2.76	1.62162
1.27	.90250	1.77	.92376	2.27	1.14618	2.77	1.63506
1.28	.90072	1.78	.92623	2.28	1.15292	2.78	1.64868
1.29	.89904	1.79	.92877	2.29	1.15976	2.79	1.66249
1.30	.89747	1.80	.93138	2.30	1.16671	2.80	1.67649
1.31	.89600	1.81	.93408	2.31	1.17377	2.81	1.69068
1.32	.89464	1.82	.93685	2.32	1.18093	2.82	1.70506
1.33	.89338	1.83	.93969	2.33	1.18819	2.83	1.71963
1.34	.89222	1.84	.94261	2.34	1.19557	2.84	1.73441
1.35	.89115	1.85	.94561	2.35	1.20305	2.85	1.74938
1.36	.89018	1.86	.94869	2.36	1.21065	2.86	1.76456
1.37	.88931	1.87	.95184	2.37	1.21836	2.87	1.77994
1.38	.88854	1.88	.95507	2.38	1.22618	2.88	1.79553
1.39	.88785	1.89	.95838	2.39	1.23412	2.89	1.81134
1.40	.88726	1.90	.96177	2.40	1.24217	2.90	1.82736
1.41	.88676	1.91	.96523	2.41	1.25034	2.91	1.84359
1.42	.88636	1.92	.96877	2.42	1.25863	2.92	1.86005
1.43	.88604	1.93	.97240	2.43	1.26703	2.93	1.87673
1.44	.88581	1.94	.97610	2.44	1.27556	2.94	1.89363
1.45	.88566	1.95	.97988	2.45	1.28421	2.95	1.91077
1.46	.88560	1.96	.98374	2.46	1.29298	2.96	1.92814
1.47	.88563	1.97	.98769	2.47	1.30188	2.97	1.94574
1.48	.88575	1.98	.99171	2.48	1.31091	2.98	1.96358
1.49	.88595	1.99	.99581	2.49	1.32006	2.99	1.98167
1.50	.88623	2.00	1	2.50	1.32934	3.00	2

(sumber : Ebellling, 1997)

LAMPIRAN 15 : Perhitungan Aliran Kas Kenaikan Modifikasi

Perhitungan prediksi aliran kas tiap tahun

Dimana pada tahun 2016, telah diketahui sebelumnya biaya untuk masing-masing komponen. Kemudian untuk prediksi aliran kas telah diasumsikan beberapa kenaikan sebagai berikut,

Kenaikan Gaji Personel *Engineering* = 10 % / tahun

Kenaikan Harga *Spare Part* = 10 % / tahun

Kenaikan Biaya *Overhead* = 10 % / tahun

Kenaikan Harga Ban = 10 % / tahun

Maka Rasio kenaikan dirumuskan sebagai berikut

1. Akibat *Belt Off Center*

- Biaya *Manpower*

$$\text{Biaya total} = \text{waktu perbaikan} \times \text{biaya personel} \times \text{banyaknya personel}$$

Setelah kenaikan maka untuk tahun selanjutnya adalah,

$$\text{Biaya total} = \text{waktu perbaikan} \times \text{biaya personel} (100\% + 10\%) \times \text{banyaknya personel}$$

$$\text{Biaya total} = 110\% (\text{waktu perbaikan} \times \text{biaya personel} \times \text{banyaknya personel})$$

$$\text{Rasio kenaikan} = 1,1$$

- Biaya *Overhead Losses*

$$\text{Biaya total} = \text{losses ban satu hari} \times \text{biaya overhead per ban} \times \text{waktu operasi}$$

Setelah kenaikan maka untuk tahun selanjutnya adalah,

$$\text{Biaya total} = \text{losses ban satu hari} \times \text{biaya overhead per ban} (100\%+10\%) \times \text{waktu operasi}$$

$$\text{Biaya total} = 110\% (\text{losses ban satu hari} \times \text{biaya overhead per ban} \times \text{waktu operasi})$$

$$\text{Rasio kenaikan} = 1,1$$

- Biaya *Opportunity Losses*

$$\text{Biaya total} = \text{losses ban satu hari} \times (\text{harga ban} \times \text{keuntungan}) \times \text{waktu operasi}$$

Setelah kenaikan maka untuk tahun selanjutnya adalah,

$$\text{Biaya total} = \text{losses ban satu hari} \times (\text{harga ban} (100\%+10\%) \times \text{keuntungan} (100\%+10\%)) \times \text{waktu operasi}$$

$$\text{Biaya total} = 110\% (\text{losses ban satu hari} \times (\text{harga ban} \times \text{keuntungan}) \times \text{waktu operasi})$$

$$\text{Rasio kenaikan} = 1,1$$

2. Akibat Penggantian Belt

- Biaya *Manpower*

$$\text{Biaya total} = (\text{waktu perbaikan} \times \text{biaya personel} \times \text{banyaknya personel}) + \text{biaya spare parts}$$

Setelah kenaikan maka untuk tahun selanjutnya adalah,

$$\text{Biaya total} = (\text{waktu perbaikan} \times \text{biaya personel} (100\%+10\%) \times \text{banyaknya personel}) + \text{biaya spare parts} (100\%+10\%)$$

Biaya total = 110% (waktu perbaikan x biaya personel x banyaknya personel) + 110% (biaya spare parts)

Biaya total = 110% ((waktu perbaikan x biaya personel x banyaknya personel) + (biaya spare parts))

Rasio kenaikan = 1,1

- Biaya *Overhead Losses*

Biaya total = losses ban satu hari x biaya overhead per ban x waktu operasi

Setelah kenaikan maka untuk tahun selanjutnya adalah,

Biaya total = losses ban satu hari x biaya overhead per ban (100%+10%) x waktu operasi

Biaya total = 110% (losses ban satu hari x biaya overhead per ban x waktu operasi)

Rasio kenaikan = 1,1

- Biaya *Opportunity Losses*

Biaya total = losses ban satu hari x (harga ban x keuntungan) x waktu operasi

Setelah kenaikan maka untuk tahun selanjutnya adalah,

Biaya total = losses ban satu hari x (harga ban (100%+10%) x keuntungan (100%+10%)) x waktu operasi

Biaya total = 110% (losses ban satu hari x (harga ban x keuntungan) x waktu operasi)

Rasio kenaikan = 1,1

LAMPIRAN 16 : Perhitungan Aliran Kas Sebelum Modifikasi

Penyebab	Biaya	Tahun					
		2016 (6 bulan)	2017 (12 bulan)	2018 (12 bulan)	2019 (12 bulan)	2020 (12 bulan)	2021 (12 bulan)
Belt Off Center	Manpower	Rp 896.990	Rp 1.973.377	Rp 2.170.715	Rp 2.387.786	Rp 2.626.565	Rp 2.889.222
	Rasio Kenaikan	-	1.1	1.1	1.1	1.1	1.1
	Rasio Bulan	-	12/6	12/12	12/12	12/12	12/12
	Ovehead Losses	Rp 209.193.163	Rp 460.224.960	Rp 506.247.456	Rp 556.872.201	Rp 612.559.421	Rp 673.815.363
	Rasio Kenaikan	-	1.1	1.1	1.1	1.1	1.1
	Rasio Bulan	-	12/6	12/12	12/12	12/12	12/12
	Opportunity Losses	Rp 97.634.053	Rp 214.794.917	Rp 236.274.409	Rp 259.901.850	Rp 285.892.035	Rp 314.481.238
	Rasio Kenaikan	-	1.1	1.1	1.1	1.1	1.1
Penggantian Belt	Manpower dan spare part	Rp 28.493.922	Rp 62.686.629	Rp 68.955.292	Rp 75.850.822	Rp 83.435.904	Rp 91.779.494
	Rasio Kenaikan	-	1.1	1.1	1.1	1.1	1.1
	Rasio Bulan	-	12/6	12/12	12/12	12/12	12/12
	Overhead Losses	Rp 180.683.110	Rp 397.502.842	Rp 437.253.126	Rp 480.978.439	Rp 529.076.283	Rp 581.983.911
	Rasio Kenaikan	-	1.1	1.1	1.1	1.1	1.1
	Rasio Bulan	-	12/6	12/12	12/12	12/12	12/12
	Opportunity Losses	Rp 84.327.920	Rp 185.521.425	Rp 204.073.567	Rp 224.480.924	Rp 246.929.016	Rp 271.621.918
	Rasio Kenaikan	-	1.1	1.1	1.1	1.1	1.1
Total		Rp 601.229.159	Rp 1.322.704.150	Rp 1.454.974.565	Rp 1.600.472.022	Rp 1.760.519.224	Rp 1.936.571.146

Penyebab	Biaya	Tahun				
		2022 (12 bulan)	2023 (12 bulan)	2024 (12 bulan)	2025 (12 bulan)	2026 (6 bulan)
Belt Off Center	Manpower	Rp 3.178.144	Rp 3.495.958	Rp 3.845.554	Rp 4.230.109	Rp 2.326.560
	Rasio Kenaikan	1.1	1.1	1.1	1.1	1.1
	Rasio Bulan	12/12	12/12	12/12	12/12	6/12
	Ovehead Losses	Rp 741.196.900	Rp 815.316.590	Rp 896.848.249	Rp 986.533.074	Rp 542.593.190
	Rasio Kenaikan	1.1	1.1	1.1	1.1	1.1
	Rasio Bulan	12/12	12/12	12/12	12/12	6/12
	Opportunity Losses	Rp 345.929.362	Rp 380.522.298	Rp 418.574.528	Rp 460.431.981	Rp 253.237.590
	Rasio Kenaikan	1.1	1.1	1.1	1.1	1.1
Penggantian Belt	Manpower dan spare part	Rp 100.957.443	Rp 111.053.188	Rp 122.158.507	Rp 134.374.357	Rp 73.905.897
	Rasio Kenaikan	1.1	1.1	1.1	1.1	1.1
	Rasio Bulan	12/12	12/12	12/12	12/12	6/12
	Overhead Losses	Rp 640.182.302	Rp 704.200.533	Rp 774.620.586	Rp 852.082.644	Rp 468.645.454
	Rasio Kenaikan	1.1	1.1	1.1	1.1	1.1
	Rasio Bulan	12/12	12/12	12/12	12/12	6/12
	Opportunity Losses	Rp 298.784.109	Rp 328.662.520	Rp 361.528.772	Rp 397.681.650	Rp 218.724.907
	Rasio Kenaikan	1.1	1.1	1.1	1.1	1.1
Total		Rp 2.130.228.261	Rp 2.343.251.087	Rp 2.577.576.196	Rp 2.835.333.815	Rp 1.559.433.598

LAMPIRAN 17 : Perhitungan Aliran Kas Setelah Modifikasi

Penyebab	Biaya	Tahun					
		2016 (6 bulan)	2017 (12 bulan)	2018 (12 bulan)	2019 (12 bulan)	2020 (12 bulan)	2021 (12 bulan)
Belt Off Center	Manpower	Rp 147.395	Rp 324.269	Rp 356.696	Rp 392.365	Rp 431.602	Rp 474.762
	Rasio Kenaikan	-	1.1	1.1	1.1	1.1	1.1
	Rasio Bulan	-	12/6	12/12	12/12	12/12	12/12
	Ovehead Losses	Rp 103.125.024	Rp 226.875.054	Rp 249.562.559	Rp 274.518.815	Rp 301.970.697	Rp 332.167.766
	Rasio Kenaikan	-	1.1	1.1	1.1	1.1	1.1
	Rasio Bulan	-	12/6	12/12	12/12	12/12	12/12
	Opportunity Losses	Rp 48.130.226	Rp 105.886.496	Rp 116.475.146	Rp 128.122.660	Rp 140.934.926	Rp 155.028.419
	Rasio Kenaikan	-	1.1	1.1	1.1	1.1	1.1
Penggantian Belt	Manpower dan spare part	Rp 2.506.072	Rp 5.513.358	Rp 6.064.694	Rp 6.671.164	Rp 7.338.280	Rp 8.072.108
	Rasio Kenaikan	-	1.1	1.1	1.1	1.1	1.1
	Rasio Bulan	-	12/6	12/12	12/12	12/12	12/12
	Overhead Losses	Rp 75.284.629	Rp 165.626.184	Rp 182.188.803	Rp 200.407.683	Rp 220.448.451	Rp 242.493.296
	Rasio Kenaikan	-	1.1	1.1	1.1	1.1	1.1
	Rasio Bulan	-	12/6	12/12	12/12	12/12	12/12
	Opportunity Losses	Rp 35.136.633	Rp 77.300.594	Rp 85.030.653	Rp 93.533.718	Rp 102.887.090	Rp 113.175.799
	Rasio Kenaikan	-	1.1	1.1	1.1	1.1	1.1
Total		Rp 264.329.980	Rp 581.525.955	Rp 639.678.551	Rp 703.646.406	Rp 774.011.046	Rp 851.412.151

Penyebab	Biaya	Tahun				
		2022 (12 bulan)	2023 (12 bulan)	2024 (12 bulan)	2025 (12 bulan)	2026 (6 bulan)
Belt Off Center	Manpower	Rp 522.238	Rp 574.462	Rp 631.909	Rp 695.099	Rp 382.305
	Rasio Kenaikan	1.1	1.1	1.1	1.1	1.1
	Rasio Bulan	12/12	12/12	12/12	12/12	6/12
	Ovehead Losses	Rp 365.384.543	Rp 401.922.997	Rp 442.115.297	Rp 486.326.827	Rp 267.479.755
	Rasio Kenaikan	1.1	1.1	1.1	1.1	1.1
	Rasio Bulan	12/12	12/12	12/12	12/12	6/12
	Opportunity Losses	Rp 170.531.261	Rp 187.584.387	Rp 206.342.826	Rp 226.977.108	Rp 124.837.410
	Rasio Kenaikan	1.1	1.1	1.1	1.1	1.1
Penggantian Belt	Manpower dan spare part	Rp 8.879.319	Rp 9.767.251	Rp 10.743.976	Rp 11.818.374	Rp 6.500.105
	Rasio Kenaikan	1.1	1.1	1.1	1.1	1.1
	Rasio Bulan	12/12	12/12	12/12	12/12	6/12
	Overhead Losses	Rp 266.742.626	Rp 293.416.889	Rp 322.758.577	Rp 355.034.435	Rp 195.268.939
	Rasio Kenaikan	1.1	1.1	1.1	1.1	1.1
	Rasio Bulan	12/12	12/12	12/12	12/12	6/12
	Opportunity Losses	Rp 124.493.379	Rp 136.942.717	Rp 150.636.988	Rp 165.700.687	Rp 91.135.378
	Rasio Kenaikan	1.1	1.1	1.1	1.1	1.1
Total		Rp 936.553.366	Rp 1.030.208.703	Rp 1.133.229.573	Rp 1.246.552.530	Rp 685.603.892

LAMPIRAN 18 : Perhitungan Aliran Kas Selisih

Penyebab	Biaya	Tahun					
		2016 (6 bulan)	2017 (12 bulan)	2018 (12 bulan)	2019 (12 bulan)	2020 (12 bulan)	2021 (12 bulan)
Belt Off Center	Manpower Sebelum	Rp 896.990	Rp 1.973.377	Rp 2.170.715	Rp 2.387.786	Rp 2.626.565	Rp 2.889.222
	Manpower Sesudah	Rp 147.395	Rp 324.269	Rp 356.696	Rp 392.365	Rp 431.602	Rp 474.762
	Selisih	Rp 749.595	Rp 1.649.108	Rp 1.814.019	Rp 1.995.421	Rp 2.194.963	Rp 2.414.459
	Ovehead Losses Sebelum	Rp 209.193.163	Rp 460.224.960	Rp 506.247.456	Rp 556.872.201	Rp 612.559.421	Rp 673.815.363
	Ovehead Losses Sesudah	Rp 103.125.024	Rp 226.875.054	Rp 249.562.559	Rp 274.518.815	Rp 301.970.697	Rp 332.167.766
	Selisih	Rp 106.068.139	Rp 233.349.906	Rp 256.684.896	Rp 282.353.386	Rp 310.588.725	Rp 341.647.597
	Opportunity Losses Sebelum	Rp 97.634.053	Rp 214.794.917	Rp 236.274.409	Rp 259.901.850	Rp 285.892.035	Rp 314.481.238
	Opportunity Losses Sesudah	Rp 48.130.226	Rp 105.886.496	Rp 116.475.146	Rp 128.122.660	Rp 140.934.926	Rp 155.028.419
	Selisih	Rp 49.503.828	Rp 108.908.421	Rp 119.799.263	Rp 131.779.190	Rp 144.957.109	Rp 159.452.819
Penggantian Belt	Manpower Sebelum	Rp 28.493.922	Rp 62.686.629	Rp 68.955.292	Rp 75.850.822	Rp 83.435.904	Rp 91.779.494
	Manpower Sesudah	Rp 2.506.072	Rp 5.513.358	Rp 6.064.694	Rp 6.671.164	Rp 7.338.280	Rp 8.072.108
	Selisih	Rp 25.987.850	Rp 57.173.271	Rp 62.890.598	Rp 69.179.658	Rp 76.097.624	Rp 83.707.386
	Ovehead Losses Sebelum	Rp 180.683.110	Rp 397.502.842	Rp 437.253.126	Rp 480.978.439	Rp 529.076.283	Rp 581.983.911
	Ovehead Losses Sesudah	Rp 75.284.629	Rp 165.626.184	Rp 182.188.803	Rp 200.407.683	Rp 220.448.451	Rp 242.493.296
	Selisih	Rp 105.398.481	Rp 231.876.658	Rp 255.064.324	Rp 280.570.756	Rp 308.627.832	Rp 339.490.615
	Opportunity Losses Sebelum	Rp 84.327.920	Rp 185.521.425	Rp 204.073.567	Rp 224.480.924	Rp 246.929.016	Rp 271.621.918
	Opportunity Losses Sesudah	Rp 35.136.633	Rp 77.300.594	Rp 85.030.653	Rp 93.533.718	Rp 102.887.090	Rp 113.175.799
	Selisih	Rp 49.191.287	Rp 108.220.831	Rp 119.042.914	Rp 130.947.205	Rp 144.041.926	Rp 158.446.119
Total	Rp 336.899.180	Rp 741.178.195	Rp 815.296.015	Rp 896.825.616	Rp 986.508.178	Rp 1.085.158.995	

Penyebab	Biaya	Tahun				
		2022 (12 bulan)	2023 (12 bulan)	2024 (12 bulan)	2025 (12 bulan)	2026 (6 bulan)
Belt Off Center	Manpower Sebelum	Rp 3.178.144	Rp 3.495.958	Rp 3.845.554	Rp 4.230.109	Rp 2.326.560
	Manpower Sesudah	Rp 522.238	Rp 574.462	Rp 631.909	Rp 695.099	Rp 382.305
	Selisih	Rp 2.655.905	Rp 2.921.496	Rp 3.213.645	Rp 3.535.010	Rp 1.944.255
	Ovehead Losses Sebelum	Rp 741.196.900	Rp 815.316.590	Rp 896.848.249	Rp 986.533.074	Rp 542.593.190
	Ovehead Losses Sesudah	Rp 365.384.543	Rp 401.922.997	Rp 442.115.297	Rp 486.326.827	Rp 267.479.755
	Selisih	Rp 375.812.357	Rp 413.393.593	Rp 454.732.952	Rp 500.206.247	Rp 275.113.436
	Opportunity Losses Sebelum	Rp 345.929.362	Rp 380.522.298	Rp 418.574.528	Rp 460.431.981	Rp 253.237.590
	Opportunity Losses Sesudah	Rp 170.531.261	Rp 187.584.387	Rp 206.342.826	Rp 226.977.108	Rp 124.837.410
	Selisih	Rp 175.398.101	Rp 192.937.912	Rp 212.231.703	Rp 233.454.873	Rp 128.400.180
Penggantian Belt	Manpower Sebelum	Rp 100.957.443	Rp 111.053.188	Rp 122.158.507	Rp 134.374.357	Rp 73.905.897
	Manpower Sesudah	Rp 8.879.319	Rp 9.767.251	Rp 10.743.976	Rp 11.818.374	Rp 6.500.105
	Selisih	Rp 92.078.125	Rp 101.285.937	Rp 111.414.531	Rp 122.555.984	Rp 67.405.791
	Ovehead Losses Sebelum	Rp 640.182.302	Rp 704.200.533	Rp 774.620.586	Rp 852.082.644	Rp 468.645.454
	Ovehead Losses Sesudah	Rp 266.742.626	Rp 293.416.889	Rp 322.758.577	Rp 355.034.435	Rp 195.268.939
	Selisih	Rp 373.439.676	Rp 410.783.644	Rp 451.862.008	Rp 497.048.209	Rp 273.376.515
	Opportunity Losses Sebelum	Rp 298.784.109	Rp 328.662.520	Rp 361.528.772	Rp 397.681.650	Rp 218.724.907
	Opportunity Losses Sesudah	Rp 124.493.379	Rp 136.942.717	Rp 150.636.988	Rp 165.700.687	Rp 91.135.378
	Selisih	Rp 174.290.730	Rp 191.719.804	Rp 210.891.784	Rp 231.980.962	Rp 127.589.529
Total	Rp 1.193.674.895	Rp 1.313.042.384	Rp 1.444.346.623	Rp 1.588.781.285	Rp 873.829.707	

LAMPIRAN 19 : BI Rate

21 Juli 2016	6.50 %	12 April 2011	6.75 %
16 Juni 2016	6.50 %	4 Maret 2011	6.75 %
19 Mei 2016	6.75 %	4 Februari 2011	6.75 %
21 April 2016	6.75 %	5 Januari 2011	6.50 %
17 Maret 2016	6.75 %	3 Desember 2010	6.50 %
18 Februari 2016	7.00 %	4 Nopember 2010	6.50 %
14 Januari 2016	7.25 %	5 Oktober 2010	6.50 %
17 Desember 2015	7.50 %	3 September 2010	6.50 %
17 Nopember 2015	7.50 %	4 Agustus 2010	6.50 %
15 Oktober 2015	7.50 %	5 Juli 2010	6.50 %
17 September 2015	7.50 %	3 Juni 2010	6.50 %
18 Agustus 2015	7.50 %	5 Mei 2010	6.50 %
14 Juli 2015	7.50 %	6 April 2010	6.50 %
18 Juni 2015	7.50 %	4 Maret 2010	6.50 %
19 Mei 2015	7.50 %	4 Februari 2010	6.50 %
14 April 2015	7.50 %	6 Januari 2010	6.50 %
17 Maret 2015	7.50 %	3 Desember 2009	6.50 %
17 Februari 2015	7.50 %	4 Nopember 2009	6.50 %
15 Januari 2015	7.75 %	5 Oktober 2009	6.50 %
11 Desember 2014	7.75 %	3 September 2009	6.50 %
18 Nopember 2014	7.75 %	5 Agustus 2009	6.50 %
13 Nopember 2014	7.50 %	3 Juli 2009	6.75 %
7 Oktober 2014	7.50 %	3 Juni 2009	7.00 %
11 September 2014	7.50 %	5 Mei 2009	7.25 %
14 Agustus 2014	7.50 %	3 April 2009	7.50 %
10 Juli 2014	7.50 %	4 Maret 2009	7.75 %
12 Juni 2014	7.50 %	4 Februari 2009	8.25 %
8 Mei 2014	7.50 %	7 Januari 2009	8.75 %
8 April 2014	7.50 %	4 Desember 2008	9.25 %
13 Maret 2014	7.50 %	6 Nopember 2008	9.50 %
13 Februari 2014	7.50 %	7 Oktober 2008	9.50 %
9 Januari 2014	7.50 %	4 September 2008	9.25 %
12 Desember 2013	7.50 %	5 Agustus 2008	9.00 %
12 Nopember 2013	7.50 %	3 Juli 2008	8.75 %
8 Oktober 2013	7.25 %	5 Juni 2008	8.50 %
12 September 2013	7.25 %	6 Mei 2008	8.25 %
29 Agustus 2013	7.00 %	3 April 2008	8.00 %
15 Agustus 2013	6.50 %	6 Maret 2008	8.00 %
11 Juli 2013	6.50 %	6 Februari 2008	8.00 %
13 Juni 2013	6.00 %	8 Januari 2008	8.00 %
14 Mei 2013	5.75 %	6 Desember 2007	8.00 %
11 April 2013	5.75 %	6 Nopember 2007	8.25 %
7 Maret 2013	5.75 %	8 Oktober 2007	8.25 %
12 Februari 2013	5.75 %	6 September 2007	8.25 %
10 Januari 2013	5.75 %	7 Agustus 2007	8.25 %
11 Desember 2012	5.75 %	5 Juli 2007	8.25 %
8 Nopember 2012	5.75 %	7 Juni 2007	8.50 %
11 Oktober 2012	5.75 %	8 Mei 2007	8.75 %
9 Agustus 2012	5.75 %	5 April 2007	9.00 %
12 Juli 2012	5.75 %	6 Maret 2007	9.00 %
12 Juni 2012	5.75 %	6 Februari 2007	9.25 %
10 Mei 2012	5.75 %	4 Januari 2007	9.50 %
12 April 2012	5.75 %	7 Desember 2006	9.75 %
8 Maret 2012	5.75 %	7 Nopember 2006	10.25 %
9 Februari 2012	5.75 %	5 Oktober 2006	10.75 %
12 Januari 2012	6.00 %	5 September 2006	11.25 %
8 Desember 2011	6.00 %	8 Agustus 2006	11.75 %
10 Nopember 2011	6.00 %	6 Juli 2006	12.25 %
11 Oktober 2011	6.50 %	6 Juni 2006	12.50 %
8 September 2011	6.75 %		
9 Agustus 2011	6.75 %		
12 Juli 2011	6.75 %		
9 Juni 2011	6.75 %		
12 Mei 2011	6.75 %		

Sumber : Pranala Siaran Pers Bank Sentral Indonesia

LAMPIRAN 20 : Tabel Standarized Normal probability

TABLE A.1
Standardized normal probabilities: $\Phi(z) = \int_{-\infty}^z (1/\sqrt{2\pi})e^{-y^2/2} dy$

z	$\Phi(z)$	$1 - \Phi(z)$	z	$\Phi(z)$	$1 - \Phi(z)$	z	$\Phi(z)$	$1 - \Phi(z)$
-4.0000	0.00003	0.99997	-3.5100	0.00022	0.99978	-3.0200	0.00126	0.99874
-3.9900	0.00003	0.99997	-3.5000	0.00023	0.99977	-3.0100	0.00131	0.99869
-3.9800	0.00003	0.99997	-3.4900	0.00024	0.99976	-3.0000	0.00135	0.99865
-3.9700	0.00004	0.99996	-3.4800	0.00025	0.99975	-2.9900	0.00139	0.99861
-3.9600	0.00004	0.99996	-3.4700	0.00026	0.99974	-2.9800	0.00144	0.99856
-3.9500	0.00004	0.99996	-3.4600	0.00027	0.99973	-2.9700	0.00149	0.99851
-3.9400	0.00004	0.99996	-3.4500	0.00028	0.99972	-2.9600	0.00154	0.99846
-3.9300	0.00004	0.99996	-3.4400	0.00029	0.99971	-2.9500	0.00159	0.99841
-3.9200	0.00004	0.99996	-3.4300	0.00030	0.99970	-2.9400	0.00164	0.99836
-3.9100	0.00005	0.99995	-3.4200	0.00031	0.99969	-2.9300	0.00169	0.99831
-3.9000	0.00005	0.99995	-3.4100	0.00032	0.99968	-2.9200	0.00175	0.99825
-3.8900	0.00005	0.99995	-3.4000	0.00034	0.99966	-2.9100	0.00181	0.99819
-3.8800	0.00005	0.99995	-3.3900	0.00035	0.99965	-2.9000	0.00187	0.99813
-3.8700	0.00005	0.99995	-3.3800	0.00036	0.99964	-2.8900	0.00193	0.99807
-3.8600	0.00006	0.99994	-3.3700	0.00038	0.99962	-2.8800	0.00199	0.99801
-3.8500	0.00006	0.99994	-3.3600	0.00039	0.99961	-2.8700	0.00205	0.99795
-3.8400	0.00006	0.99994	-3.3500	0.00040	0.99960	-2.8600	0.00212	0.99788
-3.8300	0.00006	0.99994	-3.3400	0.00042	0.99958	-2.8500	0.00219	0.99781
-3.8200	0.00007	0.99993	-3.3300	0.00043	0.99957	-2.8400	0.00226	0.99774
-3.8100	0.00007	0.99993	-3.3200	0.00045	0.99955	-2.8300	0.00233	0.99767
-3.8000	0.00007	0.99993	-3.3100	0.00047	0.99953	-2.8200	0.00240	0.99760
-3.7900	0.00008	0.99992	-3.3000	0.00048	0.99952	-2.8100	0.00248	0.99752
-3.7800	0.00008	0.99992	-3.2900	0.00050	0.99950	-2.8000	0.00255	0.99745
-3.7700	0.00008	0.99992	-3.2800	0.00052	0.99948	-2.7900	0.00264	0.99736
-3.7600	0.00008	0.99992	-3.2700	0.00054	0.99946	-2.7800	0.00272	0.99728
-3.7500	0.00009	0.99991	-3.2600	0.00056	0.99944	-2.7700	0.00280	0.99720
-3.7400	0.00009	0.99991	-3.2500	0.00058	0.99942	-2.7600	0.00289	0.99711
-3.7300	0.00009	0.99991	-3.2400	0.00060	0.99940	-2.7500	0.00298	0.99702
-3.7200	0.00010	0.99990	-3.2300	0.00062	0.99938	-2.7400	0.00307	0.99693
-3.7100	0.00010	0.99990	-3.2200	0.00064	0.99936	-2.7300	0.00317	0.99683
-3.7000	0.00011	0.99989	-3.2100	0.00066	0.99934	-2.7200	0.00326	0.99674
-3.6900	0.00011	0.99989	-3.2000	0.00069	0.99931	-2.7100	0.00336	0.99664
-3.6800	0.00012	0.99988	-3.1900	0.00071	0.99929	-2.7000	0.00347	0.99653
-3.6700	0.00012	0.99988	-3.1800	0.00074	0.99926	-2.6900	0.00357	0.99643
-3.6600	0.00013	0.99987	-3.1700	0.00076	0.99924	-2.6800	0.00368	0.99632
-3.6500	0.00013	0.99987	-3.1600	0.00079	0.99921	-2.6700	0.00379	0.99621
-3.6400	0.00014	0.99986	-3.1500	0.00082	0.99918	-2.6600	0.00391	0.99609
-3.6300	0.00014	0.99986	-3.1400	0.00084	0.99916	-2.6500	0.00402	0.99598
-3.6200	0.00015	0.99985	-3.1300	0.00087	0.99913	-2.6400	0.00415	0.99585
-3.6100	0.00015	0.99985	-3.1200	0.00090	0.99910	-2.6300	0.00427	0.99573
-3.6000	0.00016	0.99984	-3.1100	0.00094	0.99906	-2.6200	0.00440	0.99560
-3.5900	0.00016	0.99984	-3.1000	0.00097	0.99903	-2.6100	0.00453	0.99547
-3.5800	0.00017	0.99983	-3.0900	0.00100	0.99900	-2.6000	0.00466	0.99534
-3.5700	0.00018	0.99982	-3.0800	0.00103	0.99897	-2.5900	0.00480	0.99520
-3.5600	0.00019	0.99981	-3.0700	0.00107	0.99893	-2.5800	0.00494	0.99506
-3.5500	0.00019	0.99981	-3.0600	0.00111	0.99889	-2.5700	0.00508	0.99492
-3.5400	0.00020	0.99980	-3.0500	0.00114	0.99886	-2.5600	0.00523	0.99477
-3.5300	0.00021	0.99979	-3.0400	0.00118	0.99882	-2.5500	0.00539	0.99461
-3.5200	0.00022	0.99978	-3.0300	0.00122	0.99878	-2.5400	0.00554	0.99446

(sumber : Ebellig, 1997)



LAMPIRAN 20 : Tabel Standarized Normal probability (Lanjutan)

TABLE A.1 (CONTINUED)

z	$\Phi(z)$	$1 - \Phi(z)$	z	$\Phi(z)$	$1 - \Phi(z)$	z	$\Phi(z)$	$1 - \Phi(z)$
-2.53000	0.00570	0.99430	-2.03000	0.02118	0.97882	-1.53000	0.06301	0.93699
-2.52000	0.00587	0.99413	-2.02000	0.02169	0.97831	-1.52000	0.06426	0.93574
-2.51000	0.00604	0.99396	-2.01000	0.02222	0.97778	-1.51000	0.06552	0.93448
-2.50000	0.00621	0.99379	-2.00000	0.02275	0.97725	-1.50000	0.06681	0.93319
-2.49000	0.00639	0.99361	-1.99000	0.02330	0.97670	-1.49000	0.06811	0.93189
-2.48000	0.00657	0.99343	-1.98000	0.02385	0.97615	-1.48000	0.06944	0.93056
-2.47000	0.00676	0.99324	-1.97000	0.02442	0.97558	-1.47000	0.07078	0.92922
-2.46000	0.00695	0.99305	-1.96000	0.02500	0.97500	-1.46000	0.07214	0.92786
-2.45000	0.00714	0.99286	-1.95000	0.02559	0.97441	-1.45000	0.07353	0.92647
-2.44000	0.00734	0.99266	-1.94000	0.02619	0.97381	-1.44000	0.07493	0.92507
-2.43000	0.00755	0.99245	-1.93000	0.02680	0.97320	-1.43000	0.07636	0.92364
-2.42000	0.00776	0.99224	-1.92000	0.02743	0.97257	-1.42000	0.07780	0.92220
-2.41000	0.00798	0.99202	-1.91000	0.02807	0.97193	-1.41000	0.07927	0.92073
-2.40000	0.00820	0.99180	-1.90000	0.02872	0.97128	-1.40000	0.08076	0.91924
-2.39000	0.00842	0.99158	-1.89000	0.02938	0.97062	-1.39000	0.08226	0.91774
-2.38000	0.00866	0.99134	-1.88000	0.03005	0.96995	-1.38000	0.08379	0.91621
-2.37000	0.00889	0.99111	-1.87000	0.03074	0.96926	-1.37000	0.08534	0.91466
-2.36000	0.00914	0.99086	-1.86000	0.03144	0.96856	-1.36000	0.08691	0.91309
-2.35000	0.00939	0.99061	-1.85000	0.03216	0.96784	-1.35000	0.08851	0.91149
-2.34000	0.00964	0.99036	-1.84000	0.03288	0.96712	-1.34000	0.09012	0.90988
-2.33000	0.00990	0.99010	-1.83000	0.03362	0.96638	-1.33000	0.09176	0.90824
-2.32000	0.01017	0.98983	-1.82000	0.03438	0.96562	-1.32000	0.09342	0.90658
-2.31000	0.01044	0.98956	-1.81000	0.03515	0.96485	-1.31000	0.09510	0.90490
-2.30000	0.01072	0.98928	-1.80000	0.03593	0.96407	-1.30000	0.09680	0.90320
-2.29000	0.01101	0.98899	-1.79000	0.03673	0.96327	-1.29000	0.09853	0.90147
-2.28000	0.01130	0.98870	-1.78000	0.03754	0.96246	-1.28000	0.10027	0.89973
-2.27000	0.01160	0.98840	-1.77000	0.03836	0.96164	-1.27000	0.10204	0.89796
-2.26000	0.01191	0.98809	-1.76000	0.03920	0.96080	-1.26000	0.10383	0.89617
-2.25000	0.01222	0.98778	-1.75000	0.04006	0.95994	-1.25000	0.10565	0.89435
-2.24000	0.01255	0.98745	-1.74000	0.04093	0.95907	-1.24000	0.10749	0.89251
-2.23000	0.01287	0.98713	-1.73000	0.04182	0.95818	-1.23000	0.10935	0.89065
-2.22000	0.01321	0.98679	-1.72000	0.04272	0.95728	-1.22000	0.11123	0.88877
-2.21000	0.01355	0.98645	-1.71000	0.04363	0.95637	-1.21000	0.11314	0.88686
-2.20000	0.01390	0.98610	-1.70000	0.04457	0.95543	-1.20000	0.11507	0.88493
-2.19000	0.01426	0.98574	-1.69000	0.04551	0.95449	-1.19000	0.11702	0.88298
-2.18000	0.01463	0.98537	-1.68000	0.04648	0.95352	-1.18000	0.11900	0.88100
-2.17000	0.01500	0.98500	-1.67000	0.04746	0.95254	-1.17000	0.12100	0.87900
-2.16000	0.01539	0.98461	-1.66000	0.04846	0.95154	-1.16000	0.12302	0.87698
-2.15000	0.01578	0.98422	-1.65000	0.04947	0.95053	-1.15000	0.12507	0.87493
-2.14000	0.01618	0.98382	-1.64000	0.05050	0.94950	-1.14000	0.12714	0.87286
-2.13000	0.01659	0.98341	-1.63000	0.05155	0.94845	-1.13000	0.12924	0.87076
-2.12000	0.01700	0.98300	-1.62000	0.05262	0.94738	-1.12000	0.13136	0.86864
-2.11000	0.01743	0.98257	-1.61000	0.05370	0.94630	-1.11000	0.13350	0.86650
-2.10000	0.01786	0.98214	-1.60000	0.05480	0.94520	-1.10000	0.13567	0.86433
-2.09000	0.01831	0.98169	-1.59000	0.05592	0.94408	-1.09000	0.13786	0.86214
-2.08000	0.01876	0.98124	-1.58000	0.05705	0.94295	-1.08000	0.14007	0.85993
-2.07000	0.01923	0.98077	-1.57000	0.05821	0.94179	-1.07000	0.14231	0.85769
-2.06000	0.01970	0.98030	-1.56000	0.05938	0.94062	-1.06000	0.14457	0.85543
-2.05000	0.02018	0.97982	-1.55000	0.06057	0.93943	-1.05000	0.14686	0.85314
-2.04000	0.02067	0.97933	-1.54000	0.06178	0.93822	-1.04000	0.14917	0.85083

(sumber : Ebellig, 1997)