**Table A.1**

Percentage evaluation matrices of the three decision makers.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| First Decision Maker | | | | | | | | | | | |
| Tools | | Tool1 | Tool2 | Tool3 | Tool4 | Tool5 | Tool6 | Tool7 | Tool8 | Tool9 | Tool10 |
| C1 | C1-1 | 85% | 95% | 100% | 30% | 25% | 35% | 30% | 15% | 10% | 35% |
| C1-2 | 90% | 75% | 65% | 80% | 30% | 20% | 5% | 70% | 30% | 5% |
| C1-3 | 60% | 90% | 60% | 70% | 40% | 25% | 10% | 90% | 35% | 20% |
| C1-4 | 55% | 100% | 90% | 100% | 20% | 10% | 35% | 25% | 40% | 15% |
| C1-5 | 80% | 100% | 75% | 10% | 35% | 35% | 25% | 15% | 20% | 10% |
| C1-6 | 95% | 10% | 30% | 90% | 10% | 30% | 25% | 35% | 15% | 30% |
| C1-7 | 40% | 25% | 45% | 60% | 5% | 30% | 40% | 60% | 20% | 45% |
| C1-8 | 5% | 40% | 15% | 20% | 20% | 90% | 40% | 45% | 15% | 5% |
| C2 | C2-1 | 90% | 60% | 55% | 95% | 95% | 65% | 80% | 15% | 45% | 35% |
| C2-2 | 100% | 35% | 40% | 20% | 20% | 40% | 65% | 5% | 35% | 40% |
| C2-3 | 25% | 25% | 20% | 5% | 45% | 45% | 10% | 5% | 15% | 45% |
| C2-4 | 5% | 30% | 30% | 30% | 30% | 15% | 40% | 35% | 30% | 45% |
| C2-5 | 15% | 15% | 10% | 15% | 20% | 35% | 45% | 40% | 35% | 10% |
| C2-6 | 90% | 5% | 55% | 10% | 100% | 20% | 100% | 35% | 40% | 25% |
| C2-7 | 55% | 15% | 60% | 35% | 95% | 65% | 85% | 35% | 45% | 40% |
| C2-8 | 75% | 45% | 40% | 25% | 95% | 10% | 55% | 45% | 30% | 30% |
| *C3* | C3-1 | 80% | 75% | 70% | 60% | 65% | 85% | 5% | 25% | 5% | 45% |
| C3-2 | 100% | 65% | 70% | 60% | 65% | 80% | 10% | 40% | 10% | 45% |
| C3-3 | 65% | 90% | 85% | 65% | 90% | 95% | 5% | 20% | 40% | 45% |
| C3-4 | 60% | 90% | 95% | 60% | 90% | 65% | 35% | 45% | 20% | 5% |
| C3-5 | 85% | 55% | 35% | 70% | 25% | 10% | 10% | 5% | 30% | 20% |
| C3-6 | 60% | 40% | 70% | 45% | 45% | 20% | 30% | 45% | 40% | 15% |
| C4 | C4-1 | 100% | 40% | 10% | 25% | 25% | 25% | 40% | 30% | 65% | 60% |
| C4-2 | 65% | 15% | 30% | 15% | 45% | 40% | 30% | 20% | 80% | 60% |
| C4-3 | 85% | 35% | 5% | 20% | 25% | 10% | 20% | 30% | 65% | 40% |
| C4-4 | 95% | 15% | 15% | 35% | 25% | 5% | 40% | 65% | 55% | 80% |
| Second Decision Maker | | | | | | | | | | | |
| Tools | | Tool1 | Tool2 | Tool3 | Tool4 | Tool5 | Tool6 | Tool7 | Tool8 | Tool9 | Tool10 |
| C1 | C1-1 | 100% | 85% | 85% | 15% | 5% | 30% | 30% | 25% | 25% | 40% |
| C1-2 | 100% | 70% | 80% | 90% | 5% | 10% | 35% | 65% | 40% | 40% |
| C1-3 | 75% | 90% | 65% | 80% | 30% | 40% | 15% | 90% | 45% | 10% |
| C1-4 | 70% | 65% | 55% | 60% | 20% | 20% | 5% | 25% | 35% | 5% |
| C1-5 | 65% | 55% | 90% | 20% | 45% | 15% | 10% | 30% | 20% | 5% |
| C1-6 | 75% | 15% | 10% | 70% | 20% | 35% | 35% | 20% | 20% | 10% |
| C1-7 | 15% | 30% | 15% | 80% | 10% | 35% | 45% | 90% | 20% | 10% |
| C1-8 | 25% | 45% | 15% | 5% | 25% | 60% | 20% | 5% | 35% | 30% |
| C2 | C2-1 | 75% | 85% | 80% | 80% | 100% | 60% | 100% | 30% | 25% | 5% |
| C2-2 | 65% | 35% | 25% | 45% | 30% | 10% | 70% | 40% | 45% | 25% |
| C2-3 | 10% | 30% | 40% | 5% | 20% | 30% | 10% | 25% | 20% | 35% |
| C2-4 | 20% | 25% | 40% | 35% | 15% | 40% | 20% | 30% | 20% | 10% |
| C2-5 | 25% | 40% | 40% | 45% | 40% | 25% | 30% | 15% | 45% | 15% |
| C2-6 | 70% | 20% | 100% | 30% | 100% | 10% | 85% | 30% | 25% | 15% |
| C2-7 | 85% | 25% | 60% | 35% | 70% | 90% | 80% | 15% | 35% | 10% |
| C2-8 | 75% | 10% | 45% | 15% | 55% | 45% | 70% | 40% | 10% | 15% |
| *C3* | C3-1 | 75% | 90% | 55% | 75% | 60% | 65% | 10% | 40% | 25% | 40% |
| C3-2 | 90% | 80% | 65% | 55% | 80% | 95% | 10% | 45% | 5% | 15% |
| C3-3 | 95% | 70% | 55% | 70% | 60% | 65% | 10% | 20% | 30% | 35% |
| C3-4 | 90% | 90% | 85% | 70% | 65% | 95% | 35% | 25% | 35% | 25% |
| C3-5 | 90% | 60% | 45% | 65% | 25% | 40% | 25% | 30% | 45% | 25% |
| C3-6 | 80% | 5% | 80% | 40% | 20% | 25% | 10% | 40% | 30% | 35% |
| C4 | C4-1 | 80% | 30% | 10% | 25% | 15% | 25% | 35% | 5% | 85% | 90% |
| C4-2 | 85% | 30% | 25% | 40% | 25% | 45% | 10% | 10% | 95% | 100% |
| C4-3 | 55% | 30% | 30% | 40% | 15% | 5% | 40% | 45% | 75% | 10% |
| C4-4 | 65% | 45% | 10% | 15% | 5% | 25% | 25% | 100% | 75% | 90% |
| Third Decision Maker | | | | | | | | | | | |
| Tools | | Tool1 | Tool2 | Tool3 | Tool4 | Tool5 | Tool6 | Tool7 | Tool8 | Tool9 | Tool10 |
| C1 | C1-1 | 60% | 80% | 95% | 30% | 40% | 10% | 15% | 25% | 5% | 40% |
| C1-2 | 55% | 95% | 80% | 100% | 5% | 5% | 35% | 65% | 20% | 45% |
| C1-3 | 60% | 60% | 55% | 85% | 30% | 25% | 10% | 60% | 40% | 25% |
| C1-4 | 60% | 75% | 65% | 55% | 15% | 20% | 30% | 15% | 30% | 40% |
| C1-5 | 60% | 55% | 80% | 15% | 30% | 35% | 40% | 10% | 15% | 30% |
| C1-6 | 100% | 20% | 25% | 60% | 40% | 25% | 45% | 15% | 45% | 35% |
| C1-7 | 15% | 35% | 10% | 85% | 20% | 20% | 20% | 60% | 5% | 5% |
| C1-8 | 45% | 5% | 15% | 5% | 35% | 55% | 25% | 40% | 15% | 25% |
| C2 | C2-1 | 85% | 85% | 90% | 85% | 60% | 65% | 85% | 45% | 40% | 15% |
| C2-2 | 95% | 15% | 30% | 25% | 25% | 25% | 90% | 10% | 30% | 15% |
| C2-3 | 20% | 30% | 10% | 15% | 30% | 20% | 25% | 35% | 35% | 45% |
| C2-4 | 15% | 10% | 35% | 25% | 35% | 45% | 20% | 5% | 25% | 10% |
| C2-5 | 10% | 20% | 20% | 35% | 15% | 5% | 15% | 30% | 10% | 25% |
| C2-6 | 80% | 5% | 75% | 40% | 65% | 20% | 55% | 35% | 45% | 15% |
| C2-7 | 65% | 15% | 90% | 15% | 100% | 80% | 75% | 5% | 40% | 30% |
| C2-8 | 70% | 15% | 20% | 15% | 85% | 10% | 60% | 5% | 20% | 45% |
| *C3* | C3-1 | 55% | 80% | 55% | 70% | 55% | 80% | 20% | 10% | 40% | 10% |
| C3-2 | 80% | 65% | 55% | 85% | 85% | 95% | 45% | 40% | 15% | 45% |
| C3-3 | 100% | 70% | 80% | 95% | 60% | 60% | 25% | 15% | 20% | 10% |
| C3-4 | 95% | 90% | 75% | 90% | 90% | 60% | 45% | 25% | 40% | 10% |
| C3-5 | 55% | 75% | 45% | 95% | 40% | 5% | 5% | 25% | 5% | 30% |
| C3-6 | 85% | 5% | 55% | 40% | 20% | 30% | 45% | 30% | 45% | 10% |
| C4 | C4-1 | 70% | 20% | 20% | 10% | 10% | 5% | 5% | 15% | 55% | 55% |
| C4-2 | 60% | 25% | 25% | 40% | 35% | 15% | 15% | 20% | 65% | 85% |
| C4-3 | 80% | 40% | 10% | 45% | 15% | 45% | 40% | 20% | 55% | 5% |
| C4-4 | 75% | 15% | 45% | 35% | 15% | 35% | 30% | 100% | 75% | 100% |

**Table A.2**

Aggregated percentage evaluation matrix.

|  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Tools | | Tool1 | Tool2 | Tool3 | Tool4 | Tool5 | Tool6 | Tool7 | Tool8 | Tool9 | Tool10 |
| C1 | C1-1 | 82% | 87% | 93% | 25% | 23% | 25% | 25% | 22% | 13% | 38% |
| C1-2 | 82% | 80% | 75% | 90% | 13% | 12% | 25% | 67% | 30% | 30% |
| C1-3 | 65% | 80% | 60% | 78% | 33% | 30% | 12% | 80% | 40% | 18% |
| C1-4 | 62% | 80% | 70% | 72% | 18% | 17% | 23% | 22% | 35% | 20% |
| C1-5 | 68% | 70% | 82% | 15% | 37% | 28% | 25% | 18% | 18% | 15% |
| C1-6 | 90% | 15% | 22% | 73% | 23% | 30% | 35% | 23% | 27% | 25% |
| C1-7 | 23% | 30% | 23% | 75% | 12% | 28% | 35% | 70% | 15% | 20% |
| C1-8 | 25% | 30% | 15% | 10% | 27% | 68% | 28% | 30% | 22% | 20% |
| C2 | C2-1 | 83% | 77% | 75% | 87% | 85% | 63% | 88% | 30% | 37% | 18% |
| C2-2 | 87% | 28% | 32% | 30% | 25% | 25% | 75% | 18% | 37% | 27% |
| C2-3 | 18% | 28% | 23% | 8% | 32% | 32% | 15% | 22% | 23% | 42% |
| C2-4 | 13% | 22% | 35% | 30% | 27% | 33% | 27% | 23% | 25% | 22% |
| C2-5 | 17% | 25% | 23% | 32% | 25% | 22% | 30% | 28% | 30% | 17% |
| C2-6 | 80% | 10% | 77% | 27% | 88% | 17% | 80% | 33% | 37% | 18% |
| C2-7 | 68% | 18% | 70% | 28% | 88% | 78% | 80% | 18% | 40% | 27% |
| C2-8 | 73% | 23% | 35% | 18% | 78% | 22% | 62% | 30% | 20% | 30% |
| *C3* | C3-1 | 70% | 82% | 60% | 68% | 60% | 77% | 12% | 25% | 23% | 32% |
| C3-2 | 90% | 70% | 63% | 67% | 77% | 90% | 22% | 42% | 10% | 35% |
| C3-3 | 87% | 77% | 73% | 77% | 70% | 73% | 13% | 18% | 30% | 30% |
| C3-4 | 82% | 90% | 85% | 73% | 82% | 73% | 38% | 32% | 32% | 13% |
| C3-5 | 77% | 63% | 42% | 77% | 30% | 18% | 13% | 20% | 27% | 25% |
| C3-6 | 75% | 17% | 68% | 42% | 28% | 25% | 28% | 38% | 38% | 20% |
| C4 | C4-1 | 83% | 30% | 13% | 20% | 17% | 18% | 27% | 17% | 68% | 68% |
| C4-2 | 70% | 23% | 27% | 32% | 35% | 33% | 18% | 17% | 80% | 82% |
| C4-3 | 73% | 35% | 15% | 35% | 18% | 20% | 33% | 32% | 65% | 18% |
| C4-4 | 78% | 25% | 23% | 28% | 15% | 22% | 32% | 88% | 68% | 90% |

**Table A.3**

Results of the CoCoSo method across three decision makers.

|  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- |
| First Decision Maker | | | | | | | |
| Tools |  |  |  |  |  |  | Ranks |
| Tool1 | 0.7655 | 23.7506 | 0.1103 | 3.5100 | 1.0000 | 2.2690 | 1 |
| Tool2 | 0.5371 | 21.4277 | 0.0988 | 2.7105 | 0.8959 | 1.8566 | 4 |
| Tool3 | 0.5284 | 22.4341 | 0.1033 | 2.7368 | 0.9366 | 1.9012 | 2 |
| Tool4 | 0.4832 | 22.2598 | 0.1023 | 2.5936 | 0.9277 | 1.8347 | 5 |
| Tool5 | 0.4907 | 23.1735 | 0.1065 | 2.6634 | 0.9653 | 1.8944 | 3 |
| Tool6 | 0.3896 | 21.9921 | 0.1007 | 2.3013 | 0.9129 | 1.7009 | 6 |
| Tool7 | 0.3367 | 20.1180 | 0.0921 | 2.0466 | 0.8343 | 1.5307 | 9 |
| Tool8 | 0.3365 | 21.1562 | 0.0967 | 2.1000 | 0.8767 | 1.5870 | 8 |
| Tool9 | 0.3497 | 22.1036 | 0.1010 | 2.1884 | 0.9159 | 1.6557 | 7 |
| Tool10 | 0.3426 | 19.2334 | 0.0881 | 2.0183 | 0.7985 | 1.4900 | 10 |
| Second Decision Maker | | | | | | | |
| Tools |  |  |  |  |  |  | Ranks |
| Tool1 | 0.7871 | 25.6575 | 0.1195 | 4.7295 | 1.0000 | 2.7765 | 1 |
| Tool2 | 0.5549 | 23.4288 | 0.1084 | 3.7061 | 0.9069 | 2.2880 | 3 |
| Tool3 | 0.5918 | 24.2768 | 0.1124 | 3.9030 | 0.9404 | 2.3964 | 2 |
| Tool4 | 0.5278 | 23.3026 | 0.1077 | 3.5959 | 0.9011 | 2.2390 | 4 |
| Tool5 | 0.3678 | 20.2503 | 0.0932 | 2.7849 | 0.7797 | 1.8063 | 7 |
| Tool6 | 0.4367 | 22.1854 | 0.1022 | 3.1774 | 0.8555 | 2.0309 | 6 |
| Tool7 | 0.3014 | 19.9734 | 0.0916 | 2.5174 | 0.7667 | 1.6865 | 9 |
| Tool8 | 0.3636 | 20.1463 | 0.0927 | 2.7620 | 0.7756 | 1.7935 | 8 |
| Tool9 | 0.4011 | 23.0826 | 0.1061 | 3.1067 | 0.8880 | 2.0310 | 5 |
| Tool10 | 0.2674 | 14.3681 | 0.0661 | 2.0000 | 0.5534 | 1.2915 | 10 |
| Third Decision Maker | | | | | | | |
| Tools |  |  |  |  |  |  | Ranks |
| Tool1 | 0.7308 | 25.5947 | 0.1192 | 3.9128 | 1.0000 | 2.4527 | 1 |
| Tool2 | 0.4826 | 21.3206 | 0.0987 | 2.8407 | 0.8282 | 1.8705 | 4 |
| Tool3 | 0.5341 | 24.2656 | 0.1123 | 3.1829 | 0.9420 | 2.1080 | 3 |
| Tool4 | 0.5780 | 24.2333 | 0.1123 | 3.3267 | 0.9425 | 2.1667 | 2 |
| Tool5 | 0.4205 | 22.1959 | 0.1024 | 2.6857 | 0.8591 | 1.8339 | 5 |
| Tool6 | 0.3600 | 20.1734 | 0.0929 | 2.3674 | 0.7800 | 1.6358 | 8 |
| Tool7 | 0.3527 | 21.2038 | 0.0976 | 2.4034 | 0.8188 | 1.6835 | 6 |
| Tool8 | 0.3015 | 17.1905 | 0.0792 | 2.0000 | 0.6645 | 1.3866 | 10 |
| Tool9 | 0.3426 | 21.1779 | 0.0974 | 2.3683 | 0.8175 | 1.6679 | 7 |
| Tool10 | 0.3297 | 19.1260 | 0.0881 | 2.2061 | 0.7390 | 1.5347 | 9 |

**Table A.3**

Weight sets and values across nine scenarios for sensitivity analysis test [13].

|  |  |  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| CPMMS components | | Original Weights | Scenario 1 | Scenario 2 | Scenario 3 | Scenario 4 | Scenario 5 | Scenario 6 | Scenario 7 | Scenario 8 | Scenario 9 |  |
| C1 | C\_1 | 0.0351 | 0.0380 | 0.0332 | 0.0285 | 0.0237 | 0.0190 | 0.0142 | 0.0095 | 0.0047 | 0.0000 | 0.0380 |
|  | C\_2 | 0.0336 | 0.0363 | 0.0318 | 0.0273 | 0.0227 | 0.0182 | 0.0136 | 0.0091 | 0.0045 | 0.0000 | 0.0363 |
|  | C\_3 | 0.0330 | 0.0357 | 0.0313 | 0.0268 | 0.0223 | 0.0179 | 0.0134 | 0.0089 | 0.0045 | 0.0000 | 0.0357 |
|  | C\_4 | 0.0373 | 0.0404 | 0.0353 | 0.0303 | 0.0252 | 0.0202 | 0.0151 | 0.0101 | 0.0050 | 0.0000 | 0.0404 |
|  | C\_5 | 0.0297 | 0.0321 | 0.0281 | 0.0241 | 0.0201 | 0.0161 | 0.0120 | 0.0080 | 0.0040 | 0.0000 | 0.0321 |
|  | C\_6 | 0.0270 | 0.0292 | 0.0256 | 0.0219 | 0.0183 | 0.0146 | 0.0110 | 0.0073 | 0.0037 | 0.0000 | 0.0292 |
|  | C\_7 | 0.0180 | 0.0195 | 0.0170 | 0.0146 | 0.0122 | 0.0097 | 0.0073 | 0.0049 | 0.0024 | 0.0000 | 0.0195 |
|  | C\_8 | 0.0175 | 0.0190 | 0.0166 | 0.0142 | 0.0119 | 0.0095 | 0.0071 | 0.0047 | 0.0024 | 0.0000 | 0.0190 |
| C2 | C\_1 | 0.0491 | 0.0532 | 0.0465 | 0.0399 | 0.0332 | 0.0266 | 0.0199 | 0.0133 | 0.0066 | 0.0000 | 0.0532 |
|  | C\_2 | 0.0443 | 0.0479 | 0.0419 | 0.0359 | 0.0299 | 0.0239 | 0.0179 | 0.0120 | 0.0060 | 0.0000 | 0.0479 |
|  | C\_3 | 0.0462 | 0.0500 | 0.0438 | 0.0375 | 0.0313 | 0.0250 | 0.0188 | 0.0125 | 0.0063 | 0.0000 | 0.0500 |
|  | C\_4 | 0.0396 | 0.0429 | 0.0375 | 0.0322 | 0.0268 | 0.0214 | 0.0161 | 0.0107 | 0.0054 | 0.0000 | 0.0429 |
|  | C\_5 | 0.0356 | 0.0385 | 0.0337 | 0.0289 | 0.0240 | 0.0192 | 0.0144 | 0.0096 | 0.0048 | 0.0000 | 0.0385 |
|  | C\_6 | 0.0263 | 0.0285 | 0.0249 | 0.0213 | 0.0178 | 0.0142 | 0.0107 | 0.0071 | 0.0036 | 0.0000 | 0.0285 |
|  | C\_7 | 0.0237 | 0.0257 | 0.0225 | 0.0192 | 0.0160 | 0.0128 | 0.0096 | 0.0064 | 0.0032 | 0.0000 | 0.0257 |
|  | C\_8 | 0.0229 | 0.0248 | 0.0217 | 0.0186 | 0.0155 | 0.0124 | 0.0093 | 0.0062 | 0.0031 | 0.0000 | 0.0248 |
| C3 | C\_1 | 0.0404 | 0.0437 | 0.0383 | 0.0328 | 0.0273 | 0.0219 | 0.0164 | 0.0109 | 0.0055 | 0.0000 | 0.0437 |
|  | C\_2 | 0.0546 | 0.0591 | 0.0517 | 0.0443 | 0.0369 | 0.0295 | 0.0222 | 0.0148 | 0.0074 | 0.0000 | 0.0591 |
|  | C\_3 | 0.0352 | 0.0381 | 0.0333 | 0.0286 | 0.0238 | 0.0191 | 0.0143 | 0.0095 | 0.0048 | 0.0000 | 0.0381 |
|  | C\_4 | 0.0458 | 0.0496 | 0.0434 | 0.0372 | 0.0310 | 0.0248 | 0.0186 | 0.0124 | 0.0062 | 0.0000 | 0.0496 |
|  | C\_5 | 0.0755 | 0.0000 | 0.1250 | 0.2500 | 0.3750 | 0.5000 | 0.6250 | 0.7500 | 0.8750 | 0.9998 | 0.0817 |
|  | C\_6 | 0.0680 | 0.0735 | 0.0643 | 0.0551 | 0.0460 | 0.0368 | 0.0276 | 0.0184 | 0.0092 | 0.0000 | 0.0735 |
| C4 | C\_1 | 0.0463 | 0.0500 | 0.0438 | 0.0375 | 0.0313 | 0.0250 | 0.0188 | 0.0125 | 0.0063 | 0.0000 | 0.0500 |
|  | C\_2 | 0.0265 | 0.0287 | 0.0251 | 0.0215 | 0.0179 | 0.0143 | 0.0107 | 0.0072 | 0.0036 | 0.0000 | 0.0287 |
|  | C\_3 | 0.0372 | 0.0402 | 0.0352 | 0.0302 | 0.0251 | 0.0201 | 0.0151 | 0.0101 | 0.0050 | 0.0000 | 0.0402 |
|  | C\_4 | 0.0514 | 0.0556 | 0.0486 | 0.0417 | 0.0347 | 0.0278 | 0.0208 | 0.0139 | 0.0069 | 0.0000 | 0.0556 |