APPENDICES FOR CHAPTER 2.

APPENDIX I

Results of overall factor analysis in chapter 2.

This appendix includes the results of the overall factor analysis of the Q-sort of all respondents from Canada, the Netherlands, and Denmark. First, table A1.1 provides the factor loadings of each respondent all four factors (or profiles as we call them in the results of our study). Next, table A1.2 provides the factor arrays for the four factors (i.e. profiles), indicating how the statements are scored in the different profiles.

Table A1.1 Factor loadings on all four factors

Factor matrix with an X indicating a defining sort					
		Loadings			
Q-sort		Factor 1	Factor 2	Factor 3	Factor 4
1	1MJAO6NH	0.0750	0.3352	0.4947	0.1490
2	LTGLIRZO	0.3580	0.1072	0.0702	0.1218
3	GEPXMI32	0.2831	0.5279 X	0.2840	-0.2665
4	HDUVWIHR	0.6552 X	0.2306	0.2245	0.2141
5	2DOXFHES	0.0565	0.0982	-0.1772	0.6850 X
6	IFGG8VAC	0.2931	0.5505 X	0.1037	0.1962
7	EYLRS9UP	-0.0623	-0.1397	0.4802	-0.0234
8	OYKKTBD9	0.1618	0.0922	0.5507 X	0.2994
9	PQQ04LDM	0.5409 X	0.2495	0.3990	0.1426
10	AXG0BHYL	0.5280 X	0.0656	0.1840	0.0330
11	MPA3THHX	-0.0341	0.4836	-0.2179	0.1902
12	MWTCKGIC	0.4360	0.5726 X	-0.2653	0.2126
13	ENN6A3XB	0.0997	0.4228	0.1688	0.5077
14	SRWLBSHY	-0.3970	0.2190	0.5133	-0.0997
15	KVGTDVUM	0.0658	0.7562 X	0.1336	-0.4996
16	S8EX1ZRB	0.2811	-0.3051	0.4060	0.5483 X
17	D0HB5L1A	0.1326	0.1418	0.4899	-0.1189
18	1O6NQ5K9	-0.1013	0.0462	0.6338 X	-0.1822
19	PHZ4WD9B	0.4548	0.3638	-0.0835	0.4687
20	DHCDNRRQ	-0.0449	-0.2124	0.1810	-0.8315 X
21	E8K3FPSF	-0.4467	0.2259	0.0378	-0.0705
22	0ODV6JNC	0.2406	0.0677	0.0054	0.6254 X
23	WJXXW5IQ	0.3730	-0.2744	0.5680 X	-0.1186
24	L9JYDR8H	0.3979	0.3384	0.2191	-0.0255

Table A1.1 Factor loadings on all four factors (continued)

Factor matrix with an X indicating a defining sort					
		Loadings			
Q-sort		Factor 1	Factor 2	Factor 3	Factor 4
25	ZAWRBJMD	0.1253	0.1860	0.1599	0.7078 X
26	TX6UXN7F	-0.0084	0.1489	0.5978 X	-0.2268
27	78VXZCWM	0.0267	0.4132	0.4576	0.3125
28	MOB87VO2	0.0560	0.5414 X	0.4898	-0.1380
29	PG1MX0JE	0.4132	0.0764	0.2669	0.0969
30	IXFLVF3Y	0.4689	0.3329	0.0928	-0.1877
31	IRWL3ZMT	0.2224	0.4840	0.2414	0.2818
32	RFSPE9TK	0.1852	0.2809	0.6084 X	0.2202
33	QDZQOYS7	-0.0693	0.3892	-0.1153	0.3239
34	T5DCFUBI	0.1383	0.3320	0.1611	0.2688
35	YAELR2BU	0.3253	0.6768 X	0.1208	0.0102
36	6UO5BPRR	0.4035	-0.0646	0.3798	-0.0253
37	P1JFXU28	0.1171	0.4036	0.6747 X	0.0325
38	LKBAGY8D	0.2598	-0.1594	0.2425	0.0208
39	APU6039W	0.3949	0.2615	0.3819	0.2253
40	T21LID4P	0.1453	-0.1799	0.5536 X	-0.0919
41	RUIVNBKZ	0.1634	0.2478	0.8016 X	0.0910
42	1QN2S8PJ	0.0955	0.1233	0.5557 X	0.0681
43	WISGHYZV	0.4997	-0.0035	0.7052 X	0.0866
44	D7YKCJTK	0.3871	0.0789	-0.1350	-0.0163
45	BKJSU9UQ	0.0160	0.1437	0.1024	0.5559 X
46	RWN16OSM	0.6418 X	0.2877	0.1151	0.2466
47	SDBRNJC6	-0.4003	0.2267	0.2382	0.4216
48	ZCBDYZYF	0.5068	0.0616	-0.0043	0.0615
49	93AQDFRO	0.4894	0.1140	0.2268	0.5859 X
50	OX67KDJD	0.0345	-0.0011	0.6387 X	0.3453
51	WDTPU5AQ	0.6977 X	0.0720	-0.0294	0.4540
52	IDZSCF7S	0.3240	0.2336	-0.3273	0.4778
53	O7NVX24T	-0.0091	0.1355	-0.0825	-0.4010
54	FBGKLOTZ	0.5278 X	-0.0589	0.1628	0.3461
55	SVMPADXE	0.5361 X	-0.0534	0.3850	0.5120
56	6CDKRN3S	0.2689	-0.0781	0.1857	0.1916
57	OIR3JPNJ	0.4344	-0.2644	-0.0123	-0.2440
58	H2XYIDZ3	0.5066	0.1107	0.3754	0.6545 X
59	K0HQTEXX	0.2476	0.4751	0.1594	0.1871
60	4VTQYYWJ	0.2765	0.2854	-0.1683	0.4392
61	MMBQDXUV	-0.0823	-0.2259	-0.2183	-0.2429
62	JXU0LSMZ	0.5761 X	0.0146	0.2964	0.3193

Table A1.1 Factor loadings on all four factors (continued)

Factor matrix with an X indicating a defining sort					
		Loadings			
Q-sort		Factor 1	Factor 2	Factor 3	Factor 4
63	FXUNB2WC	0.2101	0.3002	-0.0161	0.2624
64	J9XIWF2A	0.3474	-0.0002	0.0279	0.4355
65	YNOK5ZO7	0.3535	0.1107	-0.0136	0.7691 X
66	WDMN9EQP	0.2571	0.0535	0.5138	0.0131
67	Y9K4BXLU	0.5116	0.0868	0.1533	-0.1058
68	YZHDKE4S	0.2761	0.4897	-0.1585	0.3156
69	MMZWFHU4	0.1643	0.4917	-0.0211	-0.3465
70	1ZCQJ3BA	-0.0646	0.1986	-0.1560	0.6313 X
71	MYEKLCF8	-0.0373	-0.1390	0.5069	0.0887
72	4HYIVU3J	0.4690	0.1808	0.0542	0.1582
73	2LJUNDHY	0.1825	0.1717	0.0089	-0.5180
74	2FNPRPLM	0.2771	-0.1217	0.6161 X	0.2089
75	83K49IN6	0.0932	0.3437	0.1054	-0.0132
76	NPWCMUOZ	0.2564	0.2032	0.1446	-0.0615
77	R8DHAEMH	0.2748	0.2402	0.3951	0.4539
78	GPBYTXBV	-0.0005	0.2909	0.2177	0.6237 X
79	4LSWZPRE	0.0775	0.4134	0.1293	0.2348
80	BOOV214T	0.5693 X	0.1070	0.2560	0.4007
81	1IN7SELH	0.4379	0.2834	0.1677	-0.0923
82	KBZRTQ2B	0.6913 X	0.0617	0.1052	0.5214
83	PKUQCZ7Q	0.0893	0.0949	0.5302 X	0.0102
84	PSUQOPE0	-0.1615	0.6339 X	0.2126	0.3712
85	LBHD1FKV	-0.0056	0.8064 X	-0.1261	0.1449
86	PACSUQ49	-0.0017	0.4314	0.5105	-0.1026
87	WXTIU62N	0.4291	0.3785	0.3638	-0.0739
88	P13S9TPS	0.2636	0.6413 X	0.2125	0.3115
89	QD0MCWB1	0.4613	-0.1200	0.3275	-0.2078
90	1KQTN3C6	-0.0355	0.6548 X	-0.0360	0.4950
91	MX9WEFN6	0.3915	0.4834	-0.0988	0.3061
92	UY8DIR1Z	0.1615	0.0863	0.3408	-0.3902
93	A7LDGEO4	0.0607	0.5311 X	0.0981	0.0882
94	Y9ASYI5Z	0.3833	0.4953	0.3307	0.0198
95	3ACKVGFE	0.5175	0.1119	0.0937	0.0839
96	ORDHLJG8	0.5676 X	0.4166	-0.0537	0.2749
97	TDAJSGVZ	-0.3465	0.2607	0.3129	0.0530
98	P2ESHAYY	0.3480	0.2214	0.2850	0.3347
99	RHJDYOE2	0.1755	0.3878	0.4042	0.2175
100	4NIDCBNH	-0.2153	0.6390 X	0.3024	0.1033

Table A1.1 Factor loadings on all four factors (continued)

Factor matrix with an X indicating a defining sort					
		Loadings			
Q-sort		Factor 1	Factor 2	Factor 3	Factor 4
101	TQIMRAO6	0.3364	0.2110	0.1717	-0.2296
102	AQOBUKET	-0.0812	0.4807	0.0865	0.0705
103	KKRFC1BN	0.3107	0.6697 X	0.1045	-0.0733
104	1HFS0CED	-0.0984	0.6520 X	-0.1695	0.2571
105	YMF4B3VO	0.2234	0.1115	0.2205	0.2095
106	6E2IDZ97	-0.1298	0.6155 X	0.3593	-0.0306
107	PELIVSMB	-0.2074	0.3870	-0.0740	0.6343 X
108	XCV0SWRH	0.0752	0.6659 X	0.0884	0.3671
109	6SEUJUFL	0.1311	0.5886 X	-0.1738	-0.0307
110	UEJR7SAC	0.4314	0.0457	-0.1294	0.1341
111	4I3LZZFW	0.2330	0.3048	0.2124	-0.1754
112	P3YDXLDT	0.2121	0.5795 X	-0.0641	0.1335
113	NLISLTWP	0.4006	0.4409	0.2225	0.3834
114	J7W9PT5I	-0.0208	0.6970 X	-0.0027	-0.1347
115	SKYTJGIB	0.2605	0.2212	0.2705	-0.0234
116	RALS2QNK	-0.2351	0.7106 X	0.3417	0.2406
117	Z0FVWTA2	-0.2452	0.2790	0.0844	-0.1153
118	9BLNEO2I	0.0291	0.5638 X	0.0242	0.1295
119	QMWF2APH	0.2350	0.2153	0.2526	0.2383
Explained variance		10%	13%	10%	10%
Respondents associated with this profile		11	21	13	12

Table A1.2 Factor arrays for our four study factors

Statement	Factor 1	Factor 2	Factor 3	Factor 4
1	-1	0	0	-3
2	-3	0	0	2
3	0	2	0	-1
4	2	1	0	3
5	1	-3	0	-1
6	2	1	3	0
7	0	3	1	0
8	0	1	-1	0
9	-2	-2	-1	-2
10	0	-1	3	1
11	1	2	2	1
12	1	-1	1	2
13	0	-2	-2	-1
14	-3	-3	-1	-2
15	-1	0	-3	0
16	3	1	-2	3
17	-2	-2	-2	-3
18	1	0	0	-2
19	0	3	1	1
20	-2	0	-3	2
21	-1	-1	-1	-1
22	3	-1	2	0
23	-1	0	2	0
24	2	2	1	1

APPENDIX II

Example of the factor interpretation crib sheets used in chapter 2.

This appendix includes an example of the factor interpretation crib sheet that was used to interpret each factor (i.e. profile) stemming from the original analysis, and the separate analysis per country.

Table A2.1 Factor interpretation crib sheet (example)

Factor 2
Statements ranked at +3
19. The public professional must encourage an open attitude towards intensive collaboration and consultation between partners in a public–private partnership. 7. In public–private partnerships it is important for public professionals and private partners to jointly determine how to support each other during the project.
Statements ranked higher in factor 2 array than in other factor arrays
3. In public–private partnerships it is important that collaboration takes place on an equal basis between public professionals, private contractors, and other relevant involved actors. (+2) 11. In public–private partnerships it is important to compose mutually agreed rules of behaviour so that both partners know what to expect. (11: +2) (with factor 3) 15. The public professional must guarantee the collaborative process between partners and create the right conditions to achieve synergy between them. (0) (with factor 4) 1. In public–private partnerships it is important to safeguard public values like equality, democracy and transparency. (0) (with factor 3) 8. In public–private partnerships it is important that the private partner is given the opportunity to monitor its own performance (+1)
Statements ranked lower in factor 2 array than in other factor arrays
10. In public–private partnerships it is important to establish a performance-based relationship between public and private partners. (-1) 12. In public–private partnerships it is important that the private partner is responsible for the implementation of the project, assisted by public professionals where required. (-1) 13. The public professional must prevent that the functioning of public–private partnerships results in unwanted situations (like exclusion, arbitrariness and so on). (-2) (with factor 3) 22. The public professional must hold private partners accountable for delivering on the output specifications and apply sanctions if performance falls short. (-1)
Statement ranked at -3
14. The public professional must apply strict contract management and monitor the performance of the private consortium. 5. In public–private partnerships it is important that political authorities play a significant role in formulating the aim and direction of the project.
Additional items
17. The public professional must keep a clear view of, and control on, what happens in public–private partnerships. (-2) 24. The public professional must have confidence in the private partners to manage their own consortium based on their own expertise. (+2)

APPENDIX III

Results of separate factor analysis per country in chapter 2.

This appendix includes the results of the factor analysis of the Q-sorts per country. It shows how each statement is scored in the different profiles that resulted from the analysis per country.

Table A3.1 Factor arrays for analysis of the Canadian Q-sorts

Statement	Factor 1	Factor 2	Factor 3
1	0	-3	0
2	-1	0	-3
3	2	-1	-2
4	0	3	1
5	-2	-2	-2
6	3	1	3
7	1	0	0
8	0	1	-1
9	-1	-3	-1
10	2	0	2
11	2	1	1
12	0	0	1
13	-1	-1	-2
14	-2	-1	2
15	0	2	-1
16	-3	3	2
17	-3	-2	-1
18	1	-2	0
19	3	2	0
20	-2	2	-3
21	-1	-1	0
22	1	0	3
23	1	0	0
24	0	1	1

Table A3.2 Factor arrays for analysis of the Dutch Q-sorts

Statement	Factor 1	Factor 2	Factor 3
1	0	-1	0
2	1	-3	-3
3	1	2	-2
4	0	1	3
5	-3	-3	-1
6	2	2	2
7	3	2	1
8	0	1	0
9	-1	-2	1
10	0	1	0
11	2	0	2
12	-1	0	1
13	-1	-1	0
14	-3	0	-3
15	0	-1	-2
16	0	1	3
17	-1	-2	-1
18	-2	-1	1
19	3	0	2
20	1	-2	-2
21	-2	0	-1
22	-2	3	0
23	1	0	-1
24	2	3	0

Table A3.3 Factor arrays for analysis of the Danish Q-sorts

Statement	Factor 1	Factor 2	Factor 3
1	-2	-2	0
2	-1	2	-1
3	1	-2	1
4	1	3	0
5	2	0	2
6	3	-1	0
7	-1	0	3
8	0	0	-1
9	-2	-3	-2
10	0	1	0
11	0	3	3
12	2	0	1
13	0	-1	-1
14	-3	-2	-3
15	-1	0	-3
16	1	1	2
17	-3	-3	-2
18	0	-1	1
19	1	1	1
20	0	2	-2
21	-2	-1	-1
22	3	0	0
23	-1	1	0
24	2	2	2

APPENDIX IV

Results of the additional linear regression analyses in chapter 2.

This appendix includes the results of the multiple linear regression analysis conducted as a robustness check, to test if the results of the Q-sort holds.

To perform a linear regression, we used the factor scores for each profile as the dependent variable. The analysis was performed for each profile (model 1 refers to profile 1, model 2 to profile 2, and so on). The difference between professionals working for the public partner or the private partner, the country these respondents come from, and their experience are included as independent variables, using dummies to test them. Each model is linear and has a normal distribution. The analysis shows that all models are significant. The results of the multiple linear regressions can be found in the table below.

Table A4.1 Linear regression analyses

	Model 1		Model 2		Model 3		Model 4	
	β	Sig.	β	Sig.	β	Sig.	β	Sig.
Public versus private professionals (Public professionals as reference)								
Private partner	-.255	.011*	.204	.024*	-.151	.120	.301	.002**
Country (Canada as reference)								
Netherlands	-.160	.140	.427	.000***	-.253	.018*	.125	.221
Denmark	.089	.401	-.072	.457	-.272	.010**	.322	.002**
Experience (< 1 year as reference)								
1-3 years	.005	.971	.068	.574	.121	.355	.212	.093
3-5 years	-.032	.812	-.037	.762	.303	.023*	.328	.011*
5-10 years	.042	.786	-.052	.710	.357	.019*	.321	.028*
> 10 years	-.071	.664	.109	.458	.222	.163	.374	.016*

* p < .05; ** < .01; *** p < .001
β: Standardized Coefficients Beta

APPENDICES FOR CHAPTER 3.

APPENDIX V

Characteristics of the records included in the literature review of chapter 3.

This appendix provides the exact data regarding the characteristics of the records included in the review. For example, the countries analysed in the articles, and an overview of the journals these articles are published in are included.

Table A5.1 Countries analysed in the articles[13]

Country	Number of times studied
Australia	8
Canada	2
China (including Hong Kong)	10
Cyprus	1
Estonia	1
Greece	1
India	2

13 The total number times a country-specific case is studied (70) is larger than the number of articles included in this review (62), because some articles study multiple cases in different countries.

Indonesia	1
Ireland	1
Italy	2
Jordan	1
Malaysia	2
Netherlands	5
Nigeria	1
Norway	1
The Philippines	1
Portugal	1
Singapore	1
South-Africa	1
Spain	3
Sri Lanka	1
UK	11
USA	5
Not mentioned	1
No specific country	6

Table A5.2 Overview of journal articles[14]

Journal	No. of articles included in review	Field of study [14]
ABACUS	1	Business, accounting, and Finance
Administration and Society	2	Public Administration
Asia-Pacific Journal of business administration	1	Business, accounting, and Finance
Asia-Pacific Journal of management	1	Management
Australian Accounting Review	2	Business, accounting, and Finance
Building and Environment	1	Construction and Engineering
Built Environment Project and Asset Management	1	Construction and Engineering
Civil Engineering and Environmental systems	1	Construction and Engineering
Cross cultural & Strategic Management	1	Management
Engineering, construction and architectural management	3	Construction and Engineering | Management
Environment and Planning C: Government and Policy	1	Public Administration
Habitat International	1	Environmental studies | Planning and development | Urban studies
Health Policy	1	Health

14 The classification of the journals is based on the InCites Journal Citation Reports - http://jcr.incites.thomsonreuters.com/JCRLandingPageAction.action. Note that some journals may fall in multiple categories.

International Journal of Disaster resilience in the Built Environment	1	Other
International Journal of Managing projects in business	2	Business, accounting, and Finance | Management
International journal of operations & production management	1	Management
International journal of organizational analysis	1	Organizational studies
International Journal of Project Management	2	Management
International Journal of Public Sector Management	2	Public Administration
International review of Administrative Sciences	3	Public Administration
Journal of Accounting & Organizational Change	1	Business, accounting, and Finance
Journal of business logistics	1	Business, accounting, and Finance | Management
Journal of business research	1	Business, accounting, and Finance
Journal of civil engineering and management	1	Construction and Engineering
Journal of international development	1	Planning and development
Journal of managerial psychology	1	Psychology | Management
Journal of purchasing and supply management	2	Management
Journal of Strategic security	1	Military Science
Management	1	Management
Management and Organization Review	1	Management
Negotiation journal	1	Management | Interdisciplinary social sciences
Nonprofit and voluntary sector quarterly	1	Social issues
Policing and society	1	Criminology & Penology
Policy and Politics	1	Public Administration
Policy and Society	1	Public Administration
Preventing chronic disease	1	Health
Public Administration	2	Public Administration
Public administration and development	1	Public Administration
Public Administration Review	1	Public Administration
Public Management Review	2	Public Administration
Public money and management	2	Public Administration
Public performance and management review	2	Public Administration
Scandinavian political studies	1	Political Science
Social Science and medicine	1	Health | Biomedical Social Sciences
Society and natural resources	1	Environmental studies | planning and development | Sociology
Systems research and behavioural science	1	Management | Interdisciplinary social sciences
Transport reviews	1	Transportation
Urban Geography	1	Geography | Urban studies

APPENDIX VI

Overview of all characteristics, antecedents, and outcomes of relational quality from the literature review of chapter 3.

This appendix provides an overview of all the characteristics, antecedents, and outcomes mentioned in the articles that are included in the literature review of chapter 3.

Table A6.1 Characteristics of social relationships in PPP projects[15]

Characteristics	Number of articles mentioning it
(Mutual) trust	52
Commitment	31
Communication	26
Reciprocity	12
Respect	9
Openness	9
Goodwill	9
Confidence	7
Social capital	7
Fairness	6
Knowledge sharing	6
Common goals	6
Willingness to compromise	4
Mutual understanding	3
Cohesion	3
Responsibility	3
Loyalty	3
Care	2
Other[16]	22
Total	220

Table A6.2 Antecedents of social relationships in PPP projects[16]

Antecedent	Number of articles mentioning it
Shared norms, values, and beliefs	22
Communication	21

15 In the table we clustered terms with similar meaning into one aspects in order to keep the table clear and readable. An example is the merge of the aspects 'communication' and 'social interaction' into one cluster.

16 In the table we clustered terms with similar meaning into one aspects in order to keep the table clear and readable. An example is the merge of the aspects 'shared values and beliefs' and 'shared norms' into one cluster.

Expertise and experience	15
Prior ties	10
Leadership and (process) management	9
Contract & control mechanisms	9
Shared goals and interests	8
Clear division of labor	6
Selecting the right partner	6
Information sharing	6
Reputation	6
(willingness to) compromise	5
Flexibility	5
Personnel turnover	5
Expected benefits for both	5
Professionals' personalities	4
Risk transfer	4
Similar mind set	4
Power balance	4
Geographic proximity	3
Organizational attributes	3
Other[18]	39
Total	195

Table A6.3 Outcomes of social relationships in PPP projects[17]

Outcome	Number of articles mentioning it
Success and performance of PPP project	25
Efficiency, effectiveness	9
Better collaborative process	9
Information sharing	8
Decreased transaction costs	6
More innovation	5
Increased flexibility	5
Higher sustainability	5
Reduced number of conflicts	3
Enhanced problem solving capacity	2
Satisfaction	2
Trust	2
Other[20]	18
Total	99

17 In the table we clustered terms with similar meaning into one aspects in order to keep the table clear and readable. An example is the merge of the aspects 'successful PPP projects' and 'better performance of PPP project' into one cluster.

APPENDICES FOR CHAPTER 4.

APPENDIX VII

Cluster analysis for different countries, project types, and government levels

To check the results for existing clusters in our data, we performed additional analysis to see whether the results vary over the different clusters.

For the clustering it is important to look at both the pooled consistency as well as the cross-sectional consistency for the different clusters in the data. Consistency usually is considered sufficient above the generally accepted threshold of 0.75 (see also Ragin, 2008). The distance between the consistencies of each cluster indicates he differences between the clusters. If the distance is close to zero, the consistencies are (almost) identical between the various clusters. Distances between consistencies of 0.2 or more indicate strong differences between clusters in the dataset (Garcia-Castro & Arinõ, 2016).

The cluster analysis shows, first, that there are no substantial differences between Dutch and Flemish cases included in our study (see Table A7.1). The distance between the consistencies are very small, even the configuration NM*RA is slightly less able to explain Flemish PPP projects. With a consistency of 0.748, it is slightly below the threshold of 0.75. The study also shows that there are no substantial differences between PPP projects on the national and the local level. Both the consistency scores and the distance between consistencies indicate that the solution formula can be used to explain both PPPs on a local as well as a national level (see Table A7.2).

Table A7.1 Cluster analysis between countries

	NM*EXP	NM*RA	EXP*RA
Pooled consistency	0.902	0.839	0.916
Consistency for Belgian cases	0.901	0.748	1.000
Consistency for Dutch cases	0.903	0.882	0.882
Distance from between to pooled	0.001	0.058	0.044

Table A7.2 Cluster analysis between cases on local and national level

	NM*EXP	NM*RA	EXP*RA
Pooled consistency	0.902	0.839	0.916
Consistency for local cases	1.000	1.000	1.000
Consistency for national cases	0.868	0.809	0.899
Distance from between to pooled	0.050	0.075	0.037

Finally, a cluster analysis was performed to check for differences between different types of PPP projects (Table A7.3). Here, the analysis shows that the three configurations are well able to explain transport infrastructure projects, but that the consistency for social infrastructure projects are somewhat lower. In particular the configurations NM*RA and EXP*RA score below the threshold of 0.75. This also leads to small differences between the clusters. In particular, the distance in consistencies for configuration EXP*RA (0.119) suggests some heterogeneity between the different types of PPPs. However, the distance is still well below the threshold of 0.2, suggesting that the differences are only small and no strong differences across type of PPP exist in this dataset.

Table A7.3 Cluster analysis between project type

	NM*EXP	NM*RA	EXP*RA
Pooled consistency	0.902	0.839	0.916
Consistency for social infrastructure	0.845	0.712	0.712
Consistency for transport infrastructure	0.943	0.888	1.000
Distance from between to pooled	0.039	0.078	0.119

APPENDIX VIII

Robustness checks for the QCA analysis in chapter 4.

Due to the required calibration of the data, all QCA studies run the risk of potential measurement errors. Careful and transparent calibration of all conditions might lower this risk, but to test for potential measurement errors, several robustness checks are performed to see if the results hold after the measurement of a condition or outcome is altered. In this appendix I present two robustness checks. First, a different calibration of 'experience' has been used. In the second robustness check, the use of the multi-value construct of 'relational quality' has been replaced by trust. The results of the robustness checks show no significant differences in the analysis of necessity. However, changing the outcome variable from relational quality to trust does have an impact on the solution formula in the analysis of sufficiency.

For the first robustness check, some changes are made in the calibration of the condition 'experience'. The original condition (EXP) is calibrated using the public partners' perception on the private partners experience, corrected using website information in PPP projects. In the recalibrated version, we only use the survey data (EXP2). This means we leave out the information on the constructors' websites regarding PPP projects to correct the survey data. Although the score of experience increases from 0.733 to 0.846, the renewed analysis of necessity shows that still none of the conditions passes the threshold of 0.9, indicating that none of the conditions

is necessary. The analysis of sufficiency shows a few cases changing truth table rows, but this does not have a big impact on the solution formula (see table A8.1). The solution formula shows that the path NM*EXP(2) and the path EXP(2)*RA remain, which slightly different scores. However, the path NM*RA has disappeared. Closer study of the data shows that case P11 and P23 are responsible for this change. Both cases scored below 0.5 when using EXP. Using the recalibrated EXP2, both projects score above the cross-over point of 0.5. This makes the configuration NM*RA unnecessary, as both cases now also display the combination NM*EXP. P11 and P23 were the only two cases that in the original analysis were not covered by both paths, thus their changed set membership in the set EXP2 leads to the disappearance of the path NM*RA. As the solution formula using EXP2 shows only small, non-contradictory changes to the original solution formula, the analysis indicates that the study is fairly robust.

Table A8.1 Conservative solution term, using EXP2 instead of EXP

Configurations →	Path 1	Path 2
	NM*EXP2	EXP2*RA
Consistency	0.882	0.923
Raw coverage	0.668	0.534
Unique coverage	0.245	0.111
Solution consistency	0.875	
Solution coverage	0.779	

In the second robustness check, the outcome has been calibrated differently. Our theoretical argument is that relational quality consists of more than mere trust, even though trust is considered a core concept in this respect. Therefore, instead of using 'relational quality', which has been calibrated using scores on trust, openness, and frequent communication, the outcome has been calibrated using only the core concept of trust. The analysis of necessity shows no significant differences. Still, none of the conditions passes the threshold of 0.9. However, the solution formula (see table A8.2) shows that using trust rather than relational quality does not yield the same results. The configuration NM*RA remains, and the combination EXP*RA is altered only slightly by the addition of ~FC (the absence of frequent communication in the tender phase). However, the configuration NM*EXP changes into NM*~FC, and a fourth configuration appears. The most noteworthy change is the sudden appearance of ~FC. This suggests the importance of the absence of frequent communication for high mutual trust between project partners. The explicit mentioning of ~FC is particularly surprising as it seems to contradict most theories in this respect. In general, frequent communication is considered rather important for trust. Here, the explicit absence of frequent communication in the tender phase seems to lead to trust between project

partners. So, the change from relational quality as the outcome variable into trust, does have an effect on the robustness of the paper. This suggests that extra care has to be taken in how to measure relational quality. Trust is not considered the exact same as relational quality as it is currently used in this paper.

Table A8.2 Conservative solution term, using Trust instead of Relational Quality

Configurations →	Path 1	Path 2	Path 3	Path 4
	NM*~FC	NM*RA	~FC*~EXP*~RA	~FC*EXP*RA
Consistency	0.893	0.880	0.855	0.884
Raw coverage	0.485	0.477	0.379	0.277
Unique coverage	0.041	0.207	0.051	0.022
Solution consistency	0.839			
Solution coverage	0.786			

APPENDICES FOR CHAPTER 5.

APPENDIX IX

Means, standard deviations and correlations (n= 94) for the analysis in chapter 5.

Table A9.1 Means, standard deviations and correlations (n= 94)

	M	SD	1	2	3	4	5	6	7
1. perceived performance	3.98	0.49	1						
2. cooperation	3.39	0.75	0.46***	1					
3. management	3.89	0.58	0.37***	0.30**	1				
4. trust	6.71	1.95	0.41***	0.43***	0.40***	1			
5. technical complexity	7.31	2.13	0.30**	0.02	0.04	0.08	1		
6. project phase (1 = building finished)	0.36	0.48	0.27**	0.23*	0.13	0.20	0.02	1	
7. organizational background (1 = public partner)	0.48	0.50	-0.16	-0.15	-0.03	0.05	-0.18	-0.10	1

Note: *** p < .001; ** p < .01; * p < .05

APPENDIX X

The intercept only

The intercept only with the outcome variable 'perceived project performance' (PER1)
Summary of the model specified:
Level-1 Model

$$PER1_{ij} = \beta_{0j} + r_{ij}$$

Level-2 Model

$\beta_{0j} = \gamma_{00} + u_{0j}$

Mixed Model

$PER1_{ij} = \gamma_{00} + u_{0j} + r_{ij}$

Final Results

$\sigma^2 = 0.14642$

Standard error of $\sigma^2 = 0.02613$

τ

INTRCPT1,β_0	0.09961

Standard error of τ

INTRCPT1,β_0	0.03724

Table A10.1 Intercept only 'perceived project performance'

Random level-1 coefficient	Reliability estimate
INTRCPT1,β_0	0.552

The value of the log-likelihood function at iteration 8 = -7.179775E+001

Table A10.2 Final estimation of fixed effects

Fixed effect	Coefficient	Standard error	*t*-ratio	Approx. *d.f.*	*p*-value
For INTRCPT1, β_0					
INTRCPT2, γ_{00}	3.997710	0.060063	66.558	49	<0.001

Table A10.3: Final estimation of fixed effects (with robust standard errors)

Fixed effect	Coefficient	Standard error	*t*-ratio	Approx. *d.f.*	*p*-value
For INTRCPT1, β_0					
INTRCPT2, γ_{00}	3.997710	0.060057	66.566	49	<0.001

Table A10.4: Final estimation of variance components

Random effect	Standard deviation	Variance component	*d.f.*	χ^2	*p*-value
INTRCPT1, u_0	0.31561	0.09961	49	119.73308	<0.001
level-1, r	0.38264	0.14642			

The intercept only with the outcome variable 'cooperation' (SAM1)

Summary of the model specified

Level-1 Model

$SAM1_{ij} = \beta_{0j} + r_{ij}$

Level-2 Model

$\beta_{0j} = \gamma_{00} + u_{0j}$

Mixed Model

$SAM1_{ij} = \gamma_{00} + u_{0j} + r_{ij}$

Final Results

$\sigma^2 = 0.37682$

Standard error of $\sigma^2 = 0.06858$

τ

INTRCPT1,β_0	0.21086

Standard error of τ

INTRCPT1,β_0	0.08733

Table A10.5: Intercept only 'cooperation'

Random level-1 coefficient	Reliability estimate
INTRCPT1,β_0	0.503

The value of the log-likelihood function at iteration 17 = -1.172110E+002

Table A10.6: Final estimation of fixed effects

Fixed effect	Coefficient	Standard error	*t*-ratio	Approx. *d.f.*	*p*-value
For INTRCPT1, β_0					
INTRCPT2, γ_{00}	3.373292	0.091571	36.838	49	<0.001

Table A10.7: Final estimation of fixed effects (with robust standard errors)

Fixed effect	Coefficient	Standard error	*t*-ratio	Approx. *d.f.*	*p*-value
For INTRCPT1, β_0					
INTRCPT2, γ_{00}	3.373292	0.091564	36.841	49	<0.001

Table A10.8: Final estimation of variance components

Random effect	Standard deviation	Variance component	*d.f.*	χ^2	*p*-value
INTRCPT1, u_0	0.45919	0.21086	49	107.36216	<0.001
level-1, r	0.61386	0.37682			

APPENDIX XI

The Lindell and Whitney test

The Lindell and Whitney test uses a theoretically unrelated construct as a marker variable to adjust the correlations between the principal constructs. Any high correlation among these items would be an indicator of common method bias. We used a survey variable that is not used in this study to answer our research question as a marker (to what extent are societal groups involved?). Table A11.1 shows the correlation coefficients and the R-squared between variables in the model and the marker. The highest value corresponds to the perceived performance variable. The R-squared of this correlation coefficient shows the maximum percentage of variance shared between factors. If common sources bias were a concern, we would obtain high levels of dependency between factors and the marker. In our study however, a low level of common source effect is shared between constructs (R2=0.025).

Table A11.1 Correlation and R2 between variables and marker

Variables in the model	Pearson's coefficient	R2
Cooperation	0.128	0.016
Perceived performance	0.158	0.025
Management	0.034	0.001
Trust	0.056	0.003
Organizational background	- 0.111	0.012
Project phase	- 0.127	0.016
Technical complexity	0.073	0.005

APPENDICES FOR CHAPTER 6.

APPENDIX XII

The calibration procedure used in chapter 6.

This appendix provides further details about the calibration of the four conditions (risk allocation, the application of sanctions, conflict management, and trust) and the outcome (outstanding performance).

Outstanding performance

In this article, we have defined successful PPPs as projects with outstanding performance (OP). In an earlier attempt, successful PPPs were defined as 'good performance', but many projects scored reasonably well, leading to too little variation between the

projects. Therefore, we raised the bar, wondering what distinguishes exceptionally good projects from poor or reasonable performing PPP projects. Outstanding performance was calibrated using four conditions:

- On time delivery
- On budget delivery
- Value for money
- Satisfaction

The first three conditions are calibrated individually for each project. A score of zero means that respondents agree that the criteria have not been met (e.g. no on time delivery, or no on budget delivery). If respondents agree that the criteria have been a scores of one is given. When respondents partially agree with the statement, or if there are minor differences of opinion (e.g. one actor totally agrees that value for money has been delivered, while the other only partially agrees), the project will receive a score of 0.67. Large differences of opinion between partners (e.g. the public partner agrees that the project was delivered on budget, but the private partner strongly disagrees with this statement) will result in a score of 0.33.

The initial score for the project is then determined according to the following scheme:

Table A12.1 Calibration of individual indicators for 'outstanding performance'

Situation	Calibration OP
All three conditions are calibrated with a 1	1
All conditions have a score above the cross over point, but at least one of them scores 0.67	0.67
One out of three conditions scores below the cross over point. The other two score above.	0.33
Two or three out of three conditions score below the cross over point.	0

These initial scores are corrected using the indicator satisfaction. Satisfaction is calibrated in the same way as the other three conditions. Satisfaction scores can be used to adept the initial score. If the difference between the assessment of the 'traditional' performance measures and the satisfaction of the partners with the project is substantial, qualitative interview data are used to provide information on whether respondents merely try keeping up appearances by giving a high satisfaction score or whether they have other reasons to be satisfied with the project performance. This finally results in the 'final score' for outstanding performance.

Table A12.2 Calibration of 'outstanding performance'

Project	On time delivery	On budget delivery	Value for money	Initial score	Satisfaction	Final score
P1NG	0.51	0.00	0.33	0.00	0.67	0.00
P2BG	0.33	0.33	0.67	0.00	0.67	0.00
P3NTI	1.00	0.33	0.67	0.33	0.33	0.00
P4NG	0.33	0.33	1.00	0.00	0.33	0.00
P5BTI	0.33	1.00	0.33	0.00	0.67	0.00
P6BTI	0.51	1.00	0.33	0.33	0.67	0.33
P7NTI	1.00	0.33	1.00	0.33	1.00	0.67
P8NTI	0.51	0.51	1.00	0.67	0.67	0.67
P9NG	1.00	0.33	0.67	0.33	0.67	0.33
P10BTI	1.00	0.33	1.00	0.33	1.00	0.33
P11NTI	1.00	0.33	1.00	0.33	1.00	0.33
P12BG	0.00	1.00	1.00	0.33	1.00	0.33
P13BG	0.67	0.33	1.00	0.33	1.00	0.33
P14NTI	1.00	0.33	1.00	0.33	0.67	0.67
P15NTI	0.51	1.00	1.00	0.67	0.67	0.67
P16NG	0.33	0.33	1.00	0.00	0.67	0.33
P17BG	0.33	0.33	0.67	0.00	1.00	0.33
P18NTI	1.00	0.67	1.00	0.67	1.00	1.00
P19BTI	1.00	1.00	1.00	1.00	1.00	1.00
P20NG	0.67	1.00	1.00	0.67	1.00	0.67
P21BTI	1.00	0.67	1.00	0.67	1.00	0.67
P22BTI	1.00	1.00	1.00	1.00	1.00	1.00
P23NG	1.00	0.67	1.00	0.67	1.00	0.67
P24BG	1.00	1.00	1.00	1.00	1.00	1.00
P25BG	1.00	1.00	1.00	1.00	1.00	1.00

Risk allocation

For the calibration of the condition risk allocation, we used a relatively straightforward method, determining the scores on the number and type of tasks that were transferred to the private partner or deliberately remained a responsibility of the private partner. We limited ourselves to the formal risk allocation. However, we also tested a calibration using a combination of aspects on risk allocation, namely the formal risk allocation and the perceptions on the fairness of this allocation. However, this way of calibrating the data leads to very paradoxical scores. In projects where partners pay attention to a proper risk division, the partners are also well aware of the fact that partners are sometimes unable to carry the risks they have been given. In projects where only limited attention was given to risk division, and the private partner carried most of the risks, both partners were less worried about the question

whether partners would be able to deal with the consequences of these risks. This resulted in lower scores for the first group on 'proper risk allocation', and higher scores for the second group, which does not reflect the basic theoretical assumptions underlying this condition.

Strict application of sanctions

In the calibration of this condition data stems from the survey data, using the statement: 'We sometimes deviate from the sanctions as described in the contract in order to maintain a good relationship between the partners involved in the project.' Furthermore, qualitative interview data is used to distinguish the reasons for imposing or remitting sanctions in order to determine the set membership score on the condition 'strict application of sanctions'. If there is a strict application of sanctions, sanctions will always be applied if the monitoring process shows that performance does not live up to the required standards. If there is no strict application of sanctions, sanctions are not always applied. Sometimes sanctions are cancelled due to circumstances or because the shortcomings are beyond the power of the partner to prevent them. A project with a full membership score of 1 in the set 'strict application of sanctions' can be defined as *'a project in which obligatory sanctions are imposed without any exceptions. The optional sanctions are usually imposed, unless there are very compelling reasons not to. There are no or limited options to discuss the sanction.'* A project with a score of 0 would mean that *'optional sanctions are hardly ever imposed, while obligatory sanctions are avoided as much as possible. There would be many examples in the project of sanctions not being imposed, even if there was an opportunity to do so.'*

Conflict management

The calibration of the condition conflict management is done using a Generic Membership Evaluation Template suggested by Tóth et al. (2017). This allows us to provide a clear overview of the qualitative data on this condition per project. Differences between actors can be included in the form. Table A12.3 provides an example of the GMET for the condition conflict management.

Table A12.3 GMET used to calibrate 'conflict management'

Generic Membership Evaluation Template (GMET)				
Membership in the set of 'good conflict management'				
Overall case description from a 'conflict management' perspective	*Here, we give a description of the case in terms of conflict, differences of opinion, and the way the partners in the project deal with them.*			
Dimensions	Context-specific description	Direction/ effect on membership	Intensity/ relative importance	Illustrative quotes
Nature of agreements on conflict management Focus of the agreements on conflict management Timing of agreements on conflict management Early attention for potential 'sensitive issues'	*Description of the presence of this dimension in the case*	*Negative, neutral or positive*	*High, medium, or low*	*State quotes from the interviews*
Supportive Quantitative data	*Here, we include the scores of the respondents in the case based on the statements: 'Conflicts between public and private partners are resolved constructively', and 'The partners involved in the project succeeded in controlling differences of opinion in an adequate matter.'*			
Set membership in 4-value fuzzy set	*Here, we insert our score on the 4-value fuzzy set*			
Reason for fuzzy-set attribution score	*Give a qualitative explanation for scoring the project with the above-mentioned membership score.*			

Guidelines towards the decision of the set membership score for each project in 4-value fuzzy set:

1: Overall intense and various positive dimensions - The project had both formal and informal agreements on conflict management, the agreements were focused on both prevention and solving conflicts, the agreements were made early in the process, and there was early attention for potential 'sensitive' issues.

0.67: Mostly positive dimensions with a few negative dimensions - For example, a project has both formal and informal agreements on conflict management, focused on preventing and solving conflicts, and there was some attention to 'sensitive issues.' However, the agreements were only installed after a conflict arose during the construction phase.

0.33: Mostly negative dimensions with a few positive dimensions - For example, a project has both formal and informal agreements on solving conflicts that have been established early in the process. However, there is no early attention for potential sensitive issues, and there are no agreements made on how to prevent the rise of conflicts.

0: Overall intense and various negative dimensions

Trust

In determining the set membership score for the condition trust, survey data on five statements (see below) are used. The statements can be found below:

- To what extent do the partners involved in this project fulfil their agreements?
- To what extent do the partners involved in this project give each other the benefit of the doubt?
- To what extent do the partners involved take each other's interests into account?
- To what extent can the partners involved in this project assume that the intentions of the other partner are in principle good?
- To what extent do the partners involved in this project use the efforts of the other partner for their own gain (at the expense of joint goals)?

Results

The result of the calibration procedure is shown in Table A12.4 below.

Table A12.4 Results of the calibration process

Project	Risk allocation (RA)	Strict application of sanctions (S)	Conflict management (CM)	Trust (T)	Outstanding performance (OP)
P1NG	0.00	0.33	0.67	0.00	0.00
P2BG	0.00	0.67	0.00	0.00	0.00
P3NTI	0.33	0.67	0.33	0.00	0.00
P4NG	0.00	0.67	0.33	0.33	0.00
P5BTI	0.33	0.00	0.33	0.67	0.00
P6BTI	0.67	1.00	0.00	0.33	0.33
P7NTI	0.67	0.33	1.00	0.67	0.67
P8NTI	0.33	0.00	1.00	0.67	0.67
P9NG	0.00	1.00	0.00	0.67	0.33
P10BTI	0.67	1.00	0.33	0.67	0.33
P11NTI	0.67	0.67	1.00	1.00	0.33
P12BG	0.33	0.33	0.33	0.67	0.33
P13BG	0.00	0.67	0.67	0.67	0.33
P14NTI	1.00	0.33	1.00	0.67	0.67
P15NTI	1.00	1.00	1.00	1.00	0.67
P16NG	0.33	0.67	0.33	0.33	0.33
P17BG	0.00	0.67	0.33	0.33	0.33
P18NTI	1.00	0.00	1.00	0.67	1.00
P19BTI	0.33	0.33	0.33	0.67	1.00
P20NG	1.00	0.67	1.00	0.33	0.67
P21BTI	0.00	0.33	0.33	0.67	0.67
P22BTI	1.00	0.33	0.33	0.67	1.00
P23NG	0.67	1.00	0.00	0.67	0.67
P24BG	0.67	1.00	0.67	0.67	1.00
P25BG	0.00	0.33	0.33	1.00	1.00

APPENDIX XIII

Additional analysis for the QCA in chapter 6.

Most parsimonious solution term and the intermediate solution term

In the analysis, we also produced the most parsimonious solution term. This includes a simplifying assumption on truth table row 7. The most parsimonious solution term is only slightly different from the conservative solution term. Based on the theoreti-

cal expectations that all four conditions in their presence contribute to outstanding PPP performance, the intermediate solution term is created. This creation results in exactly the same solution term as the conservative solution term presented earlier.

Table A13.1 Most parsimonious solution term

Configurations →	Path 1	Path 2	Path 3
	T*RA	RA*CM	T*CM*~S
Consistency	0.845	0.770	0.901
Raw coverage	0.594	0.540	0.485
Unique coverage	0.109	0.054	0.135
Solution consistency	0.784		
Solution coverage	0.783		

Table A13.2 Intermediate solution term

Configurations →	Path 1	Path 2	Path 3
	T*RA	RA*CM*S	T*CM*~S
Consistency	0.845	0.823	0.901
Raw coverage	0.594	0.377	0.485
Unique coverage	0.109	0.028	0.135
Solution consistency	0.823		
Solution coverage	0.757		

Cluster analysis for different countries, project types, and government levels

To check the results for existing clusters in our data, we performed additional analysis to see if the results vary over the different clusters. For the clustering based on country both the pooled consistency and the cross-sectional consistency for each individual country in the set is rather high (see also table A13.3 below). Only the consistency for the Dutch cases in the configuration RA*CM*S is below the generally accepted threshold of 0.75 (see also Ragin 2008). Important is also the distance between the between consistencies, and the overall consistency. If this distance is close to zero, this indicates that the consistencies are (almost) identical between the countries (Garcia-Castro & Arinõ 2016). The results show that most configurations hold for both the Dutch as well as the Belgian cases. The differences in terms of consistency are limited. For the first two configurations (T*RA and T*CM*~S) this is close to zero, indicating that there are no differences between countries with regard to these configurations. The adjusted distance of 0.112 for the configuration RA*CM*S indicates some of heterogeneity across countries. Since all distances between consistencies are below 0.2, none of the adjusted-distances suggest the existence of strong differences across country in the dataset (Garcia-Castro & Arinõ 2016).

Table A13.3 Cluster analysis between countries

	T*RA	T*CM*~S	RA*CM*S
Pooled consistency	0.845	0.901	0.823
Consistency for Belgian cases	0.799	0.875	1.000
Consistency for Dutch cases	0.875	0.918	0.727
Distance from between to pooled	0.032	0.017	0.112

For the clustering between types of project (transport versus social infrastructure) the analysis shows that the consistency scores are rather good, except for the consistency for the transport infrastructure PPPs in the configuration RA*CM*S. With 0.726, this is just below the threshold of 0.75. Only the adjusted difference for the configuration RA*CM*S shows some heterogeneity, but none of them suggests the existence of strong differences between the two types of cases.

Table A13.4 Cluster analysis between project types

	T*RA	T*CM*~S	RA*CM*S
Pooled consistency	0.845	0.901	0.823
Consistency for social infrastructure PPPs	1.000	0.857	1.000
Consistency for transport infrastructure PPPs	0.789	0.924	0.726
Distance from between to pooled	0.084	0.026	0.112

Finally, we also tested for differences between the local and the national level. All consistency scores, both the pooled consistency and the between consistencies are above the threshold of 0.75. Moreover, none of the adjusted distances indicates heterogeneity. There is no sign of differences between the cases on a local and national level.

Table A13.5 Cluster analysis between cases on local and national level

	T*RA	T*CM*~S	RA*CM*S
Pooled consistency	0.845	0.901	0.823
Consistency for national level PPPs	1.000	1.000	1.000
Consistency for local level PPPs	0.809	0.883	0.785
Distance from between to pooled	0.075	0.044	0.085

Robustness tests

Despite all efforts to provide a solid calibration of the conditions used in this study, the risk of potential measurement errors remains. As most conditions in this study are calibrated using qualitative interview data and in-depth case knowledge, it is hard to artificially determine different thresholds. Moreover, alternative calibration without

harming the underlying (theoretical) principles is not always possible. However, in order to test for potential measurement errors, we performed two robustness tests using different calibrations of the conditions 'trust'. The conditions trust is only based qualitative survey data, which allows us to change the threshold more easily. In the first robustness test the same five indicators for trust are included, but the thresholds are altered. The cross-over point of 0.5 in the original condition trust (T) was set at 30,5. In the alternative calibration of trust (T2), we altered the cross-over point to 33. The threshold determining the difference between a membership score of 0 and a score of 0.33 changed from 25,25 to 22. The threshold determining the difference between a membership score of 0.67 and 1 remained at 40. Using these thresholds, we performed a new analysis. The analysis of necessity had the same results as the original analysis. The truth table displayed a few differences. Truth table row 10, 11, 12 were not regarded as sufficient for the outcome in the analysis using T2 due to inclusion cuts below 0.8. As we excluded row 10 and 12 in the original analysis due to the presence of deviant cases consistency in kind, not including row 11 remains the only difference. Although the set membership score of the case in row 11 remains the same, the inclusion cut for this row drops below 0.8. This results in a different solution formula (see Table A13.6) in which the third path disappeared. This can be explained easily, as the case covered in truth table row 11 was the only uniquely covered case in path 3. Path 1 and 2 remain exactly the same.

Table A13.6 Conservative solution term, using T2 instead of T.

Configurations →	**Path 1**	**Path 2**
	T*RA	RA*CM*S
Consistency	0.845	0.823
Raw coverage	0.594	0.377
Unique coverage	0.245	0.028
Solution consistency	0.821	

In the second robustness test we included only four indicators for trust. These four indicators were formulated in a positive way. The only statement that was formulated in a negative way was excluded, as respondents might overlook the negative phrasing of this statement and score it similar as the four positive statements. As the maximum score now changed from 50 to 40, we also altered the thresholds. The cross-over point of 0.5 in the original condition trust (T) was set at 30,5. In this alternative calibration using only four indicators (T3), the cross-over point is 28. The threshold determining the difference between a membership score of 0 and a score of 0.33 changed from 25,25 to 19.9. Finally, the threshold determining the difference between a membership score of 0.67 and 1 changed from 40 to 34. Using T3 as an alternative calibration

of trust, the results of the analysis were almost identical to the original analysis. Both the analysis of necessity and the conservative solution term in the analysis of sufficiency are identical to the original analysis. The only difference is that some of the truth table rows had a slightly higher inclusion cut, but as the same rows remained included in the analysis, this is not a substantial change.

Table A13.7 Conservative solution term, using T3 instead of T.

Configurations →	**Path 1**	**Path 2**	**Path 3**
	T*RA	RA*CM*S	T*CM*~S
Consistency	0.845	0.823	0.901
Raw coverage	0.594	0.377	0.485
Unique coverage	0.109	0.028	0.135
Solution consistency	0.800		
Solution coverage	0.757		

Based on the results of the robustness tests as described above, we would argue that the results of our analysis are fairly robust. The changed calibration of the conditions trust had no major effect as the results are close to the original. The use of the altered condition T3 resulted in an identical conservative solution formula. It displayed the same INUS conditions. The results for the analysis using T2 were not as good, but still satisfying as the new solution did not contradict the old one. Moreover, the new solution formula was a subset of the original conservative solution formula. Therefore, both solutions are in a set relation, which indicates that the results are fairly robust (see Skaaning 2011; Schneider & Wagemann 2012).