

CHAPTER 6

CONCLUSION AND RECOMMENDATION

6.1. Conclusion

- a. Currently, the quality of services provided by Waroenk Ayomass food stall is not yet satisfied, the problem can be seen from the average gap for all services, which is -0,34. The minus result explains that the customers' perception of the services provided is smaller than the customers' expectation.
- b. The attributes which need improvement based on importance-performance analysis (IPA) are attribute T1 (The customer can see the nameplate clearly), attribute T2 (The customer is satisfied with the condition of Waroenk Ayomass food stall), attribute Rs4 (The customer is satisfied with the responsiveness of employees when serving customers), attribute Re2 (Customer is satisfied with the services provided based on the promotions offered or promised)
- c. The proposed improvements given by the TRIZ method are attribute T1 (Changing the nameplate design to be easily seen and providing the right logo on the nameplate), T2 (Adding electric fans and cigarette ashtrays), attribute Rs4 (Making rules so that the employees can serve the customers responsively when they need help), attribute Re2 (Redesign brochures and providing services based on promotion promised).

6.2. Recommendation

a. For the Owner of Waroenk Ayomass

For the owner, based on the result of the analysis, Waroeank Ayomass should be able to improve the attribute which needs improvement immediately. The proposed of the result of the research can be used as a reference for improvement. The proposed improvement on the nameplate is in accordance with the recommendations of ergonomics in the field of visual display, namely by proposing an appropriate writing size. Moreover, to make the customers feel comfortable without feeling hot (uncomfortable), then Waroenk Ayamass can provide electric fans. On the other hand, to maintain the quality of hygiene and health on food plate and drinking glass, Waroenk Ayomass can add cigarette ashtray facilities. Therefore, food plates and drinking glasses are not used as ashtray. To make the employees responsive to serve customers when customers need help, Waroenk Ayomass should make rules for Waroenk

Ayomass' employees. Moreover, to make customers are not disappointed with the promotion given, Waroenk Ayomass should provide the appropriate price between the price in the brochure and the price in Waroenk Ayomass.

b. For the Future Research

For the future researchers, the suggestion that can be given is the development of the research. Currently, the research only until the stage of proposed improvements to the attributes that need priority improvement, this is caused by time constraints in conducting research. Thus, the development by the next researchers is to implement the attribute which needs priority improvement. With the improvements' implementation, the result of research which is obtained becomes more maximum.



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APPENDIX

Appendix 1: Summary of Respondents Characteristics

No.	Jenis Kelamin	Usia	Frekuensi Kedatangan	Kriteria Dalam Pemilihan Tempat Makan
1	Laki-laki	22	1	Murah
2	Laki-laki	21	1	Murah
3	Laki-laki	17	1	Murah
4	Laki-laki	17	2	Murah
5	Laki-laki	22	4	Murah
6	Laki-laki	22	1	Murah
7	Laki-laki	22	3	Murah
8	Laki-laki	40	2	Murah
9	Perempuan	27	1	Diajak temen
10	Laki-laki	39	3	Pelayanan
11	Laki-laki	35	1	Lihat brosur
12	Perempuan	22	1	Lihat brosur
13	Laki-laki	21	4	Murah
14	Laki-laki	22	3	Pelayanan
15	Laki-laki	20	1	Murah
16	Laki-laki	38	1	Layanan
17	Perempuan	42	2	Murah
18	Perempuan	44	2	Murah
19	Laki-laki	44	4	Murah
20	Laki-laki	53	5	Murah
21	Laki-laki	40	2	Murah
22	Laki-laki	50	2	Murah
23	Laki-laki	51	4	Murah
24	Laki-laki	40	1	Nunggu anak
25	Laki-laki	48	1	Layanan
26	Perempuan	37	1	Fasilitas
27	Perempuan	40	4	Layanan
28	Perempuan	31	1	Murah
29	Perempuan	23	5	Murah

Appendix 1: Summary of Respondents Characteristics (Continued)

No.	Jenis Kelamin	Usia	Frekuensi Kedatangan	Kriteria Dalam Pemilihan Tempat Makan
30	Laki-laki	33	2	Fasilitas
31	Laki-laki	31	2	Murah
32	Laki-laki	28	3	Murah
33	Laki-laki	21	2	Layanan
34	Laki-laki	17	4	Murah
35	Laki-laki	19	6	Murah
36	Laki-laki	20	1	Layanan
37	Laki-laki	22	2	Fasilitas
38	Laki-laki	18	5	Murah
39	Laki-laki	18	2	Layanan
40	Laki-laki	19	1	Penasaran
41	Laki-laki	19	1	Penasaran
42	Perempuan	19	1	Liat brosur
43	Laki-laki	20	5	Layanan
44	Perempuan	21	2	Murah
45	Laki-laki	21	2	Layanan
46	Laki-laki	45	2	Fasilitas
47	Laki-laki	42	3	Layanan
48	Laki-laki	33	1	Coba-coba
49	Perempuan	34	1	Murah
50	Laki-laki	33	2	Fasilitas
51	Laki-laki	20	2	Fasilitas
52	Laki-laki	19	1	Layanan
53	Perempuan	35	1	Liat brosur
54	Perempuan	34	1	Liat brosur
55	Laki-laki	43	2	Layanan
56	Laki-laki	44	1	Fasilitas
57	Laki-laki	50	1	Nunggu jemputan
58	Laki-laki	52	2	Murah
59	Perempuan	50	1	Layanan
60	Perempuan	50	1	Diundang temen

Appendix 1: Summary of Respondents Characteristics (Continued)

No.	Jenis Kelamin	Usia	Frekuensi Kedatangan	Kriteria Dalam Pemilihan Tempat Makan
61	Perempuan	53	1	Layanan
62	Laki-laki	51	1	Service
63	Perempuan	49	1	Murah
64	Laki-laki	43	1	Liat Brosur
65	Perempuan	45	1	Liat Brosur
66	Laki-laki	56	1	Murah
67	Laki-laki	29	2	Layanan
68	Perempuan	29	1	Fasilitas
69	Laki-laki	30	2	Murah
70	Laki-laki	24	4	Layanan
71	Perempuan	23	1	Murah
72	Laki-laki	23	3	Layanan
73	Laki-laki	21	5	Fasilitas
74	Laki-laki	47	1	Fasilitas
75	Laki-laki	44	2	Murah
76	Laki-laki	41	4	Murah
77	Laki-laki	31	1	Murah
78	Laki-laki	33	2	Layanan
79	Laki-laki	21	1	Layanan
80	Laki-laki	36	1	Layanan
81	Perempuan	37	1	Murah
82	Laki-laki	39	1	Murah
83	Laki-laki	37	2	Murah
84	Laki-laki	42	2	Murah
85	Laki-laki	41	1	Layanan

Appendix 2: Respondents' Answers for Performance Level (Initial)

Resp.	Number of Item Question																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	A1	A2	A3	E1	E2	E3	T1	T2	T3	T4	Re1	Re2	Re3	Re4	Re5	Rs1	Rs2
1	4	4	3	3	5	4	2	2	3	3	3	4	3	3	3	4	4
2	5	5	5	5	4	5	3	3	4	4	5	5	4	5	5	5	4
3	4	4	5	5	5	4	3	4	3	4	4	5	4	4	4	5	4
4	5	5	5	4	5	4	4	2	3	4	3	5	3	3	5	4	4
5	4	3	4	3	4	4	3	3	3	4	3	4	3	3	3	4	4
6	4	5	3	4	4	3	4	4	3	4	4	4	4	4	4	4	4
7	4	4	4	4	4	4	3	4	3	4	4	4	4	4	4	4	4
8	4	5	3	4	4	4	2	3	3	4	4	3	3	3	3	3	3
9	4	4	4	4	4	3	4	3	4	4	4	4	4	4	4	4	4
10	4	3	4	3	3	3	2	3	2	4	4	4	3	3	3	3	3
11	5	3	3	3	4	4	2	3	3	4	3	3	3	4	3	3	4
12	4	5	3	3	4	4	2	3	2	3	4	3	3	4	3	3	3
13	4	4	3	3	3	4	3	2	2	5	4	4	4	3	3	3	3
14	4	4	4	4	4	3	2	2	2	3	4	4	4	4	3	4	3
15	5	5	5	5	5	5	4	4	4	5	5	5	4	4	5	5	5
16	4	4	4	4	5	5	2	3	2	4	4	3	4	4	4	3	4
17	4	3	3	4	4	4	3	4	3	4	3	4	3	3	3	3	2

Appendix 2: Respondents' Answers for Performance Level (Initial) (Continued)

Resp.	Number of Item Question																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	A1	A2	A3	E1	E2	E3	T1	T2	T3	T4	Re1	Re2	Re3	Re4	Re5	Rs1	Rs2
18	4	4	3	3	4	4	2	3	3	4	3	3	3	3	3	3	2
19	5	5	5	5	3	3	3	3	4	4	4	5	4	5	5	5	4
20	4	4	3	3	4	3	2	2	2	4	4	4	3	4	3	3	3
21	4	5	3	3	4	4	3	4	4	4	4	3	3	4	4	4	4
22	5	4	4	5	5	5	4	2	2	4	4	5	4	2	4	4	4
23	4	4	4	3	3	2	1	2	1	3	3	4	2	2	1	2	3
24	5	3	5	3	3	4	3	2	3	4	3	4	3	2	3	4	3
25	4	4	5	5	5	5	2	3	3	4	4	3	4	5	4	4	4
26	4	5	3	3	4	4	1	3	2	3	3	3	3	3	2	3	2
27	5	4	5	4	5	4	2	2	3	3	4	5	4	4	4	5	4
28	4	3	5	3	4	4	2	4	2	3	3	4	4	4	4	5	4
29	4	4	4	4	4	4	2	2	3	3	3	4	3	4	4	4	3
30	5	4	4	4	4	5	2	3	2	3	3	4	3	3	3	4	3

Appendix 3: Respondents' Answers for Expectation Level (Initial)

Resp.	Number of Items																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	A1	A2	A3	E1	E2	E3	T1	T2	T3	T4	Re1	Re2	Re3	Re4	Re5	Re1	Re2
1	4	4	4	4	5	5	4	4	5	4	3	4	5	5	4	5	5
2	5	5	5	5	4	3	5	5	5	4	5	3	4	5	4	4	4
3	5	4	5	5	4	4	4	4	4	3	4	5	5	4	4	5	5
4	5	5	5	4	5	5	5	2	3	4	5	5	3	3	5	4	4
5	4	4	4	3	4	5	4	4	4	4	3	4	4	5	5	4	5
6	4	4	3	4	5	3	4	4	3	3	3	4	4	4	4	4	4
7	4	4	4	4	4	4	3	4	3	4	4	4	4	4	4	4	4
8	4	4	4	4	5	5	5	5	5	4	5	4	5	5	5	4	5
9	4	4	4	4	4	4	2	2	3	3	4	4	4	4	4	4	4
10	4	4	4	4	4	3	4	3	2	4	4	4	2	3	3	4	3
11	5	5	5	4	4	5	5	4	3	5	3	5	3	3	4	4	5
12	5	5	3	4	4	3	4	4	3	3	4	3	3	4	3	3	3
13	4	4	3	3	3	4	3	3	4	5	4	4	4	3	3	3	3
14	4	4	4	4	5	3	2	3	3	4	4	4	4	3	3	4	3
15	5	5	5	5	5	4	4	4	4	5	5	5	4	4	5	5	5
16	4	4	4	5	3	5	3	3	3	3	3	3	4	4	4	4	4
17	4	4	4	4	5	5	3	4	3	4	4	4	4	4	5	4	4

Appendix 3: Respondents' Answers for Expectation Level (Initial) (Continued)

Resp.	Number of Items																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	A1	A2	A3	E1	E2	E3	T1	T2	T3	T4	Re1	Re2	Re3	Re4	Re5	Re1	Re2
18	4	4	4	4	5	4	4	4	3	4	3	3	3	5	5	5	5
19	5	5	5	5	5	3	5	5	5	5	5	3	4	5	4	4	3
20	4	4	3	3	3	3	2	4	2	4	4	3	3	4	3	3	3
21	4	3	4	4	5	3	4	4	4	3	3	3	3	4	4	4	4
22	5	4	4	5	5	5	4	2	2	4	4	5	4	2	4	4	4
23	5	5	5	4	3	4	3	4	3	4	5	5	4	4	4	4	4
24	5	4	5	4	4	4	4	4	3	4	4	5	5	4	5	5	4
25	4	4	4	3	5	4	3	3	3	4	4	4	4	5	5	4	4
26	5	4	4	4	4	4	4	4	4	5	3	4	4	4	4	4	5
27	5	4	5	5	3	3	3	3	4	4	4	5	4	5	4	5	5
28	4	4	4	4	5	5	3	3	3	3	3	5	5	4	4	5	4
29	4	4	4	4	3	3	4	4	4	3	3	3	3	4	3	3	3
30	5	4	5	4	4	5	3	3	3	3	3	4	4	4	4	4	4

Appendix 4: Respondents' Answers for Importance Level (Initial)

Resp.	Number of Items																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	A1	A2	A3	E1	E2	E3	T1	T2	T3	T4	Re1	Re2	Re3	Re4	Re5	Re1	Re2
1	5	4	5	4	4	4	5	5	4	4	3	5	5	5	4	5	5
2	5	4	5	4	5	4	5	5	5	5	4	5	4	4	4	5	5
3	5	4	4	5	5	5	4	5	3	4	4	5	5	5	3	4	5
4	5	5	5	4	5	4	5	5	4	5	3	5	5	5	5	5	4
5	4	3	5	4	4	3	5	4	4	4	3	4	5	5	5	4	4
6	5	5	4	5	5	4	5	5	4	5	5	4	5	5	4	4	4
7	4	4	4	5	5	5	5	5	4	5	5	5	4	5	4	5	5
8	5	5	4	4	4	4	5	5	5	5	4	4	5	5	5	5	5
9	4	4	4	5	5	5	5	5	4	5	5	5	4	5	4	5	5
10	3	5	5	4	5	5	5	4	4	4	5	5	4	4	4	4	4
11	5	5	5	5	5	4	5	5	5	4	5	5	4	5	3	5	5
12	3	5	4	4	5	5	5	5	5	3	4	4	3	5	4	4	5
13	4	4	4	4	4	4	5	5	5	5	5	4	5	5	5	5	5
14	5	5	5	5	5	5	4	4	4	4	4	5	4	4	4	5	5
15	5	4	5	4	5	5	5	5	5	5	5	5	4	5	5	5	5
16	5	5	5	5	5	5	5	4	5	4	3	4	4	5	5	5	5
17	5	4	5	5	5	5	5	4	5	4	4	4	4	4	5	5	5

Appendix 4: Respondents' Answers for Importance Level (Initial) (Continued)

Resp.	Number of Items																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	A1	A2	A3	E1	E2	E3	T1	T2	T3	T4	Re1	Re2	Re3	Re4	Re5	Re1	Re2
18	5	4	5	4	5	5	4	5	4	3	3	4	5	5	5	5	5
19	5	3	5	4	5	4	5	5	5	5	4	4	4	5	4	3	4
20	5	5	4	4	5	4	5	5	5	5	5	5	5	5	5	5	5
21	4	3	3	3	5	3	5	4	5	5	3	4	3	4	4	3	4
22	5	2	5	4	5	4	5	5	5	5	4	5	5	5	4	5	5
23	5	3	3	4	3	4	3	5	3	5	5	4	5	4	3	5	4
24	5	3	5	4	3	5	4	4	4	5	3	5	4	5	4	5	4
25	4	4	5	5	5	5	5	4	5	4	3	4	4	5	5	5	5
26	4	4	4	4	4	4	4	4	5	4	3	5	4	3	5	4	5
27	3	3	3	4	4	3	4	5	3	3	4	5	5	5	4	5	5
28	4	4	4	4	4	4	4	4	3	4	4	4	4	4	3	4	4
29	4	4	3	4	4	3	5	5	5	4	3	4	4	4	4	3	5
30	3	4	5	4	4	4	5	4	4	3	3	4	3	4	4	4	5

Appendix 5: Respondents' Answers for Performance Level

Resp.	Number of Item Question																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	A1	A2	A3	E1	E2	E3	T1	T2	T3	T4	Re1	Re2	Re3	Re4	Re5	Rs1	Rs2
1	4	4	3	3	5	4	2	2	3	3	3	4	3	3	3	4	4
2	5	5	5	5	4	5	3	3	4	4	5	5	4	5	5	5	4
3	4	4	5	5	5	4	3	4	3	4	4	5	4	4	4	5	4
4	5	5	5	4	5	4	4	2	3	4	3	5	3	3	5	4	4
5	4	3	4	3	4	4	3	3	3	4	3	4	3	3	3	4	4
6	4	5	3	4	4	3	4	4	3	4	4	4	4	4	4	4	4
7	4	4	4	4	4	4	3	4	3	4	4	4	4	4	4	4	4
8	4	5	3	4	4	4	2	3	3	4	4	3	3	3	3	3	3
9	4	4	4	4	4	3	4	3	4	4	4	4	4	4	4	4	4
10	4	3	4	3	3	3	2	3	2	4	4	4	3	3	3	3	3
11	5	3	3	3	4	4	2	3	3	4	3	3	3	4	3	3	4
12	4	5	3	3	4	4	2	3	2	3	4	3	3	4	3	3	3
13	4	4	3	3	3	4	3	2	2	5	4	4	4	3	3	3	3
14	4	4	4	4	4	3	2	2	2	3	4	4	4	4	3	4	3
15	5	5	5	5	5	5	4	4	4	5	5	5	4	4	5	5	5
16	4	4	4	4	5	5	2	3	2	4	4	3	4	4	4	3	4
17	4	3	3	4	4	4	3	4	3	4	3	4	3	3	3	3	2

Appendix 5: Respondents' Answers for Performance Level (Continued)

Resp.	Number of Item Question																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	A1	A2	A3	E1	E2	E3	T1	T2	T3	T4	Re1	Re2	Re3	Re4	Re5	Rs1	Rs2
18	4	4	3	3	4	4	2	3	3	4	3	3	3	3	3	3	2
19	5	5	5	5	3	3	3	3	4	4	4	5	4	5	5	5	4
20	4	4	3	3	4	3	2	2	2	4	4	4	3	4	3	3	3
21	4	5	3	3	4	4	3	4	4	4	4	3	3	4	4	4	4
22	5	4	4	5	5	5	4	2	2	4	4	5	4	2	4	4	4
23	4	4	4	3	3	2	1	2	1	3	3	4	2	2	1	2	3
24	5	3	5	3	3	4	3	2	3	4	3	4	3	2	3	4	3
25	4	4	5	5	5	5	2	3	3	4	4	3	4	5	4	4	4
26	4	5	3	3	4	4	1	3	2	3	3	3	3	3	2	3	2
27	5	4	5	4	5	4	2	2	3	3	4	5	4	4	4	5	4
28	4	3	5	3	4	4	2	4	2	3	3	4	4	4	4	5	4
29	4	4	4	4	4	4	2	2	3	3	3	4	3	4	4	4	3
30	5	4	4	4	4	5	2	3	2	3	3	4	3	3	3	4	3
31	5	5	5	5	5	5	3	4	3	4	5	5	4	5	5	5	4
32	5	4	5	5	4	5	3	3	4	4	4	5	4	5	5	5	4
33	4	4	3	4	4	3	4	3	4	5	4	4	4	4	4	4	4
34	4	4	3	3	4	4	1	3	1	4	3	3	3	4	4	3	3

Appendix 5: Respondents' Answers for Performance Level (Continued)

Resp.	Number of Item Question																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	A1	A2	A3	E1	E2	E3	T1	T2	T3	T4	Re1	Re2	Re3	Re4	Re5	Rs1	Rs2
35	4	5	3	4	5	5	1	3	3	4	4	3	3	3	3	3	3
36	4	4	3	3	4	4	2	3	3	5	3	3	4	4	3	3	2
37	5	4	5	5	3	5	3	3	3	4	4	5	4	5	5	5	4
38	4	4	3	4	4	4	2	3	3	4	3	3	3	4	4	3	4
39	4	3	3	3	4	4	3	3	4	4	4	3	3	4	4	4	4
40	4	4	3	3	4	4	1	2	2	3	3	3	3	3	2	3	2
41	5	4	4	5	3	5	3	3	3	4	4	5	4	5	5	5	4
42	5	5	4	4	4	5	2	3	2	3	3	4	3	3	3	4	3
43	4	4	5	3	4	4	2	2	2	3	3	4	4	4	4	5	4
44	5	4	5	5	5	4	2	2	3	3	4	3	5	5	4	3	4
45	4	4	4	4	4	4	2	2	3	3	3	4	3	4	4	4	3
46	4	4	3	3	4	4	1	1	1	4	3	3	3	4	4	4	3
47	5	5	5	4	5	4	2	2	2	4	4	5	2	2	2	4	2
48	5	5	3	4	5	3	3	4	2	5	4	4	3	4	5	4	5
49	4	4	3	4	4	5	4	3	3	3	3	4	2	2	3	4	3
50	5	4	4	4	4	4	3	2	3	3	5	3	2	3	3	3	2
51	5	5	4	3	4	4	4	3	2	4	4	3	4	4	4	4	3

Appendix 5: Respondents' Answers for Performance Level (Continued)

Resp.	Number of Item Question																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	A1	A2	A3	E1	E2	E3	T1	T2	T3	T4	Re1	Re2	Re3	Re4	Re5	Rs1	Rs2
52	4	3	5	5	3	3	2	1	4	5	5	3	2	3	3	3	2
53	5	4	3	4	4	4	2	1	2	3	3	5	4	3	3	3	4
54	4	3	5	3	3	2	2	2	3	3	4	4	3	2	3	3	3
55	4	5	4	4	5	4	1	1	3	4	3	4	4	4	5	4	5
56	5	4	3	4	3	4	2	2	2	4	5	3	3	3	4	4	3
57	4	3	5	5	4	5	1	2	3	4	4	4	2	3	3	3	2
58	5	4	5	3	4	4	1	2	3	4	5	4	3	3	3	3	3
59	5	4	4	4	4	3	2	2	3	4	4	5	2	3	4	5	4
60	5	5	3	3	5	3	2	1	4	4	5	3	4	4	4	4	4
61	4	5	3	3	3	5	2	2	2	5	5	4	4	5	5	5	3
62	4	5	4	4	5	5	3	3	1	4	3	3	3	3	4	5	4
63	5	4	3	3	3	4	2	3	4	3	3	3	3	3	3	4	4
64	5	4	5	4	4	3	3	1	3	4	5	5	4	2	3	3	3
65	4	3	4	3	3	3	2	4	3	3	5	4	3	2	3	3	4
66	5	4	4	5	4	4	2	2	4	3	4	4	2	2	2	3	3
67	4	5	3	4	4	5	3	3	3	4	5	3	3	3	4	4	3
68	4	5	5	4	5	4	2	2	2	5	4	3	4	4	5	5	5

Respondents' Answers for Performance Level (Continued)

Resp.	Number of Item Question																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	A1	A2	A3	E1	E2	E3	T1	T2	T3	T4	Re1	Re2	Re3	Re4	Re5	Rs1	Rs2
69	4	3	5	5	3	4	1	2	2	3	4	3	3	4	4	5	4
70	5	5	4	4	5	4	3	4	3	5	4	4	3	5	5	5	4
71	5	4	4	5	4	5	3	2	1	4	5	5	5	3	2	2	3
72	5	4	3	5	3	5	2	2	2	3	4	3	4	3	3	4	3
73	5	4	5	4	5	3	2	1	2	3	3	3	3	3	4	4	4
74	4	5	5	3	4	4	3	4	2	5	5	4	4	4	4	5	4
75	4	3	3	4	4	4	1	1	4	3	4	4	4	2	3	3	2
76	5	5	3	5	5	5	1	3	4	4	4	4	5	4	5	4	5
77	5	4	5	4	5	4	2	4	4	4	5	5	5	4	3	3	3
78	5	5	5	5	4	5	1	3	4	5	5	3	4	4	4	5	4
79	4	3	4	3	4	3	1	2	1	4	4	3	3	3	3	3	2
80	4	3	4	5	4	5	2	2	2	4	3	4	3	3	3	4	3
81	4	4	5	3	4	3	3	4	2	3	4	3	4	2	3	4	3
82	4	4	3	4	3	5	2	2	1	3	3	3	4	4	4	5	4
83	4	4	3	5	4	4	2	1	3	3	3	3	5	4	3	4	4
84	5	4	4	5	3	4	2	3	4	3	3	3	3	2	3	3	2
85	4	5	4	3	5	4	1	3	3	4	5	4	5	4	5	5	4

Appendix 6: Respondents' Answers for Expectation Level

Resp.	Number of Items																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	A1	A2	A3	E1	E2	E3	T1	T2	T3	T4	Re1	Re2	Re3	Re4	Re5	Re1	Re2
1	4	4	4	4	5	5	4	4	5	4	3	4	5	5	4	5	5
2	5	5	5	5	4	3	5	5	5	4	5	3	4	5	4	4	4
3	5	4	5	5	4	4	4	4	4	3	4	5	5	4	4	5	5
4	5	5	5	4	5	5	5	2	3	4	5	5	3	3	5	4	4
5	4	4	4	3	4	5	4	4	4	4	3	4	4	5	5	4	5
6	4	4	3	4	5	3	4	4	3	3	3	4	4	4	4	4	4
7	4	4	4	4	4	4	3	4	3	4	4	4	4	4	4	4	4
8	4	4	4	4	5	5	5	5	5	4	5	4	5	5	5	4	5
9	4	4	4	4	4	4	2	2	3	3	4	4	4	4	4	4	4
10	4	4	4	4	4	3	4	3	2	4	4	4	2	3	3	4	3
11	5	5	5	4	4	5	5	4	3	5	3	5	3	3	4	4	5
12	5	5	3	4	4	3	4	4	3	3	4	3	3	4	3	3	3
13	4	4	3	3	3	4	3	3	4	5	4	4	4	3	3	3	3
14	4	4	4	4	5	3	2	3	3	4	4	4	4	3	3	4	3
15	5	5	5	5	5	4	4	4	4	5	5	5	4	4	5	5	5
16	4	4	4	5	3	5	3	3	3	3	3	3	4	4	4	4	4
17	4	4	4	4	5	5	3	4	3	4	4	4	4	4	5	4	4

Appendix 6: Respondents' Answers for Expectation Level (Continued)

Resp.	Number of Items																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	A1	A2	A3	E1	E2	E3	T1	T2	T3	T4	Re1	Re2	Re3	Re4	Re5	Re1	Re2
18	4	4	4	4	5	4	4	4	3	4	3	3	3	5	5	5	5
19	5	5	5	5	5	3	5	5	5	5	5	3	4	5	4	4	3
20	4	4	3	3	3	3	2	4	2	4	4	3	3	4	3	3	3
21	4	3	4	4	5	3	4	4	4	3	3	3	3	4	4	4	4
22	5	4	4	5	5	5	4	2	2	4	4	5	4	2	4	4	4
23	5	5	5	4	3	4	3	4	3	4	5	5	4	4	4	4	4
24	5	4	5	4	4	4	4	4	3	4	4	5	5	4	5	5	4
25	4	4	4	3	5	4	3	3	3	4	4	4	4	5	5	4	4
26	5	4	4	4	4	4	4	4	4	5	3	4	4	4	4	4	5
27	5	4	5	5	3	3	3	3	4	4	4	5	4	5	4	5	5
28	4	4	4	4	5	5	3	3	3	3	3	5	5	4	4	5	4
29	4	4	4	4	3	3	4	4	4	3	3	3	3	4	3	3	3
30	5	4	5	4	4	5	3	3	3	3	3	4	4	4	4	4	4
31	5	5	5	5	5	5	4	4	4	5	5	5	4	5	5	5	4
32	5	5	5	5	4	3	2	5	5	5	4	3	4	5	4	4	4
33	4	4	3	4	4	3	4	3	4	5	4	4	4	4	4	4	4
34	4	3	3	3	4	4	3	4	4	4	4	3	3	4	4	3	3

Appendix 6: Respondents' Answers for Expectation Level (Continued)

Resp.	Number of Items																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	A1	A2	A3	E1	E2	E3	T1	T2	T3	T4	Re1	Re2	Re3	Re4	Re5	Re1	Re2
35	4	4	4	4	4	4	3	4	4	5	4	4	3	4	4	5	5
36	4	4	3	4	4	4	4	4	3	5	4	3	4	4	4	5	5
37	5	5	5	5	4	4	5	5	5	5	4	3	4	5	4	4	4
38	4	4	4	4	3	3	3	3	3	3	3	3	3	5	5	3	4
39	4	3	4	4	4	4	4	4	4	4	4	3	3	4	4	4	4
40	5	4	4	4	4	4	4	4	4	3	3	4	4	4	4	4	5
41	5	5	5	5	4	3	5	5	5	5	4	3	4	5	4	4	4
42	5	4	5	4	4	5	3	3	3	3	3	4	4	4	4	4	4
43	4	4	4	4	5	5	3	3	3	3	3	5	5	4	4	5	4
44	5	4	5	5	3	3	3	3	4	3	4	5	4	4	4	5	4
45	4	4	4	4	3	3	4	4	4	3	3	3	3	4	3	3	3
46	4	4	5	3	4	4	3	3	4	4	3	3	3	5	5	4	5
47	5	5	5	4	5	4	2	2	2	4	4	5	2	2	2	4	2
48	5	5	4	4	5	5	2	4	4	4	3	3	4	5	4	4	4
49	4	4	5	4	5	4	2	3	4	4	4	3	3	5	4	5	5
50	4	4	4	4	3	5	3	3	3	4	4	4	4	5	5	4	4
51	5	4	5	4	5	4	2	3	4	4	3	4	4	3	5	4	5

Appendix 6: Respondents' Answers for Expectation Level (Continued)

Resp.	Number of Items																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	A1	A2	A3	E1	E2	E3	T1	T2	T3	T4	Re1	Re2	Re3	Re4	Re5	Re1	Re2
52	4	3	4	5	5	4	4	4	2	3	5	5	4	4	4	3	4
53	5	5	5	4	5	5	4	4	4	4	5	5	5	2	2	3	4
54	5	4	4	3	5	5	3	5	4	5	5	5	3	5	4	5	4
55	4	4	3	4	3	4	2	5	4	5	4	3	4	3	3	4	5
56	4	3	4	5	4	5	2	4	5	4	3	3	4	4	5	3	5
57	5	5	5	4	4	4	3	3	4	4	4	3	3	5	4	5	5
58	4	3	3	3	3	5	4	3	4	3	4	4	4	2	4	3	3
59	5	3	4	3	3	3	4	4	4	3	4	4	5	3	5	4	4
60	5	5	4	4	5	5	5	4	2	3	4	5	2	4	4	5	5
61	5	5	5	4	4	4	4	4	3	3	5	4	3	5	3	4	4
62	4	5	5	4	5	4	5	5	4	4	4	4	5	4	5	5	5
63	4	4	4	3	3	3	4	3	4	5	5	4	3	2	4	4	3
64	5	4	4	4	5	4	4	5	3	5	4	5	4	5	4	5	4
65	4	5	3	4	4	5	5	5	4	5	3	3	4	2	4	5	5
66	5	3	4	4	4	3	4	3	2	4	3	3	3	3	3	4	4
67	4	4	4	3	4	3	5	4	4	5	4	3	2	3	2	3	4
68	5	5	5	5	4	5	5	4	4	4	5	5	4	5	4	5	4

Appendix 6: Respondents' Answers for Expectation Level (Continued)

Resp.	Number of Items																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	A1	A2	A3	E1	E2	E3	T1	T2	T3	T4	Re1	Re2	Re3	Re4	Re5	Re1	Re2
69	4	4	4	3	5	4	5	3	4	3	4	3	2	4	4	4	3
70	5	4	4	4	3	4	3	5	5	4	5	4	5	4	5	4	3
71	4	4	3	4	4	3	4	3	4	4	3	4	4	2	2	4	5
72	4	3	4	5	4	4	2	3	4	3	4	4	3	5	3	3	4
73	5	4	3	5	4	5	5	4	5	4	5	4	4	5	4	3	4
74	4	3	4	5	5	3	3	3	3	4	4	4	4	5	3	4	3
75	4	4	4	4	4	3	3	3	3	4	4	4	2	3	2	3	3
76	5	5	4	5	5	5	4	4	4	5	5	4	4	5	5	5	4
77	4	4	4	3	5	5	4	4	5	5	5	5	4	2	4	5	4
78	5	5	5	4	5	5	4	4	5	4	5	4	4	4	4	4	4
79	5	5	4	4	5	5	5	4	4	5	3	5	2	2	5	5	4
80	4	5	4	4	3	4	3	4	3	3	4	3	5	3	3	3	4
81	4	3	4	4	3	3	3	4	4	3	4	3	3	2	3	4	3
82	4	3	3	4	4	4	4	5	3	3	3	3	2	2	3	4	5
83	4	4	4	4	3	3	3	3	2	4	3	3	3	5	5	5	5
84	5	5	4	5	5	5	5	3	5	4	5	5	3	5	4	4	4
85	5	4	3	3	4	3	2	3	2	3	4	2	4	4	5	5	3

Appendix 7: Respondents' Answers for Importance Level

Resp.	Number of Items																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	A1	A2	A3	E1	E2	E3	T1	T2	T3	T4	Re1	Re2	Re3	Re4	Re5	Re1	Re2
1	5	4	5	4	4	4	5	5	4	4	3	5	5	5	4	5	5
2	5	4	5	4	5	4	5	5	5	5	4	5	4	4	4	5	5
3	5	4	4	5	5	5	4	5	3	4	4	5	5	5	3	4	5
4	5	5	5	4	5	4	5	5	4	5	3	5	5	5	5	5	4
5	4	3	5	4	4	3	5	4	4	4	3	4	5	5	5	4	4
6	5	5	4	5	5	4	5	5	4	5	5	4	5	5	4	4	4
7	4	4	4	5	5	5	5	5	4	5	5	5	4	5	4	5	5
8	5	5	4	4	4	4	5	5	5	5	4	4	5	5	5	5	5
9	4	4	4	5	5	5	5	5	4	5	5	5	4	5	4	5	5
10	3	5	5	4	5	5	5	4	4	4	5	5	4	4	4	4	4
11	5	5	5	5	5	4	5	5	5	4	5	5	5	4	5	3	5
12	3	5	4	4	5	5	5	5	5	3	4	4	3	5	4	4	5
13	4	4	4	4	4	4	5	5	5	5	5	4	5	5	5	5	5
14	5	5	5	5	5	5	4	4	4	4	4	5	4	4	4	5	5
15	5	4	5	4	5	5	5	5	5	5	5	5	5	4	5	5	5
16	5	5	5	5	5	5	5	4	5	4	3	4	4	5	5	5	5
17	5	4	5	5	5	5	5	4	5	4	4	4	4	4	5	5	5

Appendix 7: Respondents' Answers for Importance Level (Continued)

Resp.	Number of Items																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	A1	A2	A3	E1	E2	E3	T1	T2	T3	T4	Re1	Re2	Re3	Re4	Re5	Re1	Re2
18	5	4	5	4	5	5	4	5	4	3	3	4	5	5	5	5	5
19	5	3	5	4	5	4	5	5	5	5	4	4	4	5	4	3	4
20	5	5	4	4	5	4	5	5	5	5	5	5	5	5	5	5	5
21	4	3	3	3	5	3	5	4	5	5	3	4	3	4	4	3	4
22	5	2	5	4	5	4	5	5	5	5	4	5	5	5	4	5	5
23	5	3	3	4	3	4	3	5	3	5	5	4	5	4	3	5	4
24	5	3	5	4	3	5	4	4	4	5	3	5	4	5	4	5	4
25	4	4	5	5	5	5	5	4	5	4	3	4	4	5	5	5	5
26	4	4	4	4	4	4	4	4	5	4	3	5	4	3	5	4	5
27	3	3	3	4	4	3	4	5	3	3	4	5	5	5	4	5	5
28	4	4	4	4	4	4	4	4	3	4	4	4	4	4	3	4	4
29	4	4	3	4	4	3	5	5	5	4	3	4	4	4	3	3	5
30	3	4	5	4	4	4	5	4	4	3	3	4	3	4	4	4	5
31	5	5	5	5	5	5	5	5	5	5	5	5	4	4	4	5	5
32	5	4	5	4	5	4	5	5	5	5	4	5	4	4	4	5	5
33	4	4	4	4	4	4	4	4	4	5	4	4	4	4	4	4	4
34	4	4	4	4	5	3	5	5	4	5	3	4	3	5	5	5	5

Appendix 7: Respondents' Answers for Importance Level (Continued)

Resp.	Number of Items																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	A1	A2	A3	E1	E2	E3	T1	T2	T3	T4	Re1	Re2	Re3	Re4	Re5	Re1	Re2
35	5	5	5	5	4	4	5	4	3	4	3	5	3	4	4	5	5
36	5	5	5	5	5	4	5	3	4	5	3	4	4	5	4	5	5
37	5	4	5	4	5	4	5	5	5	5	4	5	4	4	4	5	5
38	4	4	4	4	5	5	5	4	4	5	3	4	3	4	5	4	4
39	5	4	4	3	5	5	5	4	5	5	3	4	3	5	4	5	5
40	5	4	5	4	4	4	4	5	5	4	3	5	4	5	5	4	5
41	5	4	5	4	5	4	5	5	5	5	4	5	4	4	4	5	5
42	5	4	5	4	4	4	5	4	4	3	3	4	4	4	4	4	5
43	4	4	4	4	4	4	4	5	3	4	4	5	5	4	3	4	4
44	5	4	5	4	4	4	4	3	4	4	5	5	5	5	4	5	5
45	4	4	4	4	4	4	5	5	5	4	3	4	4	4	4	5	5
46	4	4	4	4	5	5	5	5	3	4	3	4	3	4	4	5	5
47	5	5	5	4	5	4	5	5	4	5	4	5	5	5	5	4	5
48	4	4	4	5	4	4	4	4	4	4	3	5	4	4	5	4	4
49	3	4	4	5	4	4	4	3	4	3	3	4	3	4	4	5	4
50	5	4	5	4	4	5	4	5	5	5	5	5	4	5	4	5	4
51	5	4	4	3	5	5	5	5	4	5	4	5	5	5	4	5	4

Appendix 7: Respondents' Answers for Importance Level (Continued)

Resp.	Number of Items																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	A1	A2	A3	E1	E2	E3	T1	T2	T3	T4	Re1	Re2	Re3	Re4	Re5	Re1	Re2
52	5	5	5	4	5	4	5	5	4	5	5	5	4	5	5	5	4
53	4	4	5	5	5	5	5	5	5	5	5	4	5	5	4	5	5
54	5	3	5	5	4	5	5	5	4	5	4	5	5	5	4	4	5
55	4	4	4	4	4	4	4	4	4	3	3	4	3	4	4	4	4
56	5	5	5	5	5	5	5	5	4	5	5	5	5	5	5	5	4
57	3	4	3	3	4	4	4	3	4	4	3	4	4	4	4	4	4
58	4	3	3	4	4	4	4	3	5	4	3	4	3	4	4	4	5
59	3	4	3	4	4	4	4	3	4	4	3	4	4	4	3	4	4
60	5	4	5	5	5	4	5	5	5	5	5	4	5	5	5	5	5
61	4	4	3	3	4	4	4	3	4	5	3	4	3	4	4	4	4
62	5	4	4	4	5	4	5	5	4	5	5	5	5	5	4	4	4
63	5	4	5	4	4	4	5	5	5	5	4	5	5	5	5	4	5
64	3	3	3	4	4	3	4	3	4	3	3	4	3	4	3	4	4
65	4	3	4	4	4	4	4	3	4	4	3	4	3	4	3	4	4
66	5	4	4	4	5	5	4	4	4	3	3	4	4	4	4	4	4
67	5	3	4	3	4	3	4	3	4	3	4	4	5	4	4	4	4
68	5	4	4	4	5	4	5	5	5	5	5	5	5	5	5	5	5

Appendix 7: Respondents' Answers for Importance Level (Continued)

Resp.	Number of Items																
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17
	A1	A2	A3	E1	E2	E3	T1	T2	T3	T4	Re1	Re2	Re3	Re4	Re5	Re1	Re2
69	5	4	3	3	4	4	4	3	3	4	3	4	3	4	3	4	4
70	3	5	4	4	5	5	5	5	5	5	4	5	5	5	5	5	5
71	3	3	3	3	4	3	4	3	3	3	3	4	3	4	3	4	4
72	5	4	5	5	4	5	5	5	5	4	4	5	5	5	5	5	5
73	5	5	4	5	4	5	5	5	5	5	5	5	5	5	5	5	5
74	3	3	4	5	4	4	4	3	4	3	4	4	4	3	4	4	4
75	3	3	3	4	5	3	4	3	3	3	3	4	3	4	3	4	4
76	5	5	5	5	5	5	5	5	5	5	4	5	5	5	5	5	5
77	4	4	3	3	4	3	4	3	3	3	3	4	3	4	4	4	4
78	4	3	4	4	5	4	4	4	3	3	4	4	3	4	4	4	4
79	5	5	4	5	5	5	5	5	5	5	4	5	5	5	5	4	5
80	3	2	4	4	5	4	4	4	3	4	3	4	3	4	3	4	4
81	4	3	5	4	4	4	4	3	3	3	3	4	5	4	3	4	4
82	5	4	4	5	4	5	5	5	5	5	5	5	4	5	5	5	5
83	4	4	5	4	4	4	4	4	4	4	3	4	3	4	3	4	4
84	3	2	3	3	4	3	4	3	4	3	3	4	3	4	4	4	4
85	4	3	3	5	5	5	5	5	5	5	4	5	4	4	4	4	5

Appendix 8: Validity and Reliability Test for Performance

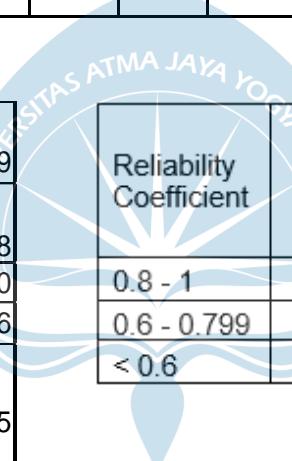
Resp.	Number of Items																	Total I
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
	A1	A2	A3	E1	E2	E3	T1	T2	T3	T4	Re1	Re2	Re3	Re4	Re5	Re1	Re2	
1	4	4	3	3	5	4	2	2	3	3	3	4	3	3	3	4	4	57
2	5	5	5	5	4	5	3	3	4	4	5	5	4	5	5	5	4	76
3	4	4	5	5	5	4	3	4	3	4	4	5	4	4	4	5	4	71
4	5	5	5	4	5	4	4	2	3	4	3	5	3	3	5	4	4	68
5	4	3	4	3	4	4	3	3	3	4	3	4	3	3	3	4	4	59
6	4	5	3	4	4	3	4	4	3	4	4	4	4	4	4	4	4	66
7	4	4	4	4	4	4	3	4	3	4	4	4	4	4	4	4	4	66
8	4	5	3	4	4	4	2	3	3	4	4	3	3	3	3	3	3	58
9	4	4	4	4	4	4	3	4	3	4	4	4	4	4	4	4	4	66
10	4	3	4	3	3	3	2	3	2	4	4	4	3	3	3	3	3	54
11	5	3	3	3	4	4	2	3	3	4	3	3	3	4	3	3	4	57
12	4	5	3	3	4	4	2	3	2	3	4	3	3	4	3	3	3	56
13	4	4	3	3	3	4	3	2	2	5	4	4	4	3	3	3	3	57
14	4	4	4	4	4	3	2	2	2	3	4	4	4	4	3	4	3	58
15	5	5	5	5	5	5	4	4	4	5	5	5	4	4	5	5	5	80
16	4	4	4	4	5	5	2	3	2	4	4	3	4	4	4	3	4	63
17	4	3	3	4	4	4	3	4	3	4	3	4	3	3	3	3	2	57

Appendix 8: Validity and Reliability Test for Performance (Continued)

Resp .	Number of Items																	Total I
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
	A1	A2	A3	E1	E2	E3	T1	T2	T3	T4	Re1	Re2	Re3	Re4	Re5	Re1	Re2	
18	4	4	3	3	4	4	2	3	3	4	3	3	3	3	3	3	2	54
19	5	5	5	5	3	3	3	3	4	4	4	5	4	5	5	5	4	72
20	4	4	3	3	4	3	2	2	2	4	4	4	3	4	3	3	3	55
21	4	5	3	3	4	4	3	4	4	4	3	3	3	4	4	4	4	64
22	5	4	4	5	5	5	4	2	2	4	4	5	4	2	4	4	4	67
23	4	4	4	3	3	2	1	2	1	3	3	4	2	2	1	2	3	44
24	5	3	5	3	3	4	3	2	3	4	3	4	3	2	3	4	3	57
25	4	4	5	5	5	5	2	3	3	4	4	3	4	5	4	4	4	68
26	4	5	3	3	4	4	1	3	2	3	3	3	3	3	2	3	2	51
27	5	4	5	4	5	4	2	2	3	3	4	5	4	4	4	5	4	67
28	4	3	5	3	4	4	2	4	2	3	3	4	4	4	4	5	4	62
29	4	4	4	4	4	4	2	2	3	3	3	4	3	4	4	4	3	59
30	5	4	4	4	4	5	2	3	2	3	3	4	3	3	3	4	3	59
R xy	0,47	0,38	0,61	0,80	0,49	0,51	0,69	0,38	0,70	0,44	0,65	0,57	0,74	0,59	0,93	0,82	0,75	
t value	2,80	2,17	4,05	7,09	2,97	3,13	5,07	2,16	5,13	2,56	4,54	3,69	5,89	3,83	13,3 5	7,65	6,09	

Appendix 8: Validity and Reliability Test for Performance (Continued)

t table (95%, 28)	2,05	2,05	2,05	2,05	2,05	2,05	2,05	2,05	2,05	2,05	2,05	2,05	2,05	2,05	2,05	2,05	2,05	2,05	2,05	2,05	2,05	2,05
Note	valid	vali d	Valid	vali d																		
Varianc e Item	0,22	0,51	0,69	0,60	0,44	0,52	0,67	0,62	0,55	0,32	0,37	0,52	0,32	0,67	0,81	0,65	0,53					



Number of Item Variants	8,99	Reliability Coefficient	Reliability Criteria
Total Number of Variants Variants	59,08		
n	17,00		
n/n-1	1,06	0.8 - 1	Reliability is Good
Number of Items Variants / Total Number of Variants	0,15	0.6 - 0.799	Reliability is Enough
Total Variants	0,85	< 0.6	Reliability is Low
r (Reliability Coefficient)	0,90		

Appendix 9: Validity and Reliability Test for Expectation

Resp.	Number of Items																	Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
	A1	A2	A3	E1	E2	E3	T1	T2	T3	T4	Re1	Re2	Re3	Re4	Re5	Re1	Re2	
1	4	4	4	4	5	5	4	4	5	4	3	4	5	5	4	5	5	74
2	5	5	5	5	4	3	5	5	5	4	5	3	4	5	4	4	4	75
3	5	4	5	5	4	4	4	4	4	3	4	5	5	4	4	5	5	74
4	5	5	5	4	5	5	5	2	3	4	5	5	3	3	5	4	4	72
5	4	4	4	3	4	5	4	4	4	4	3	4	4	5	5	4	5	70
6	4	4	3	4	5	3	4	4	3	3	3	4	4	4	4	4	4	64
7	4	4	4	4	4	4	3	4	3	4	4	4	4	4	4	4	4	66
8	4	4	4	4	5	5	5	5	5	4	5	4	5	5	4	5	5	78
9	4	4	4	4	4	4	2	2	3	3	4	4	4	4	4	4	4	62
10	4	4	4	4	4	3	4	3	2	4	4	4	2	3	3	4	3	59
11	5	5	5	4	4	5	5	4	3	5	3	5	3	3	4	4	5	72
12	5	5	3	4	4	3	4	4	3	3	4	3	3	4	3	3	3	61
13	4	4	3	3	3	4	3	3	4	5	4	4	4	3	3	3	3	60
14	4	4	4	4	5	3	2	3	3	4	4	4	4	3	3	4	3	61
15	5	5	5	5	5	4	4	4	4	5	5	5	4	4	5	5	5	79
16	4	4	4	5	3	5	3	3	3	3	3	3	4	4	4	4	4	63

Appendix 9: Validity and Reliability Test for Expectation (Continued)

Resp .	Number of Items																	Total I
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
	A1	A2	A3	E1	E2	E3	T1	T2	T3	T4	Re1	Re2	Re3	Re4	Re5	Re1	Re2	
17	4	4	4	4	5	5	3	4	3	4	4	4	4	4	5	4	4	69
18	4	4	4	4	5	4	4	4	3	4	3	3	3	5	5	5	5	69
19	5	5	5	5	5	3	5	5	5	5	5	3	4	5	4	4	3	76
20	4	4	3	3	3	3	2	4	2	4	4	3	3	4	3	3	3	55
21	4	3	4	4	5	3	4	4	4	3	3	3	4	4	4	4	4	63
22	5	4	4	5	5	5	4	2	2	4	4	5	4	2	4	4	4	67
23	5	5	5	4	3	4	3	4	3	4	5	5	4	4	4	4	4	70
24	5	4	5	4	4	4	4	4	3	4	4	5	5	4	5	4	4	73
25	4	4	4	3	5	4	3	3	3	4	4	4	4	5	5	4	4	67
26	5	4	4	4	4	4	4	4	4	5	3	4	4	4	4	4	5	70
27	5	4	5	5	3	3	3	3	4	4	4	5	4	5	4	5	5	71
28	4	4	4	4	5	5	3	3	3	3	3	5	5	4	4	5	4	68
29	4	4	4	4	3	3	4	4	4	3	3	3	3	4	3	3	3	59
30	5	4	5	4	4	5	3	3	3	3	3	4	4	4	4	4	4	66
R xy	0,50	0,41	0,69	0,46	0,40	0,37	0,60	0,40	0,59	0,40	0,38	0,42	0,53	0,40	0,70	0,65	0,69	

Appendix 9: Validity and Reliability Test for Expectation (Continued)

Resp.	Number of Items																	Total I
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
	A1	A2	A3	E1	E2	E3	T1	T2	T3	T4	Re1	Re2	Re3	Re4	Re5	Re1	Re2	
t value	3,08	2,39	5,04	2,74	2,29	2,12	3,99	2,31	3,87	2,29	2,19	2,46	3,33	2,30	5,24	4,47	5,02	
t table	2,05	2,05	2,05	2,05	2,05	2,05	2,05	2,05	2,05	2,05	2,05	2,05	2,05	2,05	2,05	2,05	2,05	
Note	vali d	vali d	Vali d	vali d	vali d	vali d	vali d	vali d	vali d	vali d	vali d	vali d	vali d	vali d	vali d	vali d	vali d	
Varianc e Item	0,25	0,23	0,44	0,37	0,60	0,69	0,78	0,65	0,74	0,46	0,56	0,59	0,53	0,59	0,48	0,37	0,55	

Number of Item Variants	8,88
Total Number of Variants	37,56
n	17,00
n/n-1	1,06
Number of Items Variants / Total Number of Variants	0,24
Total Variants	0,76
r (Reliability Coefficient)	0,81

Reliability Coefficient	Reliability Criteria	
0.8 - 1	Reliability is Good	
0.6 - 0.799	Reliability is Enough	
< 0.6	Reliability is Low	

Appendix 10: Validity and Reliability Test for Importance

Resp.	Number of Items																	Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
	A1	A2	A3	E1	E2	E3	T1	T2	T3	T4	Re1	Re2	Re3	Re4	Re5	Re1	Re2	
1	5	4	5	4	4	4	5	5	4	4	3	5	5	5	4	5	5	76
2	5	4	5	4	5	4	5	5	5	5	4	5	4	4	4	5	5	78
3	5	4	4	5	5	5	4	5	3	4	4	5	5	5	3	4	5	75
4	5	5	5	4	5	4	5	5	4	5	3	5	5	5	5	5	4	79
5	4	3	5	4	4	3	5	4	4	4	3	4	5	5	5	4	4	70
6	5	5	4	5	5	4	5	5	4	5	5	4	5	5	4	4	4	78
7	4	4	4	5	5	5	5	5	4	5	5	5	4	5	4	5	5	79
8	5	5	4	4	4	4	5	5	5	5	4	4	5	5	5	5	5	79
9	4	4	4	5	5	5	5	5	4	5	5	5	4	5	4	5	5	79
10	3	5	5	4	5	5	5	4	4	4	5	5	4	4	4	4	4	74
11	5	5	5	5	5	4	5	5	5	4	5	5	4	5	3	5	5	80
12	3	5	4	4	5	5	5	5	5	3	4	4	3	5	4	4	5	73
13	4	4	4	4	4	4	5	5	5	5	5	4	5	5	5	5	5	78
14	5	5	5	5	5	5	4	4	4	4	4	5	4	4	4	5	5	77
15	5	4	5	4	5	5	5	5	5	5	5	5	5	4	5	5	5	82
17	5	4	5	5	5	5	5	4	5	4	4	4	4	4	5	5	5	78
18	5	4	5	4	5	5	4	5	4	3	3	4	5	5	5	5	5	76

Appendix 10: Validity and Reliability Test for Importance

Resp .	Number of Items																	Total I
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
	A1	A2	A3	E1	E2	E3	T1	T2	T3	T4	Re1	Re2	Re3	Re4	Re5	Re1	Re2	
19	5	3	5	4	5	4	5	5	5	5	4	4	4	5	4	3	4	74
20	5	5	4	4	5	4	5	5	5	5	5	5	5	5	5	5	5	82
21	4	3	3	3	5	3	5	4	5	5	3	4	3	4	4	3	4	65
22	5	2	5	4	5	4	5	5	5	5	4	5	5	5	4	5	5	78
23	5	3	3	4	3	4	3	5	3	5	5	4	5	4	3	5	4	68
24	5	3	5	4	3	5	4	4	4	5	3	5	4	5	4	5	4	72
25	4	4	5	5	5	5	5	4	5	4	3	4	4	5	5	5	5	77
26	4	4	4	4	4	4	4	4	5	4	3	5	4	3	5	4	5	70
27	3	3	3	4	4	3	4	5	3	3	4	5	5	5	4	5	5	68
28	4	4	4	4	4	4	4	4	3	4	4	4	4	4	3	4	4	66
29	4	4	3	4	4	3	5	5	5	4	3	4	4	4	4	3	5	68
30	3	4	5	4	4	4	5	4	4	3	3	4	3	4	4	4	5	67
R xy	0,5 4	0,46	0,48	0,51	0,56	0,52	0,44	0,40	0,39	0,38	0,4 3	0,36	0,42	0,3 6	0,51	0,48	0,41	
t value	3,3 6	2,72	2,89	3,15	3,62	3,19	2,56	2,30	2,27	2,16	2,4 9	2,06	2,48	2,0 7	3,11	2,89	2,38	

Appendix 10: Validity and Reliability Test for Importance

Resp.	Number of Items																	Total I
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
	A1	A2	A3	E1	E2	E3	T1	T2	T3	T4	Re1	Re2	Re3	Re4	Re5	Re1	Re2	
t table (95%, 28)	2,05	2,05	2,05	2,05	2,0 5	2,05	2,05	2,05	2,0 5	2,05	2,05	2,05	2,05	2,0 5	2,05	2,05	2,05	
Note	vali d	Vali d	Vali d	vali d	vali d	vali d	vali d	vali d	vali d	vali d	vali d	vali d	vali d	vali d	vali d	vali d		
Varianc e Item	0,53	0,65	0,52	0,27	0,3 9	0,48	0,29	0,24	0,5 2	0,51	0,69	0,26	0,45	0,3 2	0,42	0,53	0,22	

Number of Item Variants	7,29
Total Number of Variants	24,63
n	17,00
n/n-1	1,06
Number of Items Variants / Total Number of Variants	0,30
Total Variants	0,70
r (Reliability Coefficient)	0,75

Reliability Coefficient	Reliability Criteria	
0.8 - 1	Reliability is Good	
0.6 - 0.799	Reliability is Enough	
< 0.6	Reliability is Low	

Appendix 11: The Average of Performance

Respondent s	Number of Items																	Total I
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
	A1	A2	A3	E1	E2	E3	T1	T2	T3	T4	Re	Re	Re	Re	Re	Re1	Re2	
1	4	4	3	3	5	4	2	2	3	3	3	4	3	3	3	4	4	57
2	5	5	5	5	4	5	3	3	4	4	5	5	4	5	5	5	4	76
3	4	4	5	5	5	4	3	4	3	4	4	5	4	4	4	5	4	71
4	5	5	5	4	5	4	4	2	3	4	3	5	3	3	5	4	4	68
5	4	3	4	3	4	4	3	3	3	4	3	4	3	3	3	4	4	59
6	4	5	3	4	4	3	4	4	3	4	4	4	4	4	4	4	4	66
7	4	4	4	4	4	4	3	4	3	4	4	4	4	4	4	4	4	66
8	4	5	3	4	4	4	2	3	3	4	4	3	3	3	3	3	3	58
9	4	4	4	4	4	4	3	4	3	4	4	4	4	4	4	4	4	66
10	4	3	4	3	3	3	2	3	2	4	4	4	3	3	3	3	3	54
11	5	3	3	3	4	4	2	3	3	4	3	3	3	4	3	3	4	57
12	4	5	3	3	4	4	2	3	2	3	4	3	3	4	3	3	3	56
14	4	4	4	4	4	3	2	2	2	3	4	4	4	4	3	4	3	58
15	5	5	5	5	5	5	4	4	4	5	5	5	4	4	5	5	5	80
16	4	4	4	4	5	5	2	3	2	4	4	3	4	4	4	3	4	63

Appendix 11: The Average of Performance (Continued)

Respondent s	Number of Items																	Total I
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
	A1	A2	A3	E1	E2	E3	T1	T2	T3	T4	Re	Re	Re	Re	Re	Re1	Re2	
17	4	3	3	4	4	4	3	4	3	4	3	4	3	3	3	3	2	57
18	4	4	3	3	4	4	2	3	3	4	3	3	3	3	3	3	2	54
19	5	5	5	5	3	3	3	3	4	4	4	5	4	5	5	5	4	72
20	4	4	3	3	4	3	2	2	2	4	4	4	3	4	3	3	3	55
21	4	5	3	3	4	4	3	4	4	4	4	3	3	4	4	4	4	64
22	5	4	4	5	5	5	4	2	2	4	4	5	4	2	4	4	4	67
23	4	4	4	3	3	2	1	2	1	3	3	4	2	2	1	2	3	44
24	5	3	5	3	3	4	3	2	3	4	3	4	3	2	3	4	3	57
25	4	4	5	5	5	5	2	3	3	4	4	3	4	5	4	4	4	68
26	4	5	3	3	4	4	1	3	2	3	3	3	3	2	3	2	2	51
27	5	4	5	4	5	4	2	2	3	3	4	5	4	4	4	5	4	67
28	4	3	5	3	4	4	2	4	2	3	3	4	4	4	4	5	4	62
29	4	4	4	4	4	4	2	2	3	3	3	4	3	4	4	4	3	59
30	5	4	4	4	4	5	2	3	2	3	3	4	3	3	3	4	3	59
31	5	5	5	5	5	5	3	4	3	4	5	5	4	5	5	5	4	77

Appendix 11: The Average of Performance (Continued)

Respondent s	Number of Items																	Total I
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
	A1	A2	A3	E1	E2	E3	T1	T2	T3	T4	Re	Re	Re	Re	Re	Re1	Re2	
31	5	5	5	5	5	5	3	4	3	4	5	5	4	5	5	5	4	77
32	5	4	5	5	4	5	3	3	4	4	4	5	4	5	5	5	4	74
33	4	4	3	4	4	3	4	3	4	5	4	4	4	4	4	4	4	66
34	4	4	3	3	4	4	1	3	1	4	3	3	3	4	4	3	3	54
35	4	5	3	4	5	5	1	3	3	4	4	3	3	3	3	3	3	59
36	4	4	3	3	4	4	2	3	3	5	3	3	4	4	3	3	2	57
37	5	4	5	5	3	5	3	3	3	4	4	5	4	5	5	5	4	72
38	4	4	3	4	4	4	2	3	3	4	3	3	3	4	4	3	4	59
39	4	3	3	3	4	4	3	3	4	4	4	3	3	4	4	4	4	61
40	4	4	3	3	4	4	1	2	2	3	3	3	3	3	2	3	2	49
41	5	4	4	5	3	5	3	3	3	4	4	5	4	5	5	5	4	71
42	5	5	4	4	4	5	2	3	2	3	3	4	3	3	3	4	3	60
43	4	4	5	3	4	4	2	2	2	3	3	4	4	4	4	5	4	61
44	5	4	5	5	5	4	2	2	3	3	4	3	5	5	4	3	4	66
45	4	4	4	4	4	4	2	2	3	3	3	4	3	4	4	4	3	59

Appendix 11: The Average of Performance (Continued)

Respondent s	Number of Items																	Total I
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
	A1	A2	A3	E1	E2	E3	T1	T2	T3	T4	Re	Re	Re	Re	Re	Re1	Re2	
46	4	4	3	3	4	4	1	1	1	4	3	3	3	4	4	4	3	53
47	5	5	5	4	5	4	2	2	2	4	4	5	2	2	2	4	2	59
48	5	5	3	4	5	3	3	4	2	5	4	4	3	4	5	4	5	68
49	4	4	3	4	4	5	4	3	3	3	3	4	2	2	3	4	3	58
50	5	4	4	4	4	4	3	2	3	3	5	3	2	3	3	3	2	57
51	5	5	4	3	4	4	4	3	2	4	4	3	4	4	4	4	3	64
52	4	3	5	5	3	3	2	1	4	5	5	3	2	3	3	3	2	56
53	5	4	3	4	4	4	2	1	2	3	3	5	4	3	3	3	4	57
54	4	3	5	3	3	2	2	2	3	3	4	4	3	2	3	3	3	52
55	4	5	4	4	5	4	1	1	3	4	3	4	4	4	5	4	5	64
56	5	4	3	4	3	4	2	2	2	4	5	3	3	4	4	3	58	
57	4	3	5	5	4	5	1	2	3	4	4	4	2	3	3	3	2	57
58	5	4	5	3	4	4	1	2	3	4	5	4	3	3	3	3	3	59
59	5	4	4	4	4	3	2	2	3	4	4	5	2	3	4	5	4	62
60	5	5	3	3	5	3	2	1	4	4	5	3	4	4	4	4	4	63

Appendix 11: The Average of Performance (Continued)

Respondent s	Number of Items																	Total I
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
	A1	A2	A3	E1	E2	E3	T1	T2	T3	T4	Re	Re	Re	Re	Re	Re1	Re2	
61	4	5	3	3	3	5	2	2	2	5	5	4	4	5	5	5	3	65
62	4	5	4	4	5	5	3	3	1	4	3	3	3	3	4	5	4	63
63	5	4	3	3	3	4	2	3	4	3	3	3	3	3	3	4	4	57
64	5	4	5	4	4	3	3	1	3	4	5	5	4	2	3	3	3	61
65	4	3	4	3	3	3	2	4	3	3	5	4	3	2	3	3	4	56
66	5	4	4	5	4	4	2	2	4	3	4	4	2	2	2	3	3	57
67	4	5	3	4	4	5	3	3	3	4	5	3	3	3	4	4	3	63
68	4	5	5	4	5	4	2	2	2	5	4	3	4	4	5	5	5	68
69	4	3	5	5	3	4	1	2	2	3	4	3	3	4	4	5	4	59
70	5	5	4	4	5	4	3	4	3	5	4	4	3	5	5	5	4	72
71	5	4	4	5	4	5	3	2	1	4	5	5	5	3	2	2	3	62
72	5	4	3	5	3	5	2	2	2	3	4	3	4	3	3	4	3	58
73	5	4	5	4	5	3	2	1	2	3	3	3	3	3	4	4	4	58
75	4	3	3	4	4	4	1	1	4	3	4	4	4	2	3	3	2	53
76	5	5	3	5	5	5	1	3	4	4	4	4	5	4	5	4	5	71

Appendix 11: The Average of Performance (Continued)

Respondent s	Number of Items																	Total I
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
	A1	A2	A3	E1	E2	E3	T1	T2	T3	T4	Re	Re	Re	Re	Re	Re1	Re2	
77	5	4	5	4	5	4	2	4	4	4	5	5	5	4	3	3	3	69
78	5	5	5	5	4	5	1	3	4	5	5	3	4	4	4	5	4	71
79	4	3	4	3	4	3	1	2	1	4	4	3	3	3	3	3	2	50
80	4	3	4	5	4	5	2	2	2	4	3	4	3	3	3	4	3	58
81	4	4	5	3	4	3	3	4	2	3	4	3	4	2	3	4	3	58
82	4	4	3	4	3	5	2	2	1	3	3	3	4	4	4	5	4	58
83	4	4	3	5	4	4	2	1	3	3	3	3	5	4	3	4	4	59
84	5	4	4	5	3	4	2	3	4	3	3	3	3	2	3	3	2	56
85	4	5	4	3	5	4	1	3	3	4	5	4	5	4	5	4	4	68
Average	4,41	4,13	3,94	3,91	4,06	4,05	2,27	2,61	2,72	3,79	3,85	3,80	3,45	3,51	3,62	3,86	3,44	61,40

Appendix 12: The Average of Expectation

Respondent s	Number of Items																	Total I
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
	A1	A2	A3	E1	E2	E3	T1	T2	T3	T4	Re	Re	Re3	Re	Re	Re	Re	
1	4	4	4	4	5	5	4	4	5	4	3	4	5	5	4	5	5	74
2	5	5	5	5	4	3	5	5	5	4	5	3	4	5	4	4	4	75
3	5	4	5	5	4	4	4	4	4	3	4	5	5	4	4	5	5	74
4	5	5	5	4	5	5	5	2	3	4	5	5	3	3	5	4	4	72
5	4	4	4	3	4	5	4	4	4	4	3	4	4	5	5	4	5	70
6	4	4	3	4	5	3	4	4	3	3	3	4	4	4	4	4	4	64
7	4	4	4	4	4	4	3	4	3	4	4	4	4	4	4	4	4	66
8	4	4	4	4	5	5	5	5	5	4	5	4	5	5	5	4	5	78
9	4	4	4	4	4	4	2	2	3	3	4	4	4	4	4	4	4	62
10	4	4	4	4	4	3	4	3	2	4	4	4	2	3	3	4	3	59
11	5	5	5	4	4	5	5	4	3	5	3	5	3	3	4	4	5	72
12	5	5	3	4	4	3	4	4	3	3	4	3	3	4	3	3	3	61
13	4	4	3	3	3	4	3	3	4	5	4	4	4	3	3	3	3	60
14	4	4	4	4	5	3	2	3	3	4	4	4	4	3	3	4	3	61
15	5	5	5	5	5	4	4	4	4	5	5	5	4	4	5	5	5	79

Appendix 12: The Average of Expectation (Continued)

Respondent s	Number of Items																	Total I
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
	A1	A2	A3	E1	E2	E3	T1	T2	T3	T4	Re	Re	Re3	Re	Re	Re	Re	
16	4	4	4	5	3	5	3	3	3	3	3	3	4	4	4	4	4	63
17	4	4	4	4	5	5	3	4	3	4	4	4	4	4	5	4	4	69
18	4	4	4	4	5	4	4	4	3	4	3	3	3	5	5	5	5	69
19	5	5	5	5	5	3	5	5	5	5	5	3	4	5	4	4	3	76
20	4	4	3	3	3	3	2	4	2	4	4	3	3	4	3	3	3	55
21	4	3	4	4	5	3	4	4	4	3	3	3	3	4	4	4	4	63
22	5	4	4	5	5	5	4	2	2	4	4	5	4	2	4	4	4	67
23	5	5	5	4	3	4	3	4	3	4	5	5	4	4	4	4	4	70
24	5	4	5	4	4	4	4	4	3	4	4	5	4	5	5	5	4	73
25	4	4	4	3	5	4	3	3	3	4	4	4	4	5	5	4	4	67
26	5	4	4	4	4	4	4	4	4	5	3	4	4	4	4	4	5	70
27	5	4	5	5	3	3	3	3	4	4	4	5	4	5	4	5	5	71
28	4	4	4	4	5	5	3	3	3	3	3	5	5	4	4	5	4	68
29	4	4	4	4	3	3	4	4	4	3	3	3	3	4	3	3	3	59
30	5	4	5	4	4	5	3	3	3	3	3	3	4	4	4	4	4	66

Appendix 12: The Average of Expectation (Continued)

Respondent s	Number of Items																	Total I
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
	A1	A2	A3	E1	E2	E3	T1	T2	T3	T4	Re	Re	Re3	Re	Re	Re	Re	
31	5	5	5	5	5	5	4	4	4	5	5	5	4	5	5	5	4	80
32	5	5	5	5	4	3	2	5	5	5	4	3	4	5	4	4	4	72
33	4	4	3	4	4	3	4	3	4	5	4	4	4	4	4	4	4	66
34	4	3	3	3	4	4	3	4	4	4	4	3	3	4	4	3	3	60
35	4	4	4	4	4	4	3	4	4	5	4	4	3	4	4	5	5	69
36	4	4	3	4	4	4	4	4	3	5	4	3	4	4	4	5	5	68
37	5	5	5	5	4	4	5	5	5	5	4	3	4	5	4	4	4	76
38	4	4	4	4	3	3	3	3	3	3	3	3	3	5	5	3	4	60
39	4	3	4	4	4	4	4	4	4	4	4	3	3	4	4	4	4	65
40	5	4	4	4	4	4	4	4	4	3	3	4	4	4	4	4	5	68
41	5	5	5	5	4	3	5	5	5	5	4	3	4	5	4	4	4	75
42	5	4	5	4	4	5	3	3	3	3	3	4	4	4	4	4	4	66
43	4	4	4	4	5	5	3	3	3	3	3	5	5	4	4	5	4	68
44	5	4	5	5	3	3	3	3	4	3	4	5	4	4	4	5	4	68
45	4	4	4	4	3	3	4	4	4	3	3	3	3	4	3	3	3	59

Appendix 12: The Average of Expectation (Continued)

Respondent s	Number of Items																	Total I
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
	A1	A2	A3	E1	E2	E3	T1	T2	T3	T4	Re	Re	Re3	Re	Re	Re	Re	
46	4	4	5	3	4	4	3	3	4	4	3	3	3	5	5	4	5	66
47	5	5	5	4	5	4	2	2	2	4	4	5	2	2	2	4	2	59
48	5	5	4	4	5	5	2	4	4	4	3	3	4	5	4	4	4	69
49	4	4	5	4	5	4	2	3	4	4	4	3	3	5	4	5	5	68
50	4	4	4	4	3	5	3	3	3	4	4	4	4	5	5	4	4	67
51	5	4	5	4	5	4	2	3	4	4	3	4	4	3	5	4	5	68
52	4	3	4	5	5	4	4	4	2	3	5	5	4	4	4	3	4	67
53	5	5	5	4	5	5	4	4	4	4	5	5	5	2	2	3	4	71
54	5	4	4	3	5	5	3	5	4	5	5	5	3	5	4	5	4	74
55	4	4	3	4	3	4	2	5	4	5	4	3	4	3	3	4	5	64
56	4	3	4	5	4	5	2	4	5	4	3	3	4	4	5	3	5	67
57	5	5	5	4	4	4	3	3	4	4	4	3	3	5	4	5	5	70
58	4	3	3	3	3	5	4	3	4	3	4	4	4	2	4	3	3	59
59	5	3	4	3	3	3	4	4	4	3	4	4	5	3	5	4	4	65
60	5	5	4	4	5	5	5	4	2	3	4	5	2	4	4	5	5	71

Appendix 12: The Average of Expectation (Continued)

Respondent s	Number of Items																	Total I
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
	A1	A2	A3	E1	E2	E3	T1	T2	T3	T4	Re	Re	Re3	Re	Re	Re	Re	
61	5	5	5	4	4	4	4	4	3	3	5	4	3	5	3	4	4	69
62	4	5	5	4	5	4	5	5	4	4	4	4	5	4	5	5	5	77
63	4	4	4	3	3	3	4	3	4	5	5	4	3	2	4	4	3	62
64	5	4	4	4	5	4	4	5	3	5	4	5	4	5	4	5	4	74
65	4	5	3	4	4	5	5	5	4	5	3	3	4	2	4	5	5	70
66	5	3	4	4	4	3	4	3	2	4	3	3	3	3	3	4	4	59
67	4	4	4	3	4	3	5	4	4	5	4	3	2	3	2	3	4	61
68	5	5	5	5	4	5	5	4	4	4	5	5	4	5	4	5	4	78
69	4	4	4	3	5	4	5	3	4	3	4	3	2	4	4	3	63	
70	5	4	4	4	3	4	3	5	5	4	5	4	5	4	5	4	3	71
71	4	4	3	4	4	3	4	3	4	4	3	4	4	2	2	4	5	61
72	4	3	4	5	4	4	2	3	4	3	4	4	3	5	3	3	4	62
73	5	4	3	5	4	5	5	4	5	4	5	4	4	5	4	3	4	73
74	4	3	4	5	5	3	3	3	3	4	4	4	4	5	3	4	3	64
75	4	4	4	4	4	3	3	3	3	4	4	4	2	3	2	3	3	57

Appendix 12: The Average of Expectation (Continued)

Respondent s	Number of Items																	Total I
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
	A1	A2	A3	E1	E2	E3	T1	T2	T3	T4	Re	Re	Re3	Re	Re	Re	Re	
76	5	5	4	5	5	5	4	4	4	5	5	4	4	5	5	5	4	78
77	4	4	4	3	5	5	4	4	5	5	5	5	4	2	4	5	4	72
78	5	5	5	4	5	5	4	4	5	4	5	4	4	4	4	4	4	75
79	5	5	4	4	5	5	5	4	4	5	3	5	2	2	5	5	4	72
80	4	5	4	4	3	4	3	4	3	3	4	3	5	3	3	3	4	62
81	4	3	4	4	3	3	3	4	4	3	4	3	2	3	4	3	57	
82	4	3	3	4	4	4	4	5	3	3	3	3	2	2	3	4	5	59
83	4	4	4	4	3	3	3	2	4	3	3	3	5	5	5	5	63	
84	5	5	4	5	5	5	5	3	5	4	5	5	3	5	4	4	4	76
85	5	4	3	3	4	3	2	3	2	3	4	2	4	4	5	5	3	59
Average	4,46	4,15	4,14	4,07	4,16	4,02	3,61	3,72	3,64	3,94	3,92	3,88	3,67	3,93	3,9	4,11	4,0	67,4

Appendix 13: The Average of Importance

Respondent s	Number of Items																	Total I
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
	A1	A2	A3	E1	E2	E3	T1	T2	T3	T4	Re1	Re2	Re3	Re4	Re5	Re1	Re2	
1	5	4	5	4	4	4	5	5	4	4	3	5	5	5	4	5	5	76
2	5	4	5	4	5	4	5	5	5	5	4	5	4	4	4	5	5	78
3	5	4	4	5	5	5	4	3	4	4	5	5	5	3	4	5	75	
4	5	5	5	4	5	4	5	5	4	5	3	5	5	5	5	5	4	79
5	4	3	5	4	4	3	5	4	4	4	3	4	5	5	5	4	4	70
6	5	5	4	5	5	4	5	5	4	5	5	4	5	5	4	4	4	78
7	4	4	4	5	5	5	5	5	4	5	5	5	4	5	4	5	5	79
8	5	5	4	4	4	4	5	5	5	5	4	4	5	5	5	5	5	79
9	4	4	4	5	5	5	5	5	4	5	5	5	4	5	4	5	5	79
10	3	5	5	4	5	5	5	4	4	4	5	5	4	4	4	4	4	74
11	5	5	5	5	5	4	5	5	5	4	5	5	4	5	3	5	5	80
12	3	5	4	4	5	5	5	5	5	3	4	4	3	5	4	4	5	73
13	4	4	4	4	4	4	5	5	5	5	5	4	5	5	5	5	5	78
14	5	5	5	5	5	5	4	4	4	4	5	4	4	4	5	5	5	77
15	5	4	5	4	5	5	5	5	5	5	5	5	4	5	5	5	5	82
16	5	5	5	5	5	5	5	4	5	4	3	4	4	5	5	5	5	79

Appendix 13: The Average of Importance (Continued)

Respondent s	Number of Items																	Total I
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
	A1	A2	A3	E1	E2	E3	T1	T2	T3	T4	Re1	Re2	Re3	Re4	Re5	Re1	Re2	
17	5	4	5	5	5	5	5	4	5	4	4	4	4	4	5	5	5	78
18	5	4	5	4	5	5	4	5	4	3	3	4	5	5	5	5	5	76
19	5	3	5	4	5	4	5	5	5	4	4	4	5	4	3	4	74	
20	5	5	4	4	5	4	5	5	5	5	5	5	5	5	5	5	5	82
21	4	3	3	3	5	3	5	4	5	5	3	4	3	4	4	3	4	65
22	5	2	5	4	5	4	5	5	5	5	4	5	5	4	5	5	5	78
23	5	3	3	4	3	4	3	5	3	5	5	4	5	4	3	5	4	68
24	5	3	5	4	3	5	4	4	4	5	3	5	4	5	4	5	4	72
25	4	4	5	5	5	5	5	4	5	4	3	4	4	5	5	5	5	77
26	4	4	4	4	4	4	4	4	5	4	3	5	4	3	5	4	5	70
27	3	3	3	4	4	3	4	5	3	3	4	5	5	4	5	5	5	68
28	4	4	4	4	4	4	4	4	3	4	4	4	4	4	3	4	4	66
29	4	4	3	4	4	3	5	5	5	4	3	4	4	4	4	3	5	68
30	3	4	5	4	4	4	5	4	4	3	3	4	3	4	4	4	5	67
31	5	5	5	5	5	5	5	5	5	5	5	5	4	4	4	5	5	82
32	5	4	5	4	5	4	5	5	5	5	4	5	4	4	4	5	5	78

Appendix 13: The Average of Importance (Continued)

Respondent s	Number of Items																	Total I
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
	A1	A2	A3	E1	E2	E3	T1	T2	T3	T4	Re							
33	4	4	4	4	4	4	4	4	4	5	4	4	4	4	4	4	4	69
34	4	4	4	4	5	3	5	5	4	5	3	4	3	5	5	5	5	73
35	5	5	5	5	4	4	5	4	3	4	3	5	3	4	4	5	5	73
36	5	5	5	5	5	4	5	3	4	5	3	4	4	5	4	5	5	76
37	5	4	5	4	5	4	5	5	5	5	4	5	4	4	5	5	5	78
38	4	4	4	4	5	5	5	4	4	5	3	4	3	4	5	4	4	71
39	5	4	4	3	5	5	5	4	5	5	3	4	3	5	4	5	5	74
40	5	4	5	4	4	4	4	5	5	4	3	5	4	5	5	4	5	75
41	5	4	5	4	5	4	5	5	5	5	4	5	4	4	4	5	5	78
42	5	4	5	4	4	4	5	4	4	3	3	4	4	4	4	4	5	70
43	4	4	4	4	4	4	4	5	3	4	4	5	5	4	3	4	4	69
44	5	4	5	4	4	4	4	3	4	4	5	5	5	4	5	5	5	75
45	4	4	4	4	4	4	5	5	5	4	3	4	4	4	4	5	5	72
46	4	4	4	4	5	5	5	5	3	4	3	4	3	4	4	5	5	71
47	5	5	5	4	5	4	5	5	4	5	4	5	5	5	5	4	5	80

Appendix 13: The Average of Importance (Continued)

Respondents	Number of Items																	Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
	A1	A2	A3	E1	E2	E3	T1	T2	T3	T4	Re1	Re2	Re3	Re4	Re5	Re1	Re2	
48	4	4	4	5	4	4	4	4	4	4	3	5	4	4	5	4	4	70
49	3	4	4	5	4	4	4	3	4	3	3	4	3	4	4	5	4	65
50	5	4	5	4	4	5	4	5	5	5	5	5	4	5	4	5	4	78
51	5	4	4	3	5	5	5	5	4	5	4	5	5	5	4	5	4	77
52	5	5	5	4	5	4	5	5	4	5	5	5	4	5	5	5	4	80
53	4	4	5	5	5	5	5	5	5	5	4	5	5	4	5	5	5	81
54	5	3	5	5	4	5	5	5	4	5	4	5	5	5	4	4	5	78
55	4	4	4	4	4	4	4	4	4	3	3	4	3	4	4	4	4	65
56	5	5	5	5	5	5	5	5	4	5	5	5	5	5	5	5	4	83
57	3	4	3	3	4	4	4	3	4	4	3	4	4	4	4	4	4	63
58	4	3	3	4	4	4	4	3	5	4	3	4	3	4	4	4	5	65
59	3	4	3	4	4	4	4	3	4	4	3	4	4	4	3	4	4	63
60	5	4	5	5	5	4	5	5	5	5	5	4	5	5	5	5	5	82
61	4	4	3	3	4	4	4	3	4	5	3	4	3	4	4	4	4	64

Appendix 13: The Average of Importance (Continued)

Respondents	Number of Items																	Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
	A1	A2	A3	E1	E2	E3	T1	T2	T3	T4	Re1	Re2	Re3	Re4	Re5	Re1	Re2	
62	5	4	4	4	5	4	5	5	4	5	5	5	5	5	4	4	4	77
63	5	4	5	4	4	4	5	5	5	5	4	5	5	5	5	4	5	79
64	3	3	3	4	4	3	4	3	4	3	3	4	3	4	3	4	4	59
65	4	3	4	4	4	4	4	3	4	4	3	4	3	4	3	4	4	63
66	5	4	4	4	5	5	4	4	4	3	3	4	4	4	4	4	4	69
67	5	3	4	3	4	3	4	3	4	3	4	4	5	4	4	4	4	65
68	5	4	4	4	5	4	5	5	5	5	5	5	5	5	5	5	5	81
69	5	4	3	3	4	4	4	3	3	4	3	4	3	4	3	4	4	62
70	3	5	4	4	5	5	5	5	5	5	4	5	5	5	5	5	5	80
71	3	3	3	3	4	3	4	3	3	3	3	4	3	4	3	4	4	57
72	5	4	5	5	4	5	5	5	5	4	4	5	5	5	5	5	5	81
73	5	5	4	5	4	5	5	5	5	5	5	5	5	5	5	5	5	83
74	3	3	4	5	4	4	4	4	3	4	3	4	4	4	3	4	4	64
75	3	3	3	4	5	3	4	3	3	3	3	4	3	4	3	4	4	59

Appendix 13: The Average of Importance (Continued)

Respondents	Number of Items																	Total
	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	
	A1	A2	A3	E1	E2	E3	T1	T2	T3	T4	Re1	Re2	Re3	Re4	Re5	Re1	Re2	
76	5	5	5	5	5	5	5	5	5	5	4	5	5	5	5	5	5	84
77	4	4	3	3	4	3	4	3	3	3	3	4	3	4	4	4	4	60
78	4	3	4	4	5	4	4	4	3	3	4	4	3	4	4	4	4	65
79	5	5	4	5	5	5	5	5	5	5	4	5	5	5	5	4	5	82
80	3	2	4	4	5	4	4	4	3	4	3	4	3	4	3	4	4	62
81	4	3	5	4	4	4	4	3	3	3	3	4	5	4	3	4	4	64
82	5	4	4	5	4	5	5	5	5	5	5	5	4	5	5	5	5	81
83	4	4	5	4	4	4	4	4	4	4	3	4	3	4	3	4	4	66
84	3	2	3	3	4	3	4	3	4	3	3	4	3	4	4	4	4	58
85	4	3	3	5	5	5	5	5	5	5	4	5	4	4	4	4	5	75
Average	4,36	3,95	4,26	4,18	4,49	4,21	4,59	4,35	4,24	4,29	3,78	4,47	4,12	4,46	4,16	4,45	4,56	72,93

Appendix 14: Questionnaire

Kuesioner Kepuasan Pelanggan Warung Makan WAROENK AYOMASS

Sebagai pelanggan warung makan WAROENK AYOMASS, saya memohon ketersediaan anda untuk menjawab pertanyaan berikut, dan merespon pernyataan yang akan diberikan.

1. Jenis Kelamin:
a. Laki-laki b. Perempuan
2. Usia:
a. 12 -17 tahun c. 41-65 tahun
b. 18-40 tahun
3. Sudah berapa lama anda menjadi pelanggan warung makan WAROENK AYOMASS?
a. < 2 kali b. \geq 5 kali
b. \geq 2 kali d. \geq 10 kali
4. Apa kriteria anda dalam memilih warung makan WAROENK AYOMASS sebagai tempat untuk nongkrong/makan minum?
a. Murah
b. Fasilitas
c. Pelayanan
d. Lainnya, sebutkan.....

Bagian-bagian berikut ini menjelaskan cara anda merespon pernyataan terkait pelayanan di warung makan WAROENK AYOMASS.

Berilah tanda (✓) untuk merespon setiap pernyataan. Respon yang akan anda berikan berupa penilaian dalam bentuk angka dari 1 hingga 5 yang merepresentasikan tingkat kesetujuan anda terhadap pernyataan yang bersangkutan. Pernyataan ini dibedakan menjadi tiga kelompok, yaitu kelompok performansi, kelompok harapan dan kelompok kepentingan.

- Kelompok Performansi (Outcome yang dihasilkan/ kondisi actual pada saat ini)
1 = Sangat Tidak Baik (STB) 4 = Baik (B)
2 = Tidak Baik (TB) 5 = Sangat Baik (SB)
3 = Cukup Baik (CB)
- Kelompok Harapan (Tingkat service yang diberikan oleh warung makan WAROENK AYOMASS sudah di harapkan atau belum sesuai dengan harapan)
1 = Sangat Tidak Diharapkan (STD) 4 = Diharapkan (D)
2 = Tidak Diharapkan (TD) 5 = Sangat Diharapkan (SD)
3 = Cukup Diharapkan (CD)

Kuesioner Kepuasan Pelanggan Warung Makan WAROENK AYOMASS

- Kelompok Kepentingan (Seberapa penting service yang disajikan usaha jasa bagi pelanggan)

1 = Sangat Tidak Penting (STP)

4 = Penting (P)

2 = Tidak Penting (TP)

5 = Sangat Penting (SP)

3 = Cukup Penting (CP)

No.	Pertanyaan	Performasi					Harapan					Kepentingan				
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Assurance (Jaminan)																
A1	Makanan yang disajikan terjaga kebersihannya															
A2	Makanan yang disajikan memiliki nilai gizi yang dapat memuaskan konsumen															
A3	Pengetahuan yang dimiliki oleh karyawan terhadap produk yang disajikan															
Empathy (Empati)																
E1	Karyawan melayani konsumen tanpa memandang status sosial															
E2	Karyawan bersedia menerima kritik dan saran dari konsumen															
E3	Karyawan warung sudah memberikan perhatian kepada anda dengan ramah															
Tangible (Bukti Fisik)																
T1	Papan nama warung makan mudah dilihat															
T2	Fasilitas ruang makan yang disediakan sudah membuat anda merasa nyaman															
T3	Daftar menu makan dapat terlihat jelas dan menarik															
T4	Porsi makanan yang disajikan sudah dapat memuaskan (sesuai dengan standar warung makan)															

Kuesioner Kepuasan Pelanggan Warung Makan WAROENK AYOMASS																
No.	Pertanyaan	Performasi					Harapan					Kepentingan				
		1	2	3	4	5	1	2	3	4	5	1	2	3	4	5
Responsiveness (Daya Tanggap)																
Rs1	Karyawan mampu melayani customer yang baru datang dengan cepat															
Rs2	Karyawan tanggap dan bertanggungjawab dengan cepat apabila terjadi kesalahan dalam meberikan order makanan atau minuman															
Rs3	Karyawan mampu melayani transaksi pembayaran dengan cepat dan benar															
Rs4	Kecepatan karyawan saat konsumen membutuhkan sesuatu															
Rs5	Karyawan warung makan mampu menangani keluhan pelanggan dengan cepat															
Reliability (Kehandalan)																
Re1	Waktu operasional Waroenk Ayomass sesuai dengan yang dijanjikan															
Re2	Harga makanan yang diberikan oleh Waroenk Ayomass sesuai dengan promosi yang ditawarkan atau dijanjikan															
<p>Sekian kuesioner ini, atas partisipasi anda, saya ucapkan terima kasih.</p>																

Appendix 15: TRIZ Matrix

	1 Undesired result (Conflict)	2 Feature to Change	3 Weight of moving object	4 Weight of non-moving object	5 Length of moving object	6 Length of non-moving object	7 Area of moving object	8 Area of non-moving object
1 Weight of moving object			15, 8, 29, 34		29, 17, 38, 34		29, 2, 40 28	
2 Weight of non-moving object				10, 1, 29, 35		35, 30, 13, 2		5, 35, 14, 2
3 Length of moving object	8, 15, 29, 34				15, 17, 4		7, 17, 4, 35	
4 Length of non-moving object		35, 28, 40, 29				17, 7, 10, 40		35, 8, 2, 14
5 Area of moving object	2, 17, 29, 4		14, 15, 18, 4				7, 14, 17, 4	
6 Area of non-moving object		30, 2, 14, 18		26, 7, 9, 39				
7 Volume of moving object	2, 26, 29, 40		1, 7, 4, 35		1, 7, 4, 17			
8 Volume of non-moving object		35, 10, 19, 14	19, 14	35, 8, 2, 14				
9 Speed	2, 28, 13, 38		13, 14, 8		29, 30, 34		7, 29, 34	
10 Force	8, 1, 37, 18	18, 13, 1, 28	17, 19, 9, 36	28, 10	19, 10, 15	1, 18, 36, 37	15, 9, 12, 37	2, 36, 18, 37
11 Tension, pressure	10, 36, 37, 40	13, 29, 10, 18	35, 10, 36	35, 1, 14, 16	10, 15, 36, 25	10, 15, 35, 37	6, 35, 10	35, 24
12 Shape	8, 10, 29, 40	15, 10, 26, 3	29, 34, 5, 4	13, 14, 10, 7	5, 34, 4, 10		14, 4, 15, 22	7, 2, 35
13 Stability of object	21, 35, 2, 39	26, 39, 1, 40	13, 15, 1, 28	37	2, 11, 13	39	28, 10, 19, 39	34, 28, 35, 40
14 Strength	1, 8, 40, 15	40, 26, 27, 1	1, 15, 8, 35	15, 14, 28, 26	3, 34, 40, 29	9, 40, 28	10, 15, 14, 7	9, 14, 17, 15
15 Durability of moving object	19, 5, 34, 31		2, 19, 9		3, 17, 19		10, 2, 19, 30	
16 Durability of non-moving object		6, 27, 19, 16		1, 10, 35				35, 34, 38
17 Temperature	36, 22, 6, 38	22, 35, 32	15, 19, 9	15, 19, 9	3, 35, 39, 18	35, 38	34, 39, 40, 18	35, 6, 4
18 Brightness	19, 1, 32	2, 35, 32	19, 32, 16		19, 32, 26		2, 13, 10	
19 Energy spent by moving object	12, 18, 28, 31		12, 28		15, 19, 25		35, 13, 18	
20 Energy spent by non-moving object		19, 9, 6, 27						

Appendix 15: TRIZ Matrix (Continued)

	9	10	11	12	13	14	15	16
Undesired result (Conflict)								
Feature to Change	Speed	Force	Tension, pressure	Shape	Stability of object	Strength	Durability of moving object	Durability of non-moving object
1 Weight of moving object	2, 8, 15, 38	8, 10, 18, 37	10, 36, 37, 40	10, 14, 35, 40	1, 35, 19, 39	28, 27, 18, 40	5, 34, 31, 35	
2 Weight of non-moving object		8, 10, 19, 35	13, 29, 10, 18	13, 10, 29, 14	26, 39, 1, 40	28, 2, 10, 27		2, 27, 19, 6
3 Length of moving object	13, 4, 8	10, 17, 4	1, 8, 35	1, 8, 10, 29	1, 8, 15, 24	8, 35, 29, 34	19	
4 Length of non-moving object		28, 10	1, 14, 35	13, 14, 15, 7	39, 37, 35	15, 14, 28, 26		1, 40, 35
5 Area of moving object	29, 30, 4, 34	19, 30, 36, 2	10, 15, 36, 28	5, 34, 29, 4	11, 2, 13, 39	3, 15, 40, 14	6, 3	
6 Area of non-moving object		1, 18, 35, 36	10, 15, 36, 37		2, 38	40		2, 10, 19, 30
7 Volume of moving object	29, 4, 38, 34	15, 35, 36, 37	6, 35, 36, 37	1, 15, 28, 4	28, 10, 1, 39	9, 14, 15, 7	6, 35, 4	
8 Volume of non-moving object		2, 18, 37	24, 35	7, 2, 35	34, 28, 35, 40	9, 14, 17, 15		35, 34, 38
9 Speed		13, 28, 15, 19	6, 18, 38, 40	35, 15, 18, 34	28, 33, 1, 18	8, 3, 26, 14	3, 19, 35, 5	
10 Force	13, 28, 15, 12		18, 21, 11	10, 35, 40, 34	35, 10, 21	35, 10, 14, 27	19, 2	
11 Tension, pressure	6, 35, 36	36, 35, 21		35, 4, 15, 10	35, 33, 2, 40	9, 18, 3, 40	19, 3, 27	
12 Shape	35, 15, 34, 18	35, 10, 37, 40	34, 15, 10, 14		33, 1, 18, 4	30, 14, 10, 40	14, 26, 9, 25	
13 Stability of object	33, 15, 28, 18	10, 35, 21, 16	2, 35, 40	22, 1, 18, 4		17, 9, 15	13, 27, 10, 35	39, 3, 35, 23
14 Strength	8, 13, 26, 14	10, 18, 3, 14	10, 3, 18, 40	10, 30, 35, 40	13, 17, 35		27, 3, 26	
15 Durability of moving object	3, 35, 5	19, 2, 16	19, 3, 27	14, 26, 28, 25	13, 3, 35	27, 3, 10		
16 Durability of non-moving object					39, 3, 35, 23			
17 Temperature	2, 28, 36, 30	35, 10, 3, 21	35, 39, 19, 2	14, 22, 19, 32	1, 35, 32	10, 30, 22, 40	19, 13, 39	19, 18, 36, 40
18 Brightness	10, 13, 19	26, 19, 6		32, 30	32, 3, 27	35, 19	2, 19, 6	
19 Energy spent by moving object	8, 15, 35	16, 26, 21, 2	23, 14, 25	12, 2, 29	19, 13, 17, 24	5, 19, 9, 35	28, 35, 6, 18	
20 Energy spent by non-moving object		36, 37			27, 4, 29, 18	35		

Appendix 15: TRIZ Matrix (Continued)

	Undesired result (Conflict)	17	18	19	20	21	22	23	24
	Feature to Change	Temperature	Brightness	Energy spent by moving object	Energy spent by non-moving object	Power	Waste of energy	Waste of substance	Loss of information
1	Weight of moving object	6, 20, 4, 38	19, 1, 32	38, 12, 34, 31		12, 36, 18, 31	6, 2, 34, 19	5, 35, 3, 31	10, 24, 35
2	Weight of non-moving object	28, 19, 32, 22	19, 32, 35		18, 19, 28, 1	15, 19, 18, 22	18, 19, 28, 15	5, 8, 13, 30	10, 15, 35
3	Length of moving object	10, 15, 19	32	8, 35, 24		1, 35	7, 2, 35, 39	4, 29, 23, 10	1, 24
4	Length of non-moving object	3, 35, 38, 18	3, 25			12, 8	6, 28	10, 28, 24, 35	24, 26
5	Area of moving object	2, 15, 16	15, 32, 19, 13	19, 32		19, 10, 32, 18	15, 17, 30, 26	10, 35, 2, 39	30, 26
6	Area of non-moving object	35, 39, 38				17, 32	17, 7, 30	10, 14, 18, 39	30, 16
7	Volume of moving object	34, 39, 10, 18	2, 13, 10	35		35, 6, 13, 18	7, 15, 13, 16	36, 39, 34, 10	2, 22
8	Volume of non-moving object	35, 6, 4				30, 6		10, 39, 35, 34	
9	Speed	28, 30, 36, 2	10, 13, 19	8, 15, 35, 38		19, 35, 38, 2	14, 20, 19, 35	10, 13, 28, 38	13, 26
10	Force	35, 10, 21		19, 17, 10	1, 16, 36, 37	19, 35, 18, 37	14, 15	8, 35, 40, 5	
11	Tension, pressure	35, 39, 19, 2		14, 24, 10, 37		10, 35, 14	2, 36, 25	10, 36, 3, 37	
12	Shape	22, 14, 19, 32	13, 15, 32	2, 6, 34, 14		4, 6, 2	14	35, 29, 3, 5	
13	Stability of object	35, 1, 32	32, 3, 27, 15	13, 19	27, 4, 29, 18	32, 35, 27, 31	14, 2, 39, 6	2, 14, 30, 40	
14	Strength	30, 10, 40	35, 19	19, 35, 10	35	10, 26, 35, 28	35	35, 28, 31, 40	
15	Durability of moving object	19, 35, 39	2, 19, 4, 35	28, 6, 35, 18		19, 10, 35, 38		28, 27, 3, 18	10
16	Durability of non-moving object	19, 18, 36, 40				16		27, 16, 18, 38	10
17	Temperature		32, 30, 21, 16	19, 15, 3, 17		2, 14, 17, 25	21, 17, 35, 38	21, 36, 29, 31	
18	Brightness	32, 35, 19		32, 1, 19	32, 35, 1, 15	32	19, 16, 1, 6	13, 1	1, 6
19	Energy spent by moving object	19, 24, 3, 14	2, 15, 19			6, 19, 37, 18	12, 22, 15, 24	35, 24, 18, 5	
20	Energy spent by non-moving object		19, 2, 35, 32					28, 27, 18, 31	

Appendix 15: TRIZ Matrix (Continued)

	Undesired result (Conflict)	25	26	27	28	29	30	31	32
	Feature to Change	Waste of time	Amount of substance	Reliability	Accuracy of measurement	Accuracy of manufacturing	Harmful factors acting on object	Harmful side-effects	Manufacturability
1	Weight of moving object	10, 35, 20, 28	3, 26, 18, 31	3, 11, 1, 27	28, 27, 35, 26	28, 35, 26, 18	22, 21, 18, 27	22, 35, 31, 39	27, 28, 1, 36
2	Weight of non-moving object	10, 20, 35, 26	19, 6, 18, 26	10, 28, 8, 3	18, 26, 28	10, 1, 35, 17	2, 19, 22, 37	35, 22, 1, 39	28, 1, 9
3	Length of moving object	15, 2, 29	29, 35	10, 14, 29, 40	28, 32, 4	10, 28, 29, 37	1, 15, 17, 24	17, 15	1, 29, 17
4	Length of non-moving object	30, 29, 14		15, 29, 28	32, 28, 3	2, 32, 10	1, 18		15, 17, 27
5	Area of moving object	26, 4	29, 30, 6, 13	29, 9	26, 28, 32, 3	2, 32	22, 33, 28, 1	17, 2, 18, 39	13, 1, 26, 24
6	Area of non-moving object	10, 35, 4, 18	2, 18, 40, 4	32, 35, 40, 4	26, 28, 32, 3	2, 29, 18, 36	27, 2, 39, 35	22, 1, 40	40, 16
7	Volume of moving object	2, 6, 34, 10	29, 30, 7	14, 1, 40, 11	25, 26, 28	25, 28, 2, 16	22, 21, 27, 35	17, 2, 40, 1	29, 1, 40
8	Volume of non-moving object	35, 16, 32, 18	35, 3	2, 35, 16		35, 10, 25	34, 39, 19, 27	30, 18, 35, 4	35
9	Speed		18, 19, 29, 38	11, 35, 27, 28	28, 32, 1, 24	10, 28, 32, 25	1, 28, 35, 23	2, 24, 35, 21	35, 13, 8, 1
10	Force	10, 37, 36	14, 29, 18, 36	3, 35, 13, 21	35, 10, 23, 24	28, 29, 37, 36	1, 35, 40, 18	13, 3, 36, 24	15, 37, 18, 1
11	Tension, pressure	37, 36, 4	10, 14, 36	10, 13, 19, 35	6, 28, 25	3, 35	22, 2, 37	2, 33, 27, 18	1, 35, 16
12	Shape	14, 10, 34, 17	36, 22	10, 40, 16	28, 32, 1	32, 30, 40	22, 2, 1, 35	35, 1	1, 32, 17, 28
13	Stability of object	35, 27	15, 32, 35		13	18	35, 24, 30, 18	35, 40, 27, 39	35, 19
14	Strength	29, 3, 28, 10	29, 10, 27	11, 3	3, 27, 16	3, 27	18, 35, 37, 1	15, 35, 22, 2	11, 3, 10, 32
15	Durability of moving object	20, 10, 28, 18	3, 35, 10, 40	11, 2, 13	3	3, 27, 16, 40	22, 15, 33, 28	21, 39, 16, 22	27, 1, 4
16	Durability of non-moving object	28, 20, 10, 16	3, 35, 31	34, 27, 6, 40	10, 26, 24		17, 1, 40, 33	22	35, 10
17	Temperature	35, 28, 21, 18	3, 17, 30, 39	19, 35, 3, 10	32, 19, 24	24	22, 33, 35, 2	22, 35, 2, 24	26, 27
18	Brightness	19, 1, 26, 17	1, 19		11, 15, 32	3, 32	15, 19	35, 19, 32, 39	19, 35, 28, 26
19	Energy spent by moving object	35, 38, 19, 18	34, 23, 16, 18	19, 21, 11, 27	3, 1, 32		1, 35, 6, 27	2, 35, 6	28, 26, 30
20	Energy spent by non-moving object		3, 35, 31	10, 36, 23			10, 2, 22, 37	19, 22, 18	1, 4

Appendix 15: TRIZ Matrix (Continued)

	33 Undesired result (Conflict)	34	35	36	37	38	39
	Convenience of use	Repairability	Adaptability	Complexity of device	Complexity of control	Level of automation	Productivity
1	Weight of moving object	35, 3, 2, 24	2, 27, 28, 11	29, 5, 15, 8	26, 30, 36, 34	28, 29, 26, 32	26, 35, 18, 19
2	Weight of non-moving object	6, 13, 1, 32	2, 27, 28, 11	19, 15, 29	1, 10, 26, 39	25, 28, 17, 15	2, 26, 35
3	Length of moving object	15, 29, 35, 4	1, 28, 10	14, 15, 1, 16	1, 19, 26, 24	35, 1, 26, 24	17, 24, 26, 16
4	Length of non-moving object	2, 25	3	1, 35	1, 26	26	30, 14, 7, 26
5	Area of moving object	15, 17, 13, 16	15, 13, 10, 1	15, 30	14, 1, 13	2, 36, 26, 18	14, 30, 28, 23
6	Area of non-moving object	16, 4	16	15, 16	1, 18, 36	2, 35, 30, 18	23
7	Volume of moving object	15, 13, 30, 12	10	15, 29	26, 1	29, 26, 4	35, 34, 16, 24
8	Volume of non-moving object			1		1, 31	2, 17, 28
9	Speed	32, 28, 13, 12	34, 2, 28, 27	15, 10, 26	10, 28, 4, 34	3, 34, 27, 16	10, 18
10	Force	1, 28, 3, 25	15, 1, 11	15, 17, 18, 20	26, 35, 10, 18	36, 37, 10, 19	2, 35
11	Tension, pressure	11	2	35	19, 1, 35	2, 36, 37	35, 24
12	Shape	32, 15, 26	2, 13, 1	1, 15, 29	16, 29, 1, 28	15, 13, 39	15, 1, 32
13	Stability of object	32, 35, 30	2, 35, 10, 16	35, 30, 34, 2	2, 35, 22, 26	35, 22, 39, 23	1, 8, 35
14	Strength	32, 40, 28, 2	27, 11, 3	15, 3, 32	2, 13, 28	27, 3, 15, 40	15
15	Durability of moving object	12, 27	29, 10, 27	1, 35, 13	10, 4, 29, 15	19, 29, 39, 35	6, 10
16	Durability of non-moving object	1	1	2		25, 34, 6, 35	1
17	Temperature	26, 27	4, 10, 16	2, 18, 27	2, 17, 16	3, 27, 35, 31	26, 2, 19, 16
18	Brightness	28, 26, 19	15, 17, 13, 16	15, 1, 19	6, 32, 13	32, 15	2, 26, 10
19	Energy spent by moving object	19, 35	1, 15, 17, 28	15, 17, 13, 16	2, 29, 27, 28	35, 38	32, 2
20	Energy spent by non-moving object					19, 35, 16, 25	1, 6

Appendix 15: TRIZ Matrix (Continued)

Undesired result (Conflict)		1	2	3	4	5	6	7	8
		Weight of moving object	Weight of non-moving object	Length of moving object	Length of non-moving object	Area of moving object	Area of non-moving object	Volume of moving object	Volume of non-moving object
Feature to Change									
21	Power	8, 36, 38, 31	19, 26, 17, 27	1, 10, 35, 37		19, 38	17, 32, 13, 38	35, 6, 38	30, 6, 25
22	Waste of energy	15, 6, 19, 28	19, 6, 18, 9	7, 2, 6, 13	6, 38, 7	15, 26, 17, 30	17, 7, 30, 18	7, 18, 23	7
23	Waste of substance	35, 6, 23, 40	35, 6, 22, 32	14, 29, 10, 39	10, 28, 24	35, 2, 10, 31	10, 18, 39, 31	1, 29, 30, 36	3, 39, 18, 31
24	Loss of information	10, 24, 35	10, 35, 5	1, 26	26	30, 26	30, 16		2, 22
25	Waste of time	10, 20, 37, 35	10, 20, 26, 5	15, 2, 29	30, 24, 14, 5	26, 4, 5, 16	10, 35, 17, 4	2, 5, 34, 10	35, 16, 32, 18
26	Amount of substance	35, 6, 18, 31	27, 26, 18, 35	29, 14, 35, 18		15, 14, 29	2, 18, 40, 4	15, 20, 29	
27	Reliability	3, 8, 10, 40	3, 10, 8, 28	15, 9, 14, 4	15, 29, 28, 11	17, 10, 14, 16	32, 35, 40, 4	3, 10, 14, 24	2, 35, 24
28	Accuracy of measurement	32, 35, 26, 28	28, 35, 25, 26	28, 26, 5, 16	32, 28, 3, 16	26, 28, 32, 3	26, 28, 32, 3	32, 13, 6	
29	Accuracy of manufacturing	28, 32, 13, 18	28, 35, 27, 9	10, 28, 29, 37	2, 32, 10	28, 33, 29, 32	2, 29, 18, 36	32, 28, 2	25, 10, 35
30	Hamful factors acting on object	22, 21, 27, 39	2, 22, 13, 24	17, 1, 39, 4	1, 18	22, 1, 33, 28	27, 2, 39, 35	22, 23, 37, 35	34, 39, 19, 27
31	Hamfulside-effects	19, 22, 15, 39	35, 22, 1, 39	17, 15, 16, 22		17, 2, 18, 39	22, 1, 40	17, 2, 40	30, 18, 35, 4
32	Manufacturability	28, 29, 15, 16	1, 27, 36, 13	1, 29, 13, 17	15, 17, 27	13, 1, 26, 12	16, 40	13, 29, 1, 40	35
33	Convenience of use	25, 2, 13, 15	6, 13, 1, 25	1, 17, 13, 12		1, 17, 13, 16	18, 16, 15, 39	1, 16, 35, 15	4, 18, 39, 31
34	Repairability	2, 27, 35, 11	2, 27, 35, 11	1, 28, 10, 25	3, 18, 31	15, 13, 32	16, 25	25, 2, 35, 11	1
35	Adaptability	1, 6, 15, 8	19, 15, 29, 16	35, 1, 29, 2	1, 35, 16	35, 30, 29, 7	15, 16	15, 35, 29	
36	Complexity of device	26, 30, 34, 36	2, 36, 35, 39	1, 19, 26, 24	26	14, 1, 13, 16	6, 36	34, 25, 6	1, 16
37	Complexity of control	27, 26, 28, 13	6, 13, 28, 1	16, 17, 26, 24	26	2, 13, 15, 17	2, 39, 30, 16	29, 1, 4, 16	2, 18, 26, 31
38	Level of automation	28, 26, 18, 35	28, 26, 35, 10	14, 13, 17, 28	23	17, 14, 13		35, 13, 16	
39	Productivity	35, 26, 24, 37	28, 27, 15, 3	18, 4, 28, 38	30, 7, 14, 26	10, 26, 34, 31	10, 35, 17, 7	2, 6, 34, 10	35, 37, 10, 2

Appendix 15: TRIZ Matrix (Continued)

Undesired result (Conflict)		9	10	11	12	13	14	15	16
		Speed	Force	Tension, pressure	Shape	Stability of object	Strength	Durability of moving object	Durability of non-moving object
21	Power	15, 35, 2	26, 2, 36, 35	22, 10, 35	29, 14, 2, 40	35, 32, 15, 31	26, 10, 28	19, 35, 10, 38	16
22	Waste of energy	16, 35, 38	36, 38			14, 2, 39, 6	26		
23	Waste of substance	10, 13, 28, 38	14, 15, 18, 40	3, 36, 37, 10	29, 35, 3, 5	2, 14, 30, 40	35, 28, 31, 40	28, 27, 3, 18	27, 16, 18, 38
24	Loss of information	26, 32						10	10
25	Waste of time		10, 37, 36, 5	37, 36, 4	4, 10, 34, 17	35, 3, 22, 5	29, 3, 28, 18	20, 10, 28, 18	28, 20, 10, 16
26	Amount of substance	35, 29, 34, 28	35, 14, 3	10, 36, 14, 3	35, 14	15, 2, 17, 40	14, 35, 34, 10	3, 35, 10, 40	3, 35, 31
27	Reliability	21, 35, 11, 28	8, 28, 10, 3	10, 24, 35, 19	35, 1, 16, 11		11, 28	2, 35, 3, 25	34, 27, 6, 40
28	Accuracy of measurement	28, 13, 32, 24	32, 2	6, 28, 32	6, 28, 32	32, 35, 13	28, 6, 32	28, 6, 32	10, 26, 24
29	Accuracy of manufacturing	10, 28, 32	28, 19, 34, 36	3, 35	32, 30, 40	30, 18	3, 27	3, 27, 40	
30	Harmful factors acting on object	21, 22, 35, 28	13, 35, 39, 18	22, 2, 37	22, 1, 3, 35	35, 24, 30, 18	18, 35, 37, 1	22, 15, 33, 28	17, 1, 40, 33
31	Harmful side-effects	35, 28, 3, 23	35, 28, 1, 40	2, 33, 27, 18	35, 1	35, 40, 27, 39	15, 35, 22, 2	15, 22, 33, 31	21, 39, 16, 22
32	Manufacturability	35, 13, 8, 1	35, 12	35, 19, 1, 37	1, 28, 13, 27	11, 13, 1	1, 3, 10, 32	27, 1, 4	35, 16
33	Convenience of use	18, 13, 34	28, 13, 35	2, 32, 12	15, 34, 29, 28	32, 35, 30	32, 40, 3, 28	29, 3, 8, 25	1, 16, 25
34	Repairability	34, 9	1, 11, 10	13	1, 13, 2, 4	2, 35	11, 1, 2, 9	11, 29, 28, 27	1
35	Adaptability	35, 10, 14	15, 17, 20	35, 16	15, 37, 1, 8	35, 30, 14	35, 3, 32, 6	13, 1, 35	2, 16
36	Complexity of device	34, 10, 28	26, 16	19, 1, 35	29, 13, 28, 15	2, 22, 17, 19	2, 13, 28	10, 4, 28, 15	
37	Complexity of control	3, 4, 16, 35	36, 28, 40, 19	35, 36, 37, 32	27, 13, 1, 39	11, 22, 39, 30	27, 3, 15, 28	19, 29, 39, 25	25, 24, 6, 35
38	Level of automation	28, 10	2, 35	13, 35	15, 32, 1, 13	18, 1	25, 13	6, 9	
39	Productivity			28, 15, 10, 36	10, 37, 14	14, 10, 34, 40	35, 3, 22, 39	29, 28, 10, 18	35, 10, 2, 18
									20, 10, 16, 38

Appendix 15: TRIZ Matrix (Continued)

	17 Undesired result (Conflict)	18 Temperature	19 Brightness	20 Energy spent by moving object	21 Energy spent by non-moving object	22 Power	23 Waste of energy	24 Waste of substance	Loss of information
Feature to Change									
21	Power	2, 14, 17, 25	16, 6, 19	16, 6, 19, 37			10, 35, 38	28, 27, 18, 38	10, 19
22	Waste of energy	19, 38, 7	1, 13, 32, 15			3, 38		35, 27, 2, 37	19, 10
23	Waste of substance	21, 36, 39, 31	1, 6, 13	35, 18, 24, 5	28, 27, 12, 31	28, 27, 18, 38	35, 27, 2, 31		
24	Loss of information		19			10, 19	19, 10		
25	Waste of time	35, 29, 21, 18	1, 19, 26, 17	35, 38, 19, 18	1	35, 20, 10, 6	10, 5, 18, 32	35, 18, 10, 39	24, 26, 28, 32
26	Amount of substance	3, 17, 39		34, 29, 16, 18	3, 35, 31	35	7, 18, 25	6, 3, 10, 24	24, 28, 35
27	Reliability	3, 35, 10	11, 32, 13	21, 11, 27, 19	36, 23	21, 11, 26, 31	10, 11, 35	10, 35, 29, 39	10, 28
28	Accuracy of measurement	6, 19, 28, 24	6, 1, 32	3, 6, 32		3, 6, 32	26, 32, 27	10, 16, 31, 28	
29	Accuracy of manufacturing	19, 26	3, 32	32, 2		32, 2	13, 32, 2	35, 31, 10, 24	
30	Harmful factors acting on object	22, 33, 35, 2	1, 19, 32, 13	1, 24, 6, 27	10, 2, 22, 37	19, 22, 31, 2	21, 22, 35, 2	33, 22, 19, 40	22, 10, 2
31	Harmful side-effects	22, 35, 2, 24	19, 24, 39, 32	2, 35, 6	19, 22, 18	2, 35, 18	21, 35, 2, 22	10, 1, 34	10, 21, 29
32	Manufacturability	27, 26, 18	28, 24, 27, 1	28, 26, 27, 1	1, 4	27, 1, 12, 24	19, 35	15, 34, 33	32, 24, 18, 16
33	Convenience of use	26, 27, 13	13, 17, 1, 24	1, 13, 24		35, 34, 2, 10	2, 19, 13	28, 32, 2, 24	4, 10, 27, 22
34	Repairability	4, 10	15, 1, 13	15, 1, 28, 16		15, 10, 32, 2	15, 1, 32, 19	2, 35, 34, 27	
35	Adaptability	27, 2, 3, 35	6, 22, 26, 1	19, 35, 29, 13		19, 1, 29	18, 15, 1	15, 10, 2, 13	
36	Complexity of device	2, 17, 13	24, 17, 13	27, 2, 29, 28		20, 19, 30, 34	10, 35, 13, 2	35, 10, 28, 29	
37	Complexity of control	3, 27, 35, 16	2, 24, 26	35, 38	19, 35, 16	19, 1, 16, 10	35, 3, 15, 19	1, 13, 10, 24	35, 33, 27, 22
38	Level of automation	26, 2, 19	8, 32, 19	2, 32, 13		28, 2, 27	23, 28	35, 10, 18, 5	35, 33
39	Productivity	35, 21, 28, 10	26, 17, 19, 1	35, 10, 38, 19	1	35, 20, 10	28, 10, 29, 35	28, 10, 35, 23	13, 15, 23

Appendix 15: TRIZ Matrix (Continued)

		25	26	27	28	29	30	31	32
	Undesired result (Conflict)	Waste of time	Amount of substance	Reliability	Accuracy of measurement	Accuracy of manufacturing	Harmful factors acting on object	Harmful side-effects	Manufacturability
	Feature to Change								
21	Power	35, 20, 10, 6	4, 34, 19	19, 24, 26, 31	32, 15, 2	32, 2	19, 22, 31, 2	2, 35, 18	26, 10, 34
22	Waste of energy	10, 18, 32, 7	7, 18, 25	11, 10, 35	32		21, 22, 35, 2	21, 35, 2, 22	
23	Waste of substance	15, 18, 35, 10	6, 3, 10, 24	10, 29, 39, 35	16, 34, 31, 28	35, 10, 24, 31	33, 22, 30, 40	10, 1, 34, 29	15, 34, 33
24	Loss of information	24, 26, 28, 32	24, 28, 35	10, 28, 23			22, 10, 1	10, 21, 32	32
25	Waste of time		35, 38, 18, 16	10, 30, 4	24, 34, 28, 32	24, 26, 28, 18	35, 18, 34	35, 22, 18, 39	35, 28, 34, 4
26	Amount of substance	35, 38, 18, 16		18, 3, 28, 40	13, 2, 28	33, 30	35, 33, 28, 31	3, 35, 40, 39	29, 1, 35, 27
27	Reliability	10, 30, 4	21, 28, 40, 3		32, 3, 11, 23	11, 32, 1	27, 35, 2, 40	3, 52, 40, 26	
28	Accuracy of measurement	24, 34, 28, 32	2, 6, 32	5, 11, 1, 23			28, 24, 22, 26	3, 33, 39, 10	6, 35, 25, 18
29	Accuracy of manufacturing	32, 26, 28, 18	32, 30	11, 32, 1			26, 28, 10, 36	4, 17, 34, 26	
30	Harmful factors acting on object	35, 18, 34	35, 33, 29, 31	27, 24, 2, 40	28, 33, 23, 26	26, 28, 10, 18			24, 35, 2
31	Harmful side-effects	1, 22	3, 24, 39, 1	24, 2, 40, 39	3, 33, 26	4, 17, 34, 26			
32	Manufacturability	35, 28, 34, 4	35, 23, 1, 24		1, 35, 12, 18		24, 2		
33	Convenience of use	4, 28, 10, 34	12, 35	17, 27, 8, 40	25, 13, 2, 34	1, 32, 35, 23	2, 25, 28, 39		2, 5, 12
34	Repairability	32, 1, 10, 25	2, 28, 10, 25	11, 10, 1, 16	10, 2, 13	25, 10	35, 10, 2, 16		1, 35, 11, 10
35	Adaptability	35, 28	3, 35, 15	35, 13, 8, 24	35, 5, 1, 10		35, 11, 32, 31		1, 13, 31
36	Complexity of device	6, 29	13, 3, 27, 10	13, 35, 1	2, 26, 10, 34	26, 24, 32	22, 19, 29, 40	19, 1	27, 26, 1, 13
37	Complexity of control	18, 28, 32, 9	3, 27, 29, 18	27, 40, 28, 8	26, 24, 32, 38		22, 19, 29, 28	2, 21	5, 28, 11, 29
38	Level of automation	24, 28, 35, 30	35, 13	11, 27, 32	28, 26, 10, 34	28, 26, 18, 23	2, 33	2	1, 26, 13
39	Productivity		35, 38	1, 35, 10, 38	1, 10, 34, 28	18, 10, 32, 1	22, 35, 13, 24	35, 22, 18, 39	35, 28, 2, 24

Appendix 15: TRIZ Matrix (Continued)

		Undesired result (Conflict)		33	34	35	36	37	38	39
		Convenience of use	Repairability	Adaptability	Complexity of device	Complexity of control	Level of automation	Productivity		
21	Power	26, 35, 18	35, 2, 10, 34	19, 17, 34	20, 19, 30, 34	19, 35, 16	28, 2, 17	28, 35, 34		
22	Waste of energy	35, 22, 1	2, 19		7, 23	35, 3, 15, 23	2	28, 10, 29, 35		
23	Waste of substance	32, 28, 2, 24	2, 35, 34, 27	15, 10, 2	35, 10, 28, 24	35, 18, 10, 13	35, 10, 18	28, 35, 10, 23		
24	Loss of information	27, 22				35, 33	35	13, 23, 15		
25	Waste of time	4, 28, 10, 34	32, 1, 10	35, 28	6, 29	18, 28, 32, 10	24, 28, 35, 30			
26	Amount of substance	39, 29, 25, 10	2, 32, 10, 25	15, 3, 29	3, 13, 27, 10	3, 27, 29, 18	8, 35	13, 29, 3, 27		
27	Reliability	27, 17, 40	1, 11	13, 25, 8, 24	13, 35, 1	27, 40, 28	11, 13, 27	1, 35, 29, 38		
28	Accuracy of measurement	1, 13, 17, 34	1, 32, 13, 11	13, 35, 2	27, 35, 10, 34	26, 24, 32, 38	28, 2, 10, 34, 28, 32			
29	Accuracy of manufacturing	1, 32, 35, 23	25, 10		26, 2, 18		26, 28, 18, 23	10, 18, 32, 39		
30	Harmful factors acting on object	2, 25, 28, 39	35, 10, 2	35, 11, 22, 31	22, 19, 29, 40	22, 19, 29, 40	33, 3, 34	22, 35, 13, 24		
31	Harmful side-effects				19, 1, 31	2, 21, 27, 1	2	22, 35, 18, 39		
32	Manufacturability	2, 5, 13, 16	35, 1, 11, 9	2, 13, 15	27, 26, 1	6, 28, 11, 1	8, 28, 1	35, 1, 10, 28		
33	Convenience of use		12, 26, 1, 32	15, 34, 1, 16	32, 26, 12, 17		1, 34, 12, 3	15, 1, 28		
34	Repairability	1, 12, 26, 15		7, 1, 4, 16	35, 1, 13, 11		34, 35, 7, 13	1, 32, 10		
35	Adaptability	15, 34, 1, 16	1, 16, 7, 4		15, 29, 37, 28	1	27, 34, 35	35, 28, 6, 37		
36	Complexity of device	27, 9, 26, 24	1, 13	29, 15, 28, 37		15, 10, 37, 28	15, 1, 24	12, 17, 28		
37	Complexity of control	2, 5	12, 26	1, 15	15, 10, 37, 28		34, 21	35, 18		
38	Level of automation	1, 12, 34, 3	1, 35, 13	27, 4, 1, 35	15, 24, 10	34, 27, 25		5, 12, 35, 26		
39	Productivity	1, 28, 7, 19	1, 32, 10, 25	1, 35, 28, 37	12, 17, 28, 24	35, 18, 27, 2	5, 12, 35, 26			

Appendix 16:

No	Keluhan Pelanggan
1	Papan nama kurang terlihat jelas
2	Terkadang Waroenk Ayomass tidak menyediakan es batu
3	Papan nama tertutup oleh mobil dan truck
4	Tempat parkir Waroenk Ayomass penuh
5	Pelayanan Waroenk Ayomass sering main handphone di jam kerja
6	Pelayanan Waroenk Ayomass susah dipanggil
7	Ruangan bagian dalam Waroenk Ayomass sangat panas
8	Rasa makanan terkadang tidak sama seperti sebelumnya
9	Menu makan mie ayam sering tidak tersedia
10	Logo yang terdapat di iklan (brosur, instagram) berbeda dengan logo yang terpasang di papan nama
11	Salah dalam memberikan order
12	Penyajian ayam bakar dan ayam goreng sangat lama
13	Tidak tersedia asbak rokok
14	Tulisan "Waroenk Ayomass" terlalu kecil
15	Harga yang tertera pada brosur berbeda dengan harga di Waroenk Ayomass
16	Waktu operasional kurang lama
17	Waktu operasional terkadang tidak sesuai dengan waktu yang dijanjikan

Appendix 17: Filling Questionnaire



Appendix 18: Discussion About the Proposed Improvement



Appendix 18: Customers' Waroenk Ayomass



