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A QUALITATIVE MULTI-ATTRIBUTE MODEL FOR SELECTION OF PRIVATE HYDROPOWER PLANT INVESTMENTS IN TURKEY: BY FOUNDATION OF SEARCH RESULTS CLUSTERING ENGINE (Carrot²), HYDROPOWER PLANT CLUSTERING, DEXi AND DEXiTree

Source: The International Energy Agency Implementing Agreement for Hydropower Technologies and Programmes (http://www.ieahydro.org/)

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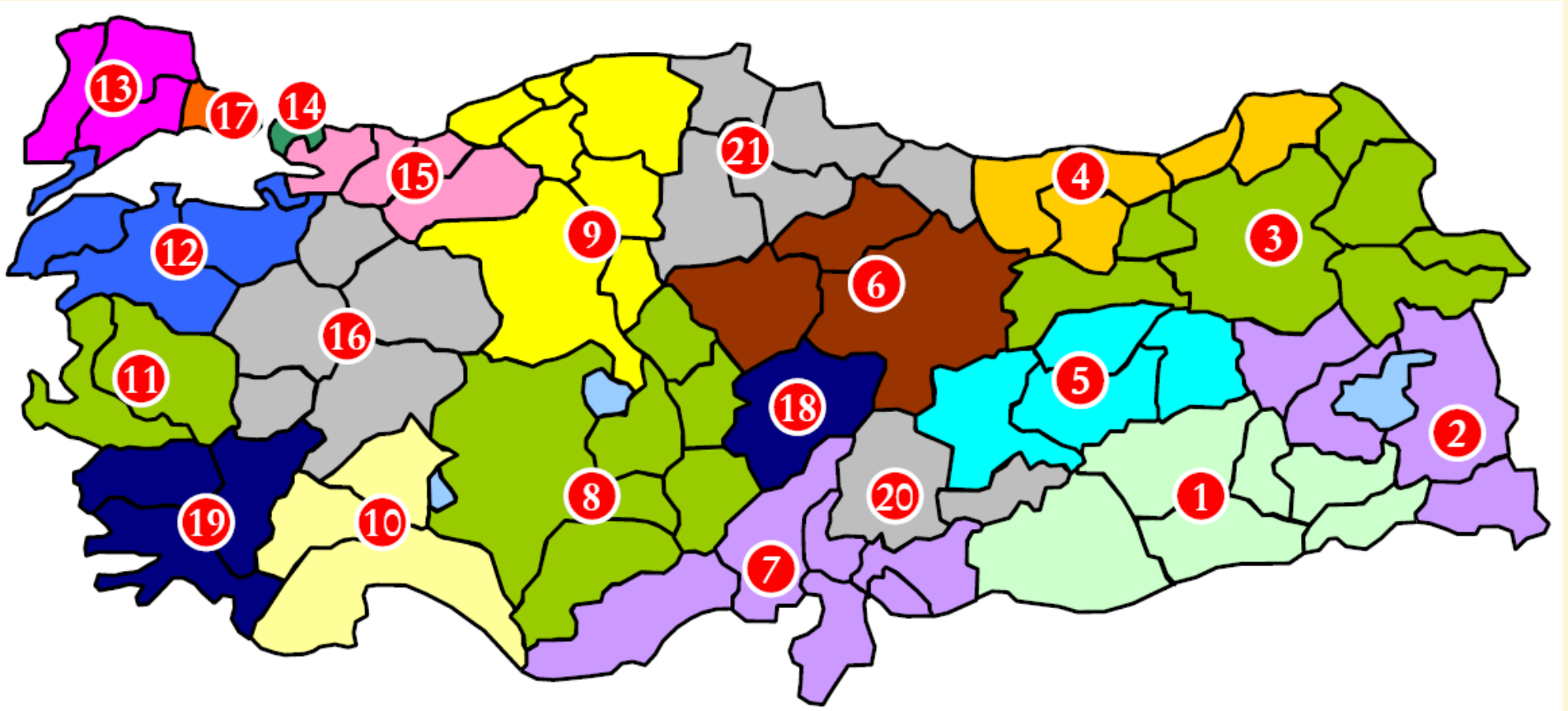
MODEL DEVELOPMENT, EXECUTION AND RESULTS

Geographical Coverage Of Distrıbution Companies in Turkey



Privatization of Turkey’s Electricity Distribution Industry, 2010

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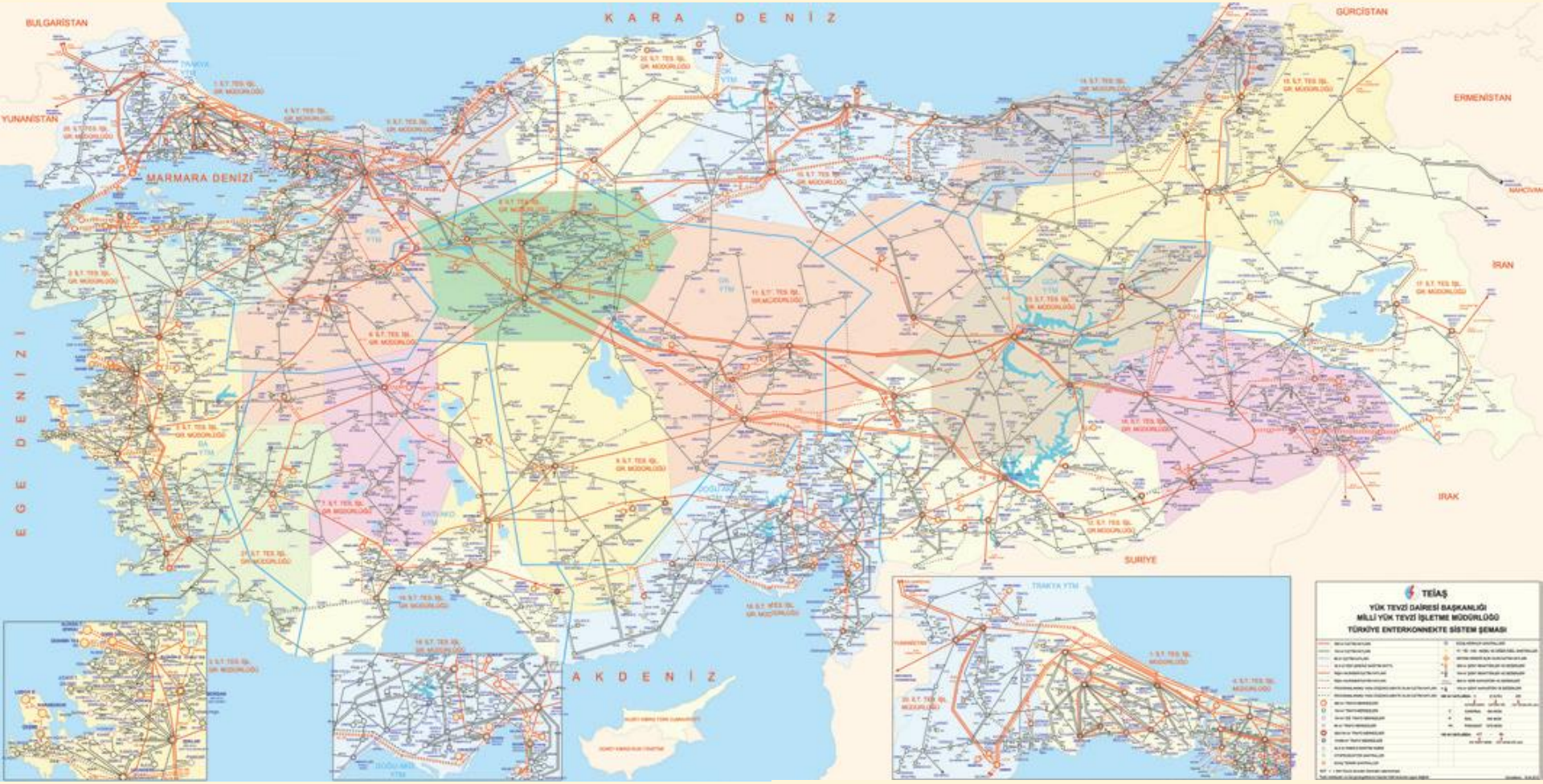
MODEL DEVELOPMENT, EXECUTION AND RESULTS

Turkish Electricity Transmission System By The Turkısh Electricity Transmission Corporation



Turkish Electrıcty Transmission Corporation Annual Report, 2011

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MODEL DEVELOPMENT, EXECUTION AND RESULTS

Major Conflicts and Threats

The visual representation and presentation of the terrorism from several sources - 1 *Source:* (left picture from Turkey: http://www.hurriyetdailynews.com/, right picture from India: http://www.economist.com/)

The visual representation and presentation of the terrorism from several sources - 2 *Source:* (left picture from Turkey: http://hurriyet.com.tr/, middle picture from Turkey: http://www.reuters.com/, right picture from Norway: http://www.reuters.com/)

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Major Conflicts and Threats

SYRIA

Http://Rt.Com/News/Mass-grave-syria-damascus-955/

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MODEL DEVELOPMENT, EXECUTION AND RESULTS

Major Conflicts and Threats

The visual representation and presentation of the war from several sources *Source:* (left and middle picture from Iraq, right from United States: http://www.denverpost.com/)

The visual representation and presentation of the social chaos (in a sense and in some cases the beginning of major ones) from several sources *Source:* (left picture from Central African Republic: http://www.voanews.com/, middle picture from Ukraine: http://www.washingtonpost.com/, right picture from Germany: http://www.welt.de/)

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MODEL DEVELOPMENT, EXECUTION AND RESULTS

Major Conflicts and Threats

EGYPT

http://rt.com/files/opinionpost/20/1f/e0/00/11.jpg

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Airports in Turkey By The Republic of Turkey General Directorate Of State Airports Authority

http://www.dhmi.gov.tr/aerodromes.aspx

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MODEL DEVELOPMENT, EXECUTION AND RESULTS

New Highway Construction Projects in Turkey By The Republic Of Turkey General Directorate Of Highways

http://www.kgm.gov.tr/SiteCollectionImages/KGMimages/Projeler/bölünmüşyol2013.png

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A QUALITATIVE MULTI-ATTRIBUTE MODEL FOR SELECTION OF PRIVATE HYDROPOWER PLANT INVESTMENTS IN TURKEY: BY FOUNDATION OF SEARCH RESULTS CLUSTERING ENGINE (Carrot²), HYDROPOWER PLANT CLUSTERING, DEXi AND DEXiTree

MODEL DEVELOPMENT, EXECUTION AND RESULTS

Roadmap in Turkey By The Republic Of Turkey General Directorate Of Highways

http://www.kgm.gov.tr/

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MODEL DEVELOPMENT, EXECUTION AND RESULTS

Tunnels On Roads in Turkey By The Republic Of Turkey General Directorate Of Highways

http://www.kgm.gov.tr/

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MODEL DEVELOPMENT, EXECUTION AND RESULTS

	Total Energy Generation	Investment Cost	River Basin	Main Features
1	low(-)	high(-)	poor(-)	unacceptable
2	low(-)	high(-)	good(+)	unacceptable
3	low(-)	low(+)	poor(-)	unacceptable
4	low(-)	low(+)	good(+)	acceptable
5	high(+)	high(-)	poor(-)	unacceptable
6	high(+)	high(-)	good(+)	acceptable
7	high(+)	low(+)	poor(-)	acceptable
8	high(+)	low(+)	good(+)	acceptable

Utility function (decision rules) of main features

	Precipitation Change	Ambient Temperature Change	Climate Change
1	very dry (-)	very warm (-)	sensitive
2	very dry (-)	warm (+)	somewhat sensitive
3	dry(+)	very warm (-)	somewhat sensitive
4	dry(+)	warm (+)	insensitive

Utility function (decision rules) of climate change

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MODEL DEVELOPMENT, EXECUTION AND RESULTS

	Natural Dis./Haz.	Community Attitude	Protected Areas	Regional Conditions
1	sensitive (-)	negative (-)	many (-)	unsuitable
2	sensitive (-)	negative (-)	few (+)	unsuitable
3	sensitive (-)	not negative (+)	many (-)	unsuitable
4	sensitive (-)	not negative (+)	few (+)	somewhat suitable
5	insensitive (+)	negative (-)	many (-)	unsuitable
6	insensitive (+)	negative (-)	few (+)	somewhat suitable
7	insensitive (+)	not negative (+)	many (-)	somewhat suitable
8	insensitive (+)	not negative (+)	few (+)	suitable

Utility function (decision rules) of local regional conditions

	Technological Infrastructure	Scientific Infrastructure	Supportive Infrastructure
1	insufficient(-)	insufficient(-)	unacceptable
2	insufficient(-)	sufficient (+)	neither acceptable nor acceptable
3	sufficient (+)	insufficient(-)	neither acceptable nor acceptable
4	sufficient (+)	sufficient (+)	acceptable

Utility function (decision rules) of supportive infrastructure

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MODEL DEVELOPMENT, EXECUTION AND RESULTS

	Main Features	Climate Change	Local Regional Conditions	Supportive Infrastructure	Hydropower Wise
1	unacceptable(-)	sensitive(-)	unsuitable(-)	unacceptable(-)	very poor
2	unacceptable(-)	sensitive(-)	unsuitable(-)	neither acceptable nor acceptable	very poor
3	unacceptable(-)	sensitive(-)	unsuitable(-)	acceptable(+)	very poor
4	unacceptable(-)	sensitive(-)	somewhat suitable	unacceptable(-)	very poor
5	unacceptable(-)	sensitive(-)	somewhat suitable	neither acceptable nor acceptable	very poor
6	unacceptable(-)	sensitive(-)	somewhat suitable	acceptable(+)	very poor
7	unacceptable(-)	sensitive(-)	suitable(+)	unacceptable(-)	very poor
8	unacceptable(-)	sensitive(-)	suitable(+)	neither acceptable nor acceptable	very poor
9	unacceptable(-)	sensitive(-)	suitable(+)	acceptable(+)	very poor
10	unacceptable(-)	somewhat sensitive	unsuitable(-)	unacceptable(-)	very poor
11	unacceptable(-)	somewhat sensitive	unsuitable(-)	neither acceptable nor acceptable	very poor
12	unacceptable(-)	somewhat sensitive	unsuitable(-)	acceptable(+)	very poor
13	unacceptable(-)	somewhat sensitive	somewhat suitable	unacceptable(-)	very poor
14	unacceptable(-)	somewhat sensitive	somewhat suitable	neither acceptable nor acceptable	very poor
15	unacceptable(-)	somewhat sensitive	somewhat suitable	acceptable(+)	very poor
16	unacceptable(-)	somewhat sensitive	suitable(+)	unacceptable(-)	very poor
17	unacceptable(-)	somewhat sensitive	suitable(+)	neither acceptable nor acceptable	very poor
18	unacceptable(-)	somewhat sensitive	suitable(+)	acceptable(+)	very poor
19	unacceptable(-)	insensitive(+)	unsuitable(-)	unacceptable(-)	very poor
20	unacceptable(-)	insensitive(+)	unsuitable(-)	neither acceptable nor acceptable	very poor
21	unacceptable(-)	insensitive(+)	unsuitable(-)	acceptable(+)	very poor
22	unacceptable(-)	insensitive(+)	somewhat suitable	unacceptable(-)	very poor
23	unacceptable(-)	insensitive(+)	somewhat suitable	neither acceptable nor acceptable	very poor
24	unacceptable(-)	insensitive(+)	somewhat suitable	acceptable(+)	very poor

Utility function (decision rules) hydropower wise

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MODEL DEVELOPMENT, EXECUTION AND RESULTS

	Main Features	Climate Change	Local Regional Conditions	Supportive Infrastructure	Hydropower Wise
24	unacceptable(-)	insensitive(+)	somewhat suitable	acceptable(+)	very poor
25	unacceptable(-)	insensitive(+)	suitable(+)	unacceptable(-)	very poor
26	unacceptable(-)	insensitive(+)	suitable(+)	neither acceptable nor acceptable	very poor
27	unacceptable(-)	insensitive(+)	suitable(+)	acceptable(+)	very poor
28	acceptable(+)	sensitive(-)	unsuitable(-)	unacceptable(-)	poor
29	acceptable(+)	sensitive(-)	unsuitable(-)	neither acceptable nor acceptable	poor
30	acceptable(+)	sensitive(-)	unsuitable(-)	acceptable(+)	poor
31	acceptable(+)	sensitive(-)	somewhat suitable	unacceptable(-)	poor
32	acceptable(+)	sensitive(-)	somewhat suitable	neither acceptable nor acceptable	poor
33	acceptable(+)	sensitive(-)	somewhat suitable	acceptable(+)	poor
34	acceptable(+)	sensitive(-)	suitable(+)	unacceptable(-)	poor
35	acceptable(+)	sensitive(-)	suitable(+)	neither acceptable nor acceptable	poor
36	acceptable(+)	sensitive(-)	suitable(+)	acceptable(+)	poor
37	acceptable(+)	somewhat sensitive	unsuitable(-)	unacceptable(-)	poor
38	acceptable(+)	somewhat sensitive	unsuitable(-)	neither acceptable nor acceptable	poor
39	acceptable(+)	somewhat sensitive	unsuitable(-)	acceptable(+)	poor
40	acceptable(+)	somewhat sensitive	somewhat suitable	unacceptable(-)	poor
41	acceptable(+)	somewhat sensitive	somewhat suitable	neither acceptable nor acceptable	good

Utility function (decision rules) hydropower wise

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MODEL DEVELOPMENT, EXECUTION AND RESULTS

	Main Features	Climate Change	Local Regional Conditions	Supportive Infrastructure	Hydropower Wise
41	acceptable(+)	somewhat sensitive	somewhat suitable	neither acceptable nor acceptable	good
42	acceptable(+)	somewhat sensitive	somewhat suitable	acceptable(+)	good
43	acceptable(+)	somewhat sensitive	suitable(+)	unacceptable(-)	poor
44	acceptable(+)	somewhat sensitive	suitable(+)	neither acceptable nor acceptable	good
45	acceptable(+)	somewhat sensitive	suitable(+)	acceptable(+)	good
46	acceptable(+)	insensitive(+)	unsuitable(-)	unacceptable(-)	poor
47	acceptable(+)	insensitive(+)	unsuitable(-)	neither acceptable nor acceptable	poor
48	acceptable(+)	insensitive(+)	unsuitable(-)	acceptable(+)	poor
49	acceptable(+)	insensitive(+)	somewhat suitable	unacceptable(-)	poor
50	acceptable(+)	insensitive(+)	somewhat suitable	neither acceptable nor acceptable	good
51	acceptable(+)	insensitive(+)	somewhat suitable	acceptable(+)	good
52	acceptable(+)	insensitive(+)	suitable(+)	unacceptable(-)	good
53	acceptable(+)	insensitive(+)	suitable(+)	neither acceptable nor acceptable	very good
54	acceptable(+)	insensitive(+)	suitable(+)	acceptable(+)	very good

Utility function (decision rules) hydropower wise

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MODEL DEVELOPMENT, EXECUTION AND RESULTS

	Electricity Demand Status/Situation	Electricity Demand Forecast/Prediction	Electricity Demand
1	low(-)	low(-)	low
2	low(-)	high(+)	medium
3	high(+)	low(-)	medium
4	high(+)	high(+)	high

Utility function (decision rules) electricity demand

	Substation Status/Condition	Distribution System Status/Condition	Transmission System Status/Condition	Electricity Grid/System Status/Condition
1	unsuitable(-)	unsuitable(-)	unsuitable(-)	unsuitable
2	unsuitable(-)	unsuitable(-)	probably suitable	unsuitable
3	unsuitable(-)	unsuitable(-)	suitable(+)	unsuitable
4	unsuitable(-)	probably suitable	unsuitable(-)	unsuitable
5	unsuitable(-)	probably suitable	probably suitable	unsuitable
6	unsuitable(-)	probably suitable	suitable(+)	unsuitable
7	unsuitable(-)	suitable(+)	unsuitable(-)	unsuitable
8	unsuitable(-)	suitable(+)	probably suitable	unsuitable
9	unsuitable(-)	suitable(+)	suitable(+)	unsuitable
10	probably suitable	unsuitable(-)	unsuitable(-)	unsuitable
11	probably suitable	unsuitable(-)	probably suitable	somewhat suitable
12	probably suitable	unsuitable(-)	suitable(+)	somewhat suitable
13	probably suitable	probably suitable	unsuitable(-)	somewhat suitable
14	probably suitable	probably suitable	probably suitable	somewhat suitable
15	probably suitable	probably suitable	suitable(+)	somewhat suitable
16	probably suitable	suitable(+)	unsuitable(-)	somewhat suitable
17	probably suitable	suitable(+)	probably suitable	somewhat suitable

Utility function (decision rules) of electricity grid/system status/condition

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MODEL DEVELOPMENT, EXECUTION AND RESULTS

	Substation Status/Condition	Distribution System Status/Condition	Transmission System Status/Condition	Electricity Grid/System Status/Condition
17	probably suitable	suitable(+)	probably suitable	somewhat suitable
18	probably suitable	suitable(+)	suitable(+)	somewhat suitable
19	suitable(+)	unsuitable(-)	unsuitable(-)	unsuitable
20	suitable(+)	unsuitable(-)	probably suitable	somewhat suitable
21	suitable(+)	unsuitable(-)	suitable(+)	quite suitable
22	suitable(+)	probably suitable	unsuitable(-)	somewhat suitable
23	suitable(+)	probably suitable	probably suitable	quite suitable
24	suitable(+)	probably suitable	suitable(+)	suitable
25	suitable(+)	suitable(+)	unsuitable(-)	suitable
26	suitable(+)	suitable(+)	probably suitable	suitable
27	suitable(+)	suitable(+)	suitable(+)	suitable

Utility function (decision rules) of electricity grid/system status/condition

	Electricity Demand	Electricity Grid/System Status/Condition	Electricity Wise
1	low(-)	unsuitable(-)	very poor
2	low(-)	somewhat suitable	poor
3	low(-)	quite suitable	poor
4	low(-)	suitable(+)	good
5	medium	unsuitable(-)	very poor
6	medium	somewhat suitable	good
7	medium	quite suitable	good
8	medium	suitable(+)	very good
9	high(+)	unsuitable(-)	very poor
10	high(+)	somewhat suitable	good
11	high(+)	quite suitable	good
12	high(+)	suitable(+)	very good

Utility function (decision rules) of electricity wise

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MODEL DEVELOPMENT, EXECUTION AND RESULTS

	War Situation	Terrorism Situation	Geopolitical Uncertainty Situation	Major Conflicts and Threats
1	yes(-)	yes(-)	high(-)	risky
2	yes(-)	yes(-)	low(+)	risky
3	yes(-)	no(+)	high(-)	risky
4	yes(-)	no(+)	low(+)	risky
5	no(+)	yes(-)	high(-)	quite risky
6	no(+)	yes(-)	low(+)	quite risky
7	no(+)	no(+)	high(-)	quite risky
8	no(+)	no(+)	low(+)	not risky

Utility function (decision rules) of major conflicts and threats

	Security Situation	Free Travel Situation	Social Chaos Situation	Minor Conflicts and Threats
1	poor(-)	poor(-)	yes(-)	risky
2	poor(-)	poor(-)	no(+)	quite risky
3	poor(-)	good(+)	yes(-)	risky
4	poor(-)	good(+)	no(+)	quite risky
5	good(+)	poor(-)	yes(-)	risky
6	good(+)	poor(-)	no(+)	not risky
7	good(+)	good(+)	yes(-)	risky
8	good(+)	good(+)	no(+)	not risky

Utility function (decision rules) of minor conflicts and threats

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MODEL DEVELOPMENT, EXECUTION AND RESULTS

	Major Conflicts and Threats	Minor Conflicts and Threats	Conflicts and Threats
1	risky(-)	risky(-)	risky
2	risky(-)	quite risky	risky
3	risky(-)	not risky(+)	risky
4	quite risky	risky(-)	somewhat risky
5	quite risky	quite risky	somewhat risky
6	quite risky	not risky(+)	quite risky
7	not risky(+)	risky(-)	quite risky
8	not risky(+)	quite risky	not risky
9	not risky(+)	not risky(+)	not risky

Utility function (decision rules) of conflicts and threats

	Road Transportation	Railroad Transportation	Air Transportation	Waterborne Transportation	Transportation
1	poor(-)	poor(-)	poor(-)	poor(-)	poor
2	poor(-)	poor(-)	poor(-)	good(+)	poor
3	poor(-)	poor(-)	good(+)	poor(-)	poor
4	poor(-)	poor(-)	good(+)	good(+)	poor
5	poor(-)	good(+)	poor(-)	poor(-)	poor
6	poor(-)	good(+)	poor(-)	good(+)	fair
7	poor(-)	good(+)	good(+)	poor(-)	poor
8	poor(-)	good(+)	good(+)	good(+)	fair
9	good(+)	poor(-)	poor(-)	poor(-)	fair
10	good(+)	poor(-)	poor(-)	good(+)	fair
11	good(+)	poor(-)	good(+)	poor(-)	good

Utility function (decision rules) of transportation

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MODEL DEVELOPMENT, EXECUTION AND RESULTS

	Road Transportation	Railroad Transportation	Air Transportation	Waterborne Transportation	Transportation
11	good(+)	poor(-)	good(+)	poor(-)	good
12	good(+)	poor(-)	good(+)	good(+)	good
13	good(+)	good(+)	poor(-)	poor(-)	good
14	good(+)	good(+)	poor(-)	good(+)	good
15	good(+)	good(+)	good(+)	poor(-)	good
16	good(+)	good(+)	good(+)	good(+)	good

Utility function (decision rules) of transportation

	Business Climate Status/Situation	Business Climate Prediction	Business Conditions
1	poor(-)	poor(-)	poor
2	poor(-)	good(+)	fair
3	good(+)	poor(-)	fair
4	good(+)	good(+)	good

Utility function (decision rules) of business conditions

	Conflicts and Threats	Transportation	Business Conditions	General Investment Wise
1	risky(-)	poor(-)	poor(-)	very poor
2	risky(-)	poor(-)	fair	very poor
3	risky(-)	poor(-)	good(+)	very poor
4	risky(-)	fair	poor(-)	very poor
5	risky(-)	fair	fair	very poor
6	risky(-)	fair	good(+)	very poor

Utility function (decision rules) of general investment wise

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MODEL DEVELOPMENT, EXECUTION AND RESULTS

	Conflicts and Threats	Transportation	Business Conditions	General Investment Wise
6	risky(-)	fair	good(+)	very poor
7	risky(-)	good(+)	poor(-)	very poor
8	risky(-)	good(+)	fair	very poor
9	risky(-)	good(+)	good(+)	poor
10	somewhat risky	poor(-)	poor(-)	poor
11	somewhat risky	poor(-)	fair	poor
12	somewhat risky	poor(-)	good(+)	poor
13	somewhat risky	fair	poor(-)	poor
14	somewhat risky	fair	fair	poor
15	somewhat risky	fair	good(+)	poor
16	somewhat risky	good(+)	poor(-)	poor
17	somewhat risky	good(+)	fair	poor
18	somewhat risky	good(+)	good(+)	good
19	quite risky	poor(-)	poor(-)	poor
20	quite risky	poor(-)	fair	poor
21	quite risky	poor(-)	good(+)	poor
22	quite risky	fair	poor(-)	poor
23	quite risky	fair	fair	good
24	quite risky	fair	good(+)	good
25	quite risky	good(+)	poor(-)	good
26	quite risky	good(+)	fair	good
27	quite risky	good(+)	good(+)	very good

Utility function (decision rules) of general investment wise

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MODEL DEVELOPMENT, EXECUTION AND RESULTS

	Conflicts and Threats	Transportation	Business Conditions	General Investment Wise
27	quite risky	good(+)	good(+)	very good
28	not risky(+)	poor(-)	poor(-)	poor
29	not risky(+)	poor(-)	fair	good
30	not risky(+)	poor(-)	good(+)	good
31	not risky(+)	fair	poor(-)	good
32	not risky(+)	fair	fair	good
33	not risky(+)	fair	good(+)	good
34	not risky(+)	good(+)	poor(-)	good
35	not risky(+)	good(+)	fair	very good
36	not risky(+)	good(+)	good(+)	very good

Utility function (decision rules) of general investment wise

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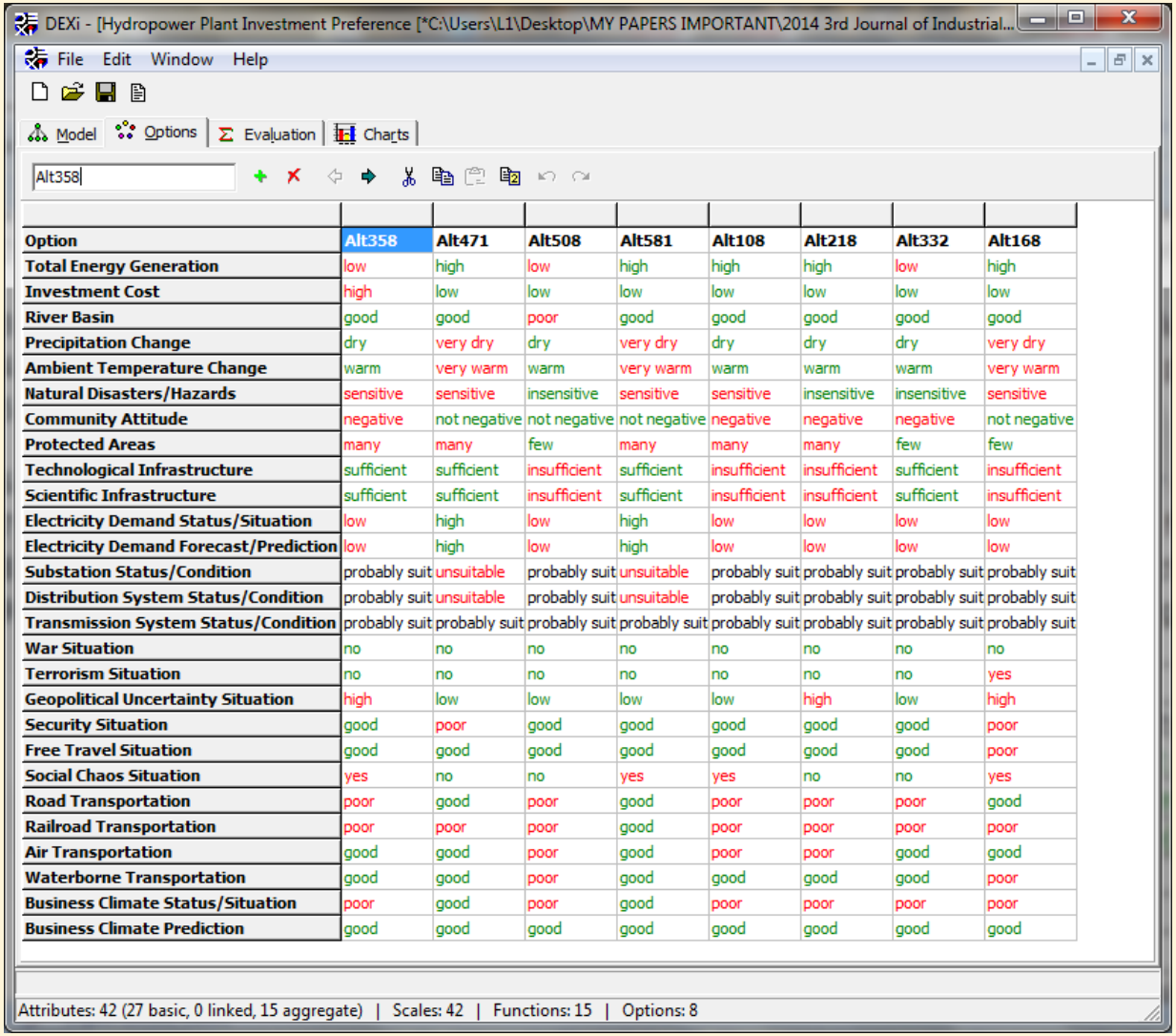
MODEL DEVELOPMENT, EXECUTION AND RESULTS



Option	Alt358	Alt471	Alt508	Alt581	Alt108	Alt218	Alt332	Alt168
Total Energy Generation	low	high	low	high	high	high	low	high
Investment Cost	high	low	low	low	low	low	low	low
River Basin	good	good	poor	good	good	good	good	good
Precipitation Change	dry	very dry	dry	very dry	dry	dry	dry	very dry
Ambient Temperature Change	warm	very warm	warm	very warm	warm	warm	warm	very warm
Natural Disasters/Hazards	sensitive	sensitive	insensitive	sensitive	sensitive	insensitive	insensitive	sensitive
Community Attitude	negative	not negative	not negative	not negative	negative	negative	negative	not negative
Protected Areas	many	many	few	many	many	many	few	few
Technological Infrastructure	sufficient	sufficient	insufficient	sufficient	insufficient	insufficient	sufficient	insufficient
Scientific Infrastructure	sufficient	sufficient	insufficient	sufficient	insufficient	insufficient	sufficient	insufficient
Electricity Demand Status/Situation	low	high	low	high	low	low	low	low
Electricity Demand Forecast/Prediction	low	high	low	high	low	low	low	low
Substation Status/Condition	probably suit	unsuitable	probably suit	unsuitable	probably suit	probably suit	probably suit	probably suit
Distribution System Status/Condition	probably suit	unsuitable	probably suit	unsuitable	probably suit	probably suit	probably suit	probably suit
Transmission System Status/Condition	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit
War Situation	no	no	no	no	no	no	no	no
Terrorism Situation	no	no	no	no	no	no	no	yes
Geopolitical Uncertainty Situation	high	low	low	low	low	high	low	high
Security Situation	good	poor	good	good	good	good	good	poor
Free Travel Situation	good	good	good	good	good	good	good	poor
Social Chaos Situation	yes	no	no	yes	yes	no	no	yes
Road Transportation	poor	good	poor	good	poor	poor	poor	good
Railroad Transportation	poor	poor	poor	good	poor	poor	poor	poor
Air Transportation	good	good	poor	good	poor	poor	good	good
Waterborne Transportation	good	good	poor	good	good	good	good	poor
Business Climate Status/Situation	poor	good	poor	good	poor	poor	poor	poor
Business Climate Prediction	good	good	good	good	good	good	good	good

The options screenview of the DEXi model for the mini private hydropower plant investment options cluster

Journal of Industrial Engineering and Management

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MODEL DEVELOPMENT, EXECUTION AND RESULTS

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Model | Options | Evaluation | Charts

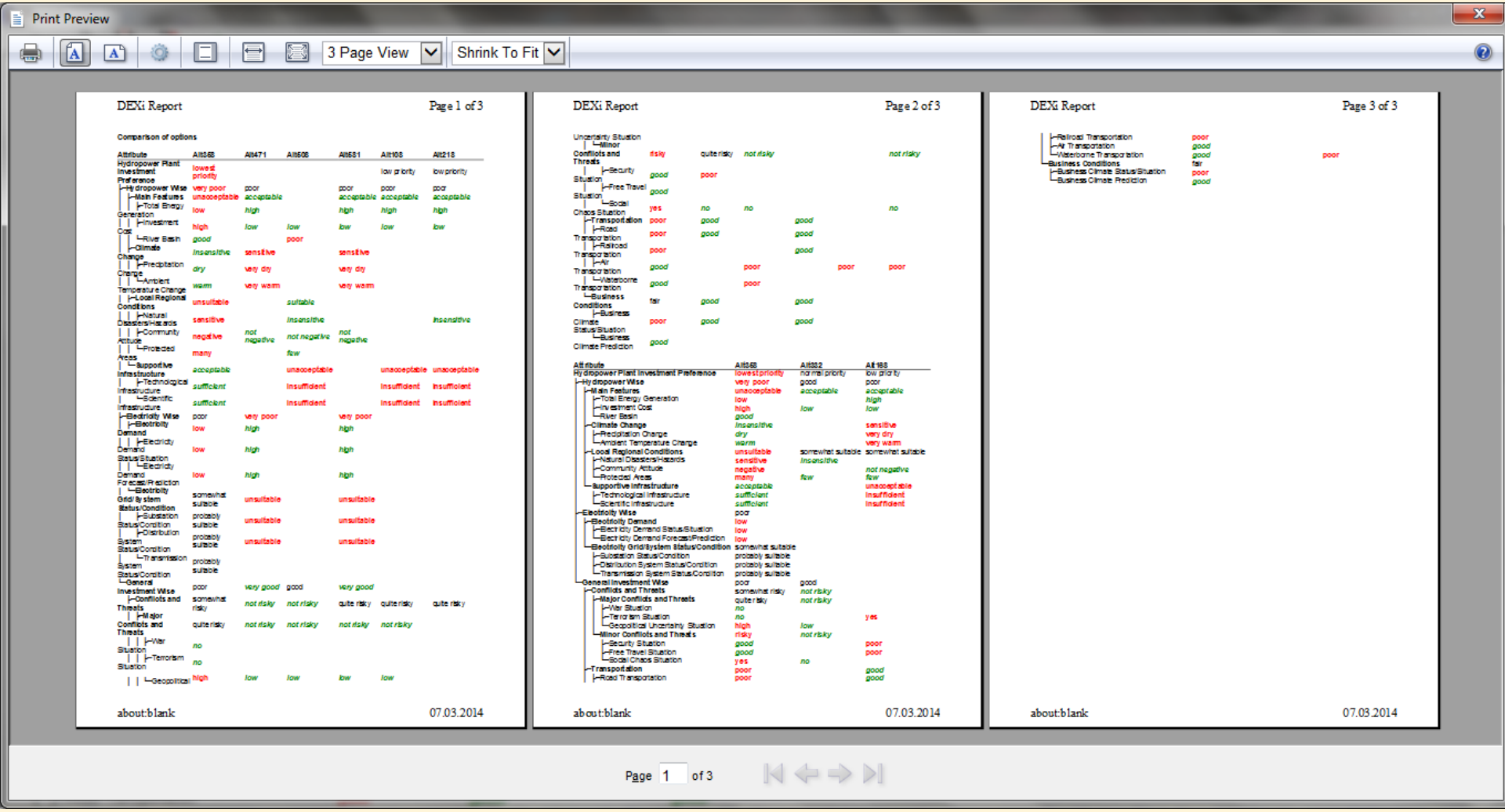
Option	Alt358	Alt471	Alt508	Alt581	Alt108	Alt218	Alt332	Alt168
. Hydropower Plant Investment Preference	lowest priority	lowest priority	lowest priority	lowest priority	low priority	low priority	normal priority	low priority
.. Hydropower Wise	very poor	poor	very poor	poor	poor	poor	good	poor
... Main Features	unacceptable	acceptable	unacceptable	acceptable	acceptable	acceptable	acceptable	acceptable
.... Total Energy Generation	low	high	low	high	high	high	low	high
.... Investment Cost	high	low	low	low	low	low	low	low
.... River Basin	good	good	poor	good	good	good	good	good
... Climate Change	insensitive	sensitive	insensitive	sensitive	insensitive	insensitive	insensitive	sensitive
.... Precipitation Change	dry	very dry	dry	very dry	dry	dry	dry	very dry
.... Ambient Temperature Change	warm	very warm	warm	very warm	warm	warm	warm	very warm
... Local Regional Conditions	unsuitable	unsuitable	suitable	unsuitable	unsuitable	unsuitable	somewhat suitable	somewhat su
.... Natural Disasters/Hazards	sensitive	sensitive	insensitive	sensitive	sensitive	insensitive	insensitive	sensitive
.... Community Attitude	negative	not negative	not negative	not negative	negative	negative	negative	not negative
.... Protected Areas	many	many	few	many	many	many	few	few
... Supportive Infrastructure	acceptable	acceptable	unacceptable	acceptable	unacceptable	unacceptable	acceptable	unacceptable
.... Technological Infrastructure	sufficient	sufficient	insufficient	sufficient	insufficient	insufficient	sufficient	insufficient
.... Scientific Infrastructure	sufficient	sufficient	insufficient	sufficient	insufficient	insufficient	sufficient	insufficient
.. Electricity Wise	poor	very poor	poor	very poor	poor	poor	poor	poor
... Electricity Demand	low	high	low	high	low	low	low	low
.... Electricity Demand Status/Situation	low	high	low	high	low	low	low	low
.... Electricity Demand Forecast/Prediction	low	high	low	high	low	low	low	low
... Electricity Grid/System Status/Condition	somewhat suitable	unsuitable	somewhat suitable	unsuitable	somewhat suitable	somewhat suitable	somewhat suitable	somewhat su
.... Substation Status/Condition	probably suitable	unsuitable	probably suitable	unsuitable	probably suitable	probably suitable	probably suitable	probably suitab
.... Distribution System Status/Condition	probably suitable	unsuitable	probably suitable	unsuitable	probably suitable	probably suitable	probably suitable	probably suitab
.... Transmission System Status/Condition	probably suitable	probably suitable	probably suitable	probably suitable	probably suitable	probably suitable	probably suitable	probably suitab
.. General Investment Wise	poor	very good	good	very good	poor	poor	good	poor
... Conflicts and Threats	somewhat risky	not risky	not risky	quite risky	quite risky	quite risky	not risky	somewhat ris

Attributes: 42 (27 basic, 0 linked, 15 aggregate) | Scales: 42 | Functions: 15 | Options: 8

The evaluation screenview of the DEXi model for the mini private hydropower plant investment options cluster

Journal of Industrial Engineering and Management

A QUALITATIVE MULTI-ATTRIBUTE MODEL FOR SELECTION OF PRIVATE HYDROPOWER PLANT INVESTMENTS IN TURKEY: BY FOUNDATION OF SEARCH RESULTS CLUSTERING ENGINE (Carrot²), HYDROPOWER PLANT CLUSTERING, DEXi AND DEXiTree MODEL DEVELOPMENT, EXECUTION AND RESULTS



The report of the evaluation of the DEXi model for the mini private hydropower plant investment options cluster

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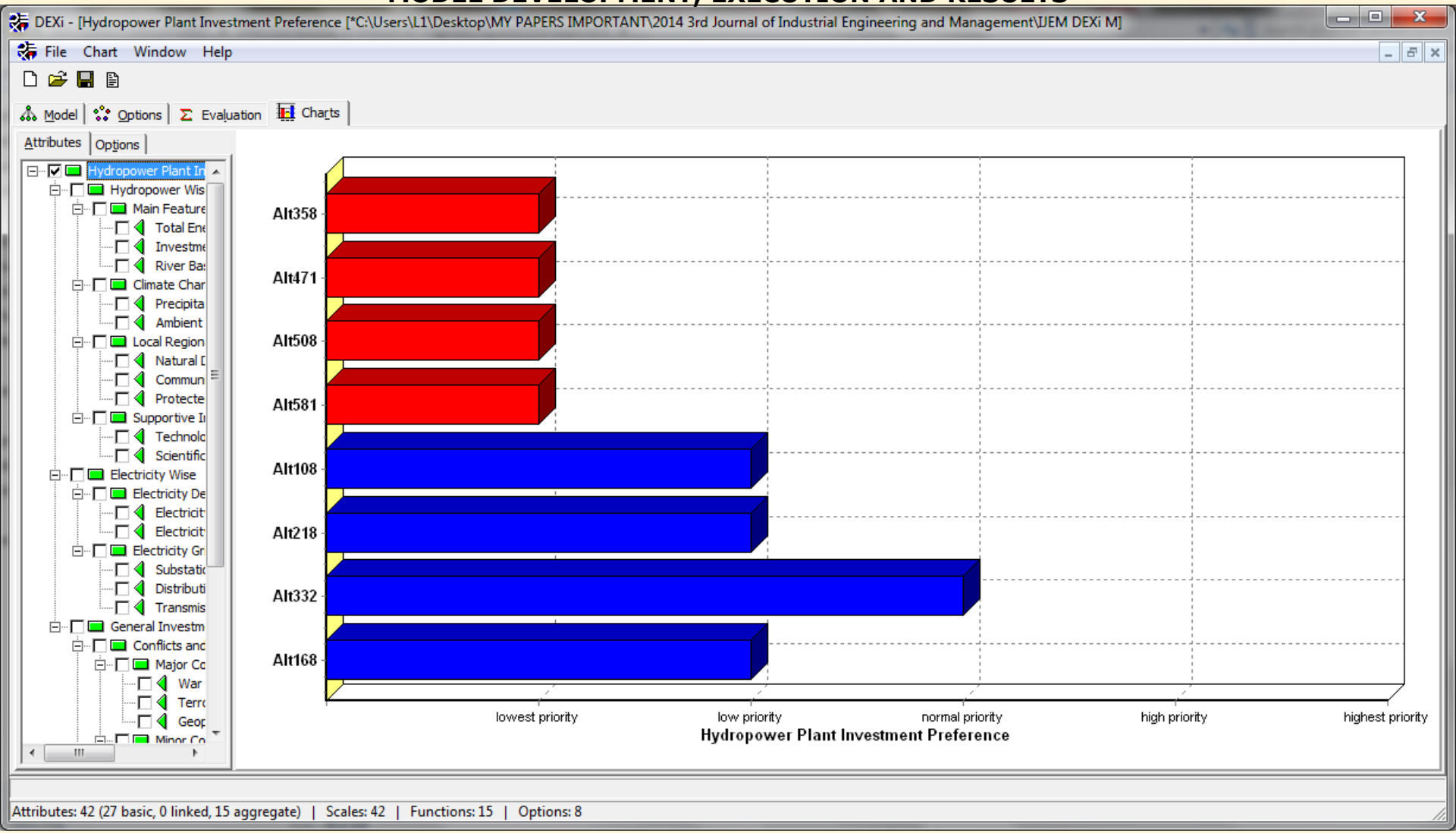
MODEL DEVELOPMENT, EXECUTION AND RESULTS



The chart of the evaluation of the DEXi model for the mini private hydropower plant investment options cluster

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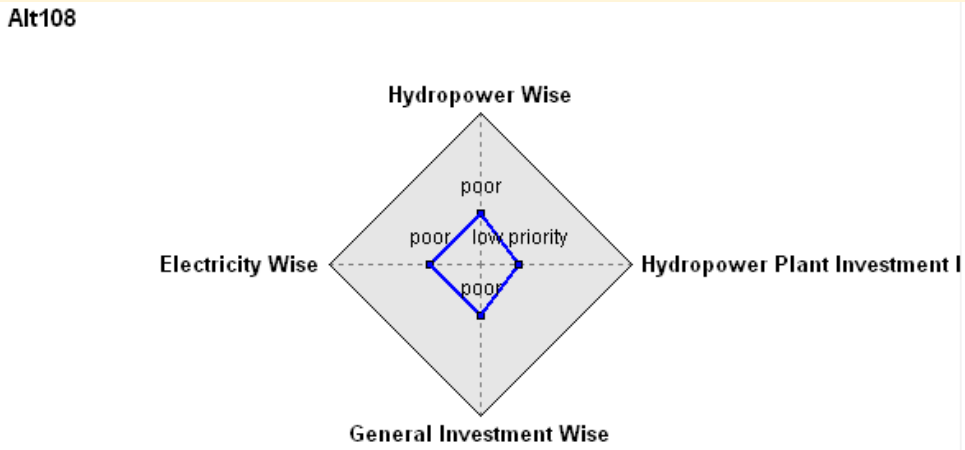
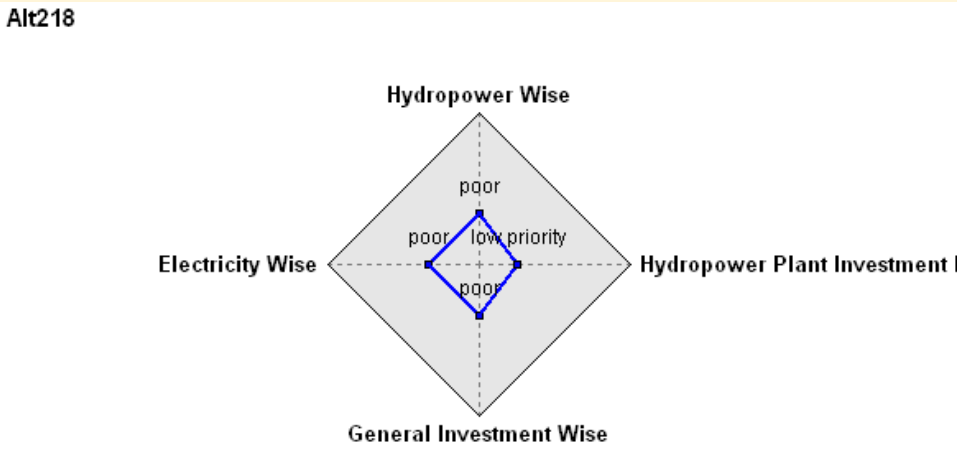
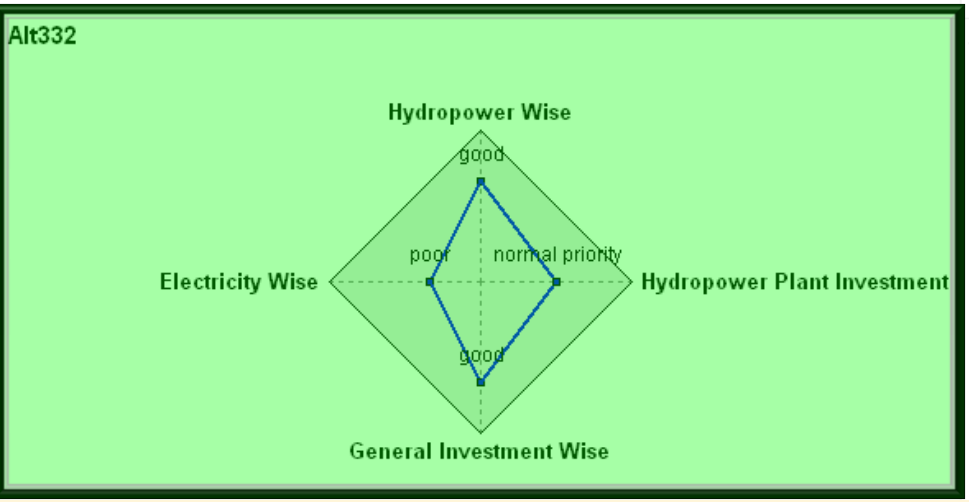
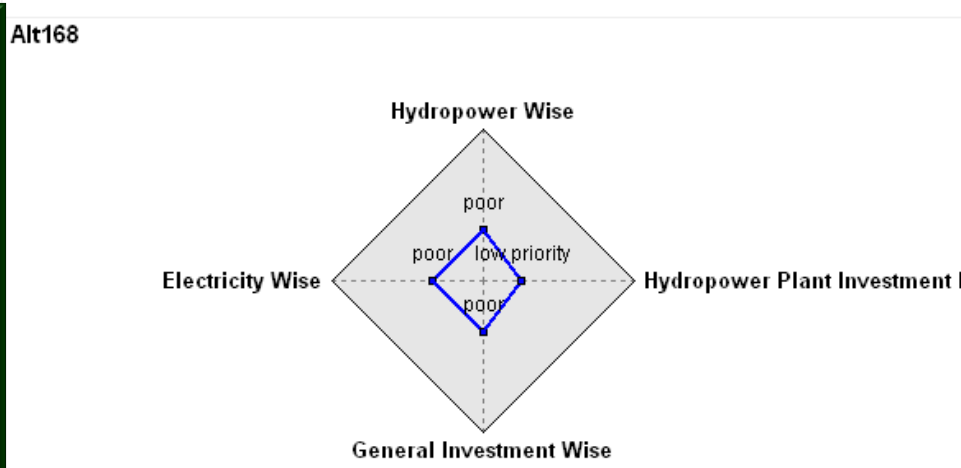
MODEL DEVELOPMENT, EXECUTION AND RESULTS









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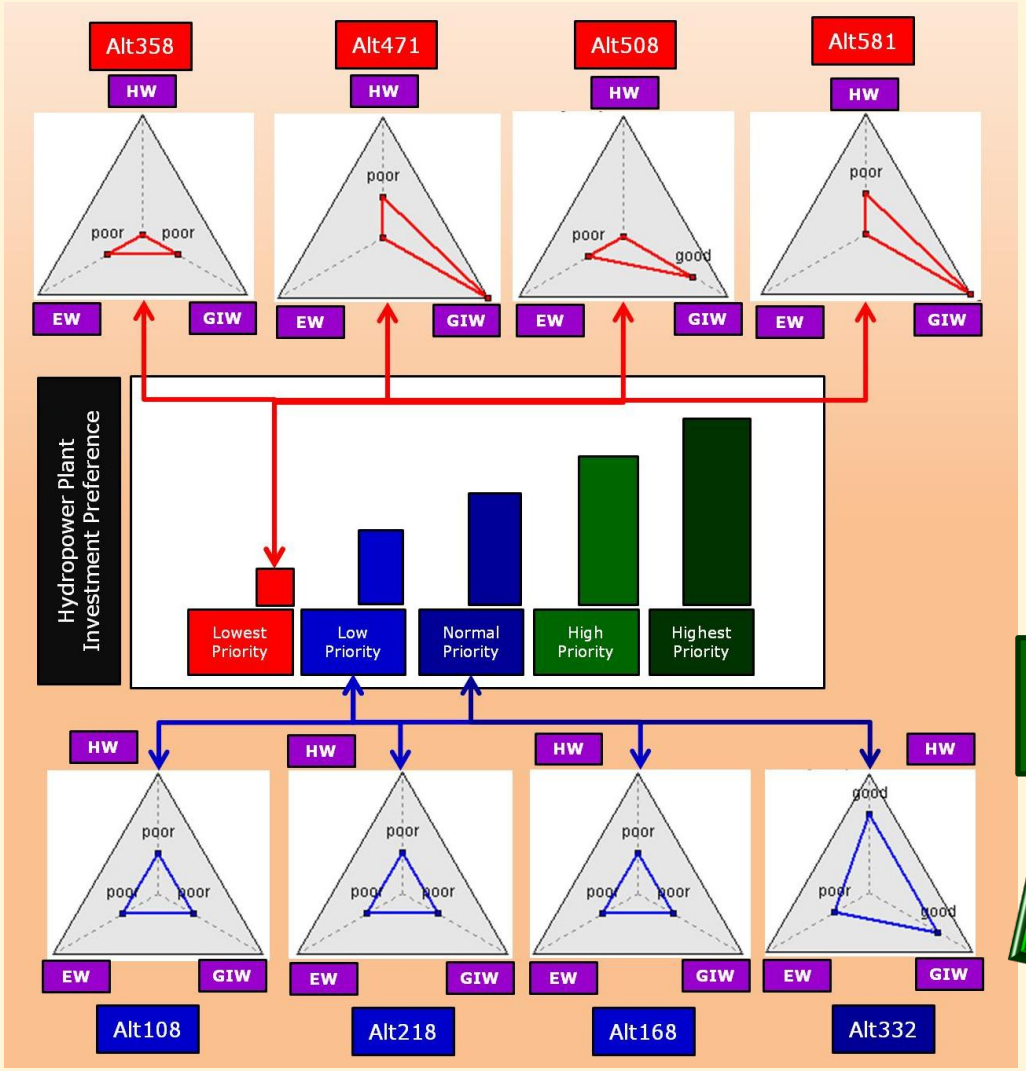
MODEL DEVELOPMENT, EXECUTION AND RESULTS

OVERALL THRESHOLD DEGREE: NORMAL PRIORITY



BEST OPTION FOR VPI

The graphical display of the evaluation of the DEXi model for the mini private hydropower plant investment options cluster

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MODEL DEVELOPMENT, EXECUTION AND RESULTS

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Model | Options | Evaluation | Charts

Alt532

Option	Alt532	Alt436	Alt422	Alt438	Alt459	Alt583	Alt408	Alt596	Alt469	Alt519	Alt280	Alt133	Alt233	Alt094	Alt011	Alt205	Alt501	Alt4
Total Energy Generation	high	high	high	high	high	low	low	low	low	low	low	high	high	high	high	high	high	high
Investment Cost	high	low	low	low	high	high	high	high	high	high	high	high	high	low	low	low	low	low
River Basin	good	poor	poor	poor	poor	poor	poor	poor	poor	poor	poor	good	good	good	good	good	good	good
Precipitation Change	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Ambient Temperature Change	warm	warm	warm	warm	warm	warm	warm	warm	warm	warm	warm	warm	warm	warm	warm	warm	warm	warm
Natural Disasters/Hazards	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sens
Community Attitude	negative	not negative	not negative	not negative	not negative	not negative	not negative	not negative	not negative	not negative	not negative	negative	negative	negative	negative	negative	negative	nega
Protected Areas	many	few	few	few	few	few	few	few	few	few	few	many	many	many	many	many	many	many
Technological Infrastructure	sufficient	sufficient	sufficient	sufficient	sufficient	sufficient	sufficient	sufficient	sufficient	sufficient	sufficient	insufficient	insufficient	sufficient	sufficient	sufficient	sufficient	suffi
Scientific Infrastructure	sufficient	sufficient	sufficient	sufficient	sufficient	sufficient	sufficient	sufficient	sufficient	sufficient	sufficient	insufficient	insufficient	sufficient	sufficient	sufficient	sufficient	suffi
Electricity Demand Status/Situation	high	low	low	low	low	low	low	low	low	low	low	low	low	low	low	low	low	low
Electricity Demand Forecast/Prediction	high	high	high	high	high	high	high	high	high	high	high	low	low	low	low	low	low	low
Substation Status/Condition	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	prob
Distribution System Status/Condition	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	prob
Transmission System Status/Condition	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	prob
War Situation	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Terrorism Situation	no	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	no	no	no	no	no
Geopolitical Uncertainty Situation	low	low	low	low	low	low	low	low	low	low	low	high	high	high	high	high	high	high
Security Situation	good	good	good	good	good	good	good	good	good	good	good	poor	poor	good	good	good	good	good
Free Travel Situation	good	good	good	good	good	good	good	good	good	good	good	poor	poor	good	good	good	good	good
Social Chaos Situation	no	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Road Transportation	good	good	good	good	good	good	good	good	good	good	good	poor	poor	poor	poor	poor	poor	poor
Railroad Transportation	good	good	good	good	good	good	good	good	good	good	good	poor	poor	poor	poor	poor	poor	poor
Air Transportation	good	good	good	good	good	good	good	good	good	good	good	poor	poor	good	good	good	good	good
Waterborne Transportation	good	poor	poor	poor	poor	poor	poor	poor	poor	poor	poor	poor	poor	good	good	good	good	good
Business Climate Status/Situation	good	poor	poor	poor	poor	poor	poor	poor	poor	poor	poor	poor	poor	poor	poor	poor	poor	poor
Business Climate Prediction	good	good	good	good	good	good	good	good	good	good	good	poor	poor	good	good	good	good	good

Attributes: 42 (27 basic, 0 linked, 15 aggregate) | Scales: 42 | Functions: 15 | Options: 355

The options screenview of the DEXi model for the small private hydropower plant investment options cluster

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MODEL DEVELOPMENT, EXECUTION AND RESULTS

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Model | Options | Evaluation | Charts

Option	Alt532	Alt436	Alt422	Alt438	Alt459	Alt583	Alt408	Alt596	Alt469	Alt519	Alt280	Alt133	Alt233	Alt094	Alt011	Alt205	Alt501
. Hydropower Plant Investment Preference	normal pric	normal pric	normal pric	normal pric	lowest prio	lowest prio	lowest prio	lowest prio	lowest prio	lowest prio	lowest prio	low priority	low priority	low priority	low priority	low priority	low prio
.. Hydropower Wise	poor	good	good	good	very poor	very poor	very poor	very poor	very poor	very poor	very poor	poor	poor	poor	poor	poor	poor
... Main Features	acceptable	acceptable	acceptable	acceptable	unacceptal	unacceptal	unacceptal	unacceptal	unacceptal	unacceptal	unacceptal	acceptable	acceptable	acceptable	acceptable	acceptable	accepta
.... Total Energy Generation	high	high	high	high	high	low	low	low	low	low	low	high	high	high	high	high	high
.... Investment Cost	high	low	low	low	high	high	high	high	high	high	high	high	high	low	low	low	low
.... River Basin	good	poor	poor	poor	poor	poor	poor	poor	poor	poor	poor	good	good	good	good	good	good
... Climate Change	insensitive	insensitive	insensitive	insensitive	insensitive	insensitive	insensitive	insensitive	insensitive	insensitive	insensitive	insensitive	insensitive	insensitive	insensitive	insensitive	insensit
.... Precipitation Change	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
.... Ambient Temperature Change	warm	warm	warm	warm	warm	warm	warm	warm	warm	warm	warm	warm	warm	warm	warm	warm	warm
... Local Regional Conditions	unsuitable	somewhat	somewhat	somewhat	somewhat	somewhat	somewhat	somewhat	somewhat	somewhat	somewhat	unsuitable	unsuitable	unsuitable	unsuitable	unsuitable	unsuital
.... Natural Disasters/Hazards	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive
.... Community Attitude	negative	not negative	not negative	not negative	not negative	not negative	not negative	not negative	not negative	not negative	not negative	negative	negative	negative	negative	negative	negative
.... Protected Areas	many	few	few	few	few	few	few	few	few	few	few	many	many	many	many	many	many
... Supportive Infrastructure	acceptable	acceptable	acceptable	acceptable	acceptable	acceptable	acceptable	acceptable	acceptable	acceptable	acceptable	unacceptal	unacceptal	acceptable	acceptable	acceptable	accepta
.... Technological Infrastructure	sufficient	sufficient	sufficient	sufficient	sufficient	sufficient	sufficient	sufficient	sufficient	sufficient	sufficient	insufficient	insufficient	sufficient	sufficient	sufficient	sufficient
.... Scientific Infrastructure	sufficient	sufficient	sufficient	sufficient	sufficient	sufficient	sufficient	sufficient	sufficient	sufficient	sufficient	insufficient	insufficient	sufficient	sufficient	sufficient	sufficient
.. Electricity Wise	good	good	good	good	good	good	good	good	good	good	good	poor	poor	poor	poor	poor	poor
... Electricity Demand	high	medium	medium	medium	medium	medium	medium	medium	medium	medium	medium	low	low	low	low	low	low
.... Electricity Demand Status/Situation	high	low	low	low	low	low	low	low	low	low	low	low	low	low	low	low	low
.... Electricity Demand Forecast/Prediction	high	high	high	high	high	high	high	high	high	high	high	low	low	low	low	low	low
... Electricity Grid/System Status/Condition	somewhat	somewhat	somewhat	somewhat	somewhat	somewhat	somewhat	somewhat	somewhat	somewhat	somewhat	somewhat	somewhat	somewhat	somewhat	somewhat	somewh
.... Substation Status/Condition	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably
.... Distribution System Status/Condition	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably
.... Transmission System Status/Condition	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably
.. General Investment Wise	very good	poor	poor	poor	poor	poor	poor	poor	poor	poor	poor	poor	poor	poor	poor	poor	poor
... Conflicts and Threats	not risky	somewhat	somewhat	somewhat	somewhat	somewhat	somewhat	somewhat	somewhat	somewhat	somewhat	somewhat	somewhat	somewhat	somewhat	somewhat	somewh
.... Major Conflicts and Threats	not risky	quite risky	quite risky	quite risky	quite risky	quite risky	quite risky	quite risky	quite risky	quite risky	quite risky	quite risky	quite risky	quite risky	quite risky	quite risky	quite ris
..... War Situation	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no

Attributes: 42 (27 basic, 0 linked, 15 aggregate) | Scales: 42 | Functions: 15 | Options: 355

The evaluation screenview of the DEXi model for the small private hydropower plant investment options cluster

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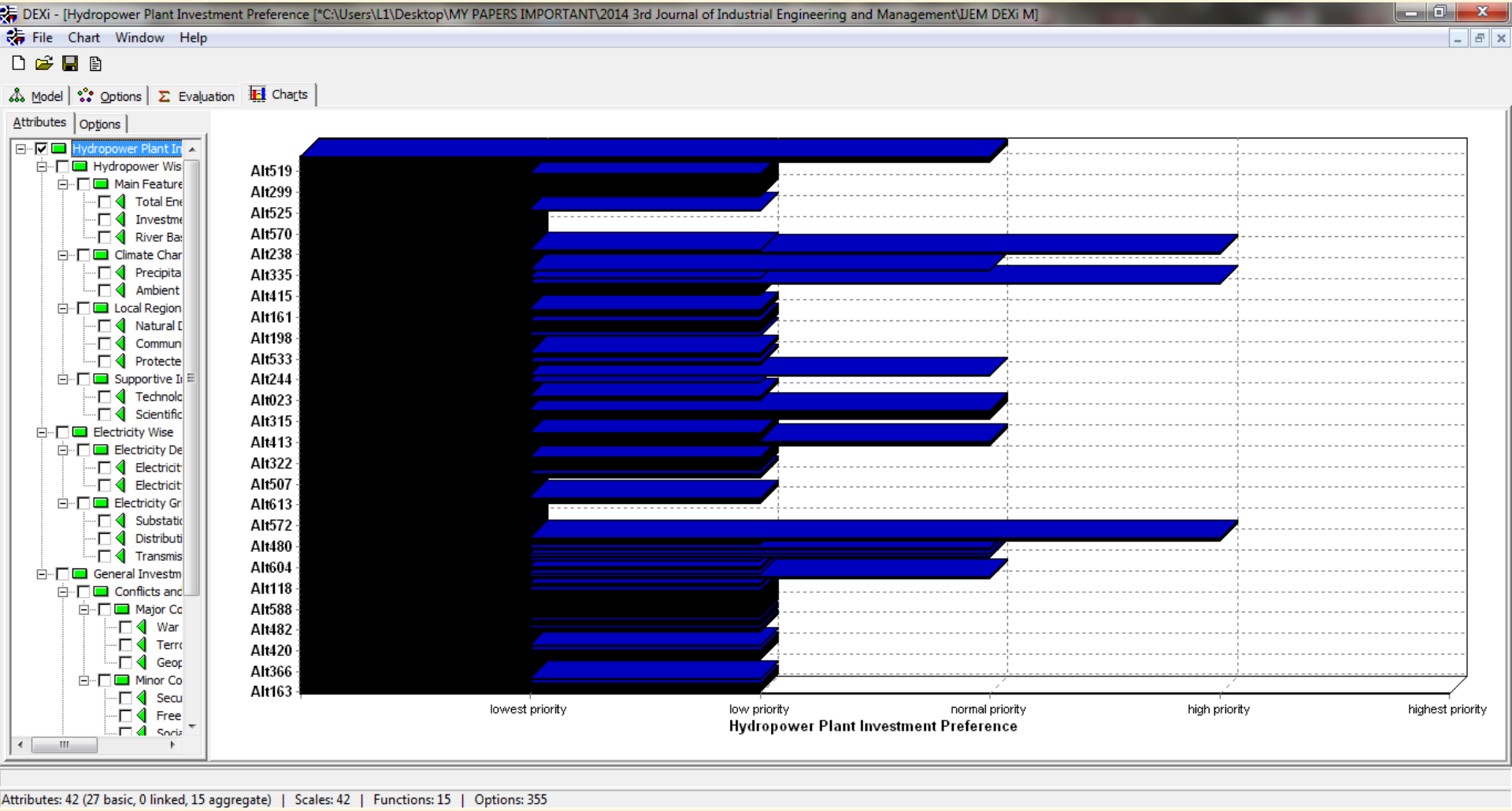
MODEL DEVELOPMENT, EXECUTION AND RESULTS



The chart of the evaluation of the DEXi model for the small private hydropower plant investment options cluster

Journal of Industrial Engineering and Management

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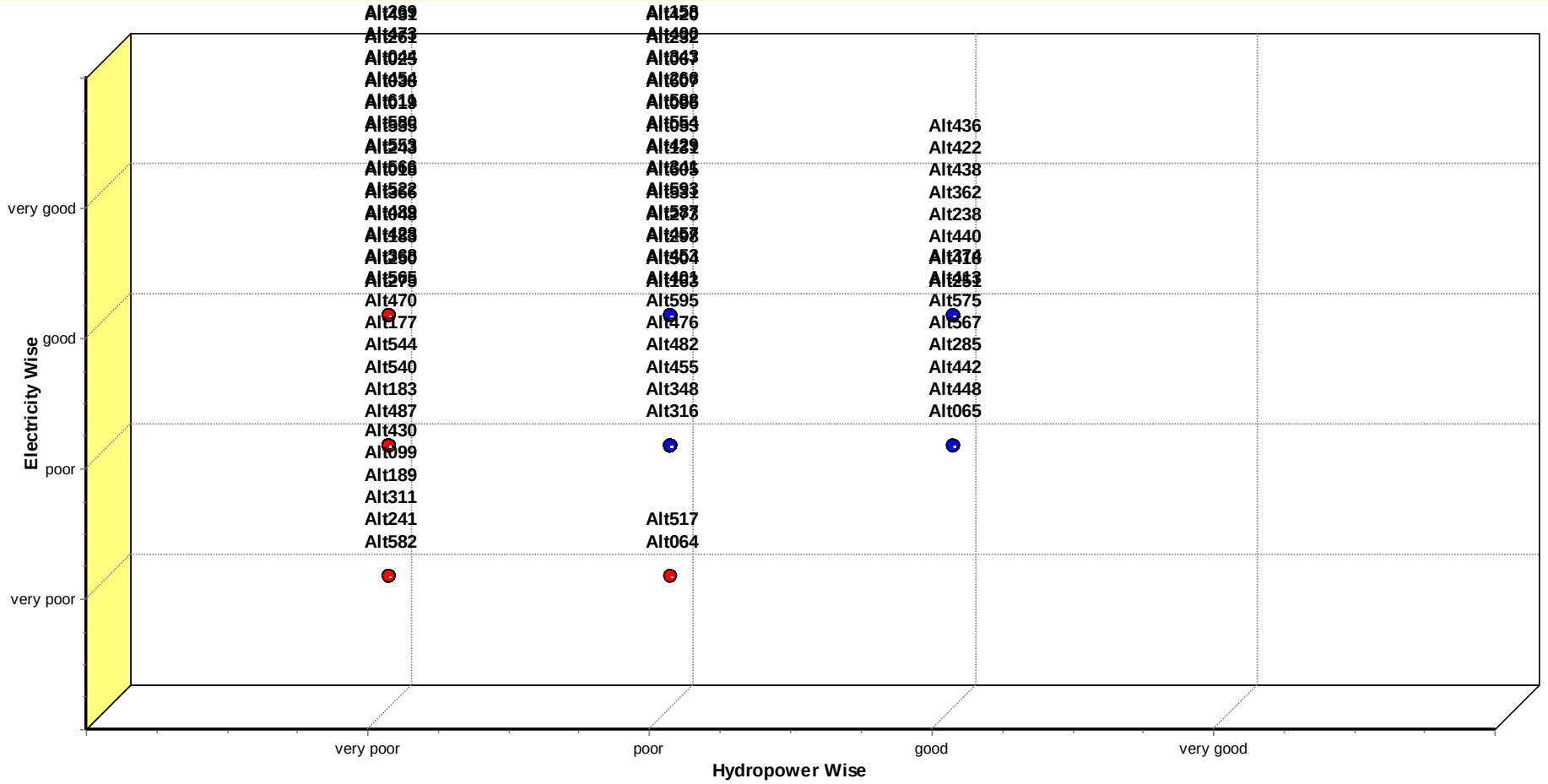
MODEL DEVELOPMENT, EXECUTION AND RESULTS



The chart of the evaluation of the DEXi model for the small private hydropower plant investment options cluster (hydropower wise-electricity wise)

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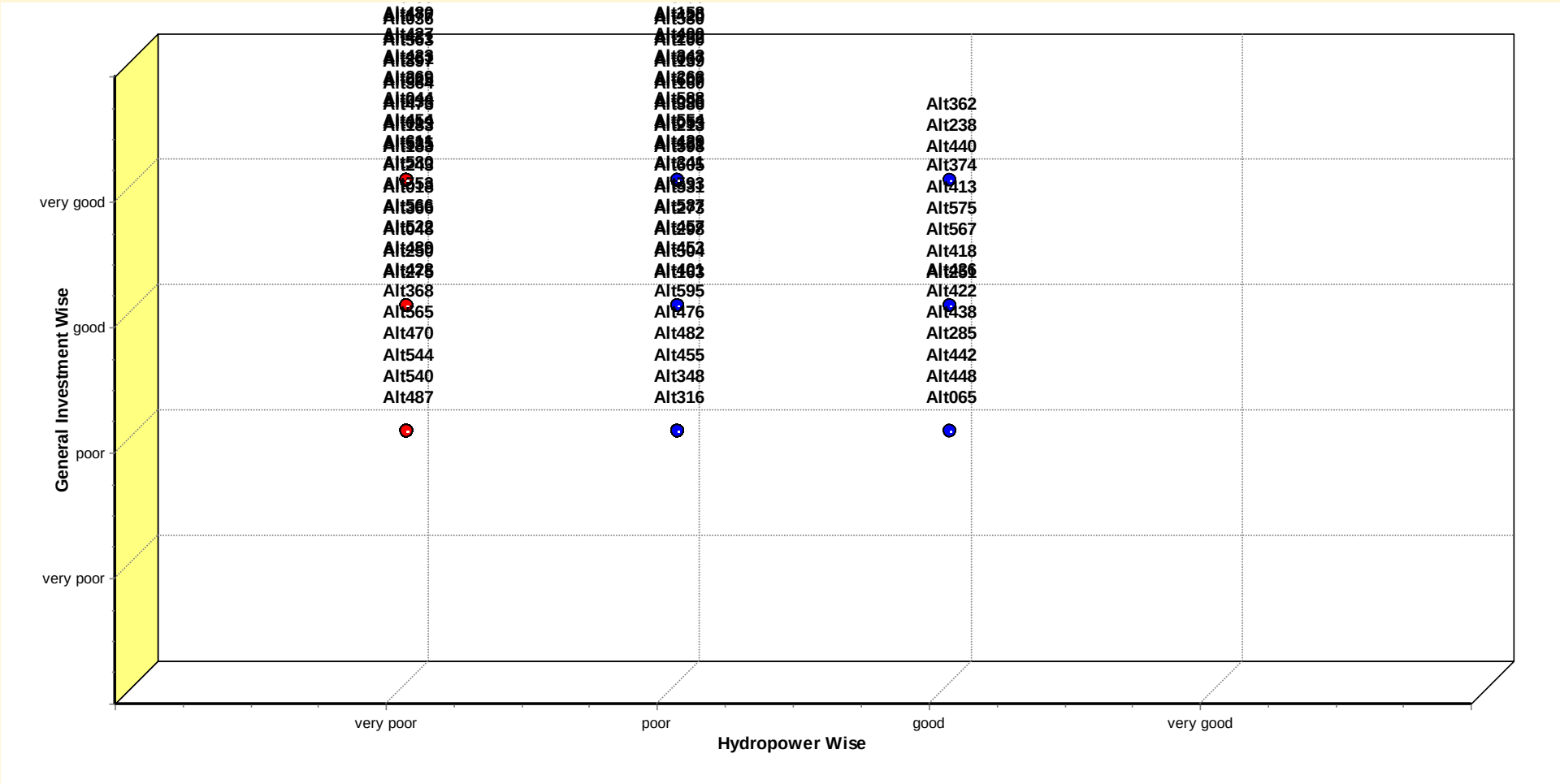
MODEL DEVELOPMENT, EXECUTION AND RESULTS



The chart of the evaluation of the DEXi model for the small private hydropower plant investment options cluster (hydropower wise-general investment wise)

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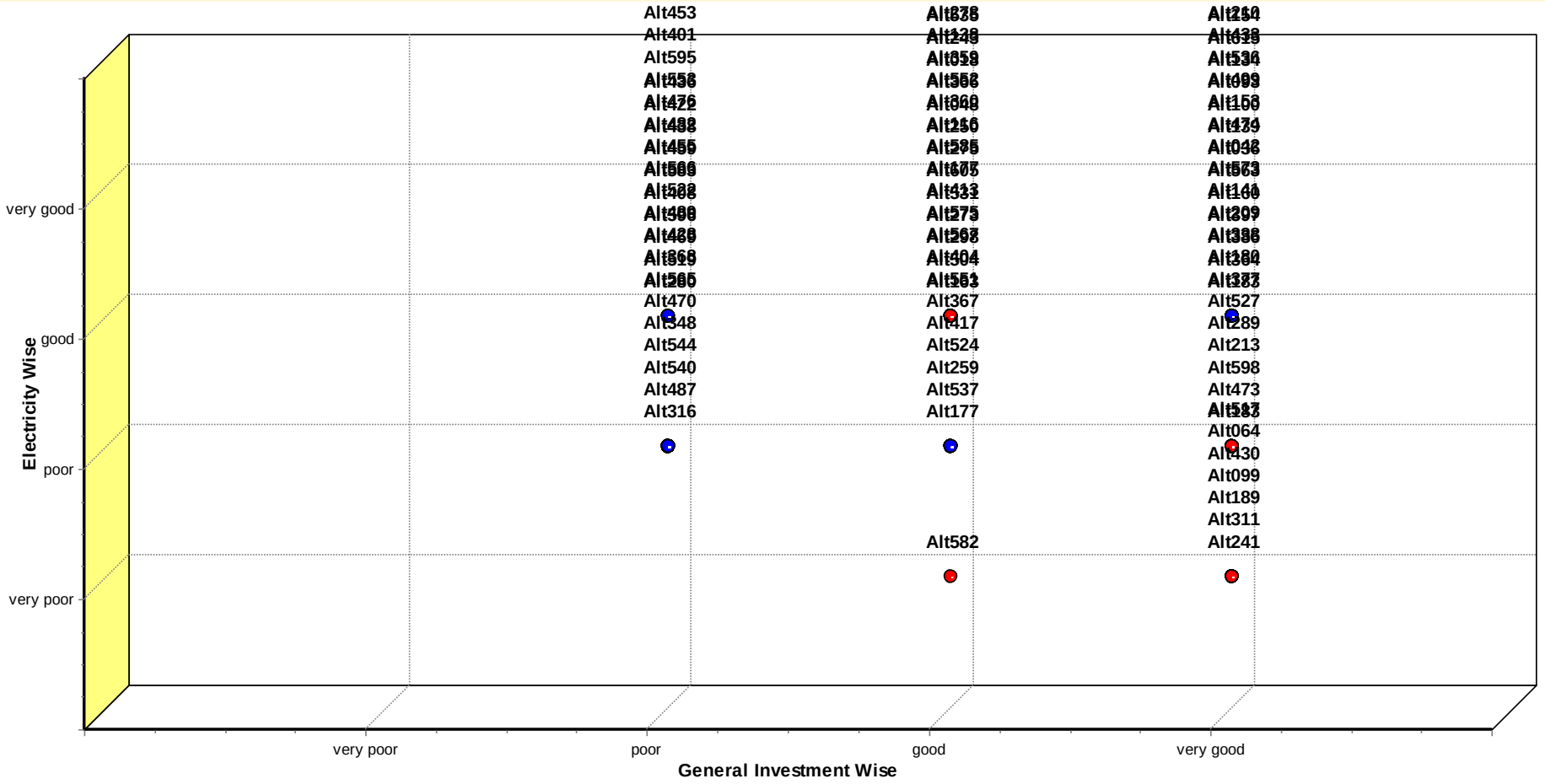

The chart of the evaluation of the DEXi model for the small private hydropower plant investment options cluster (electricity wise-general investment wise)

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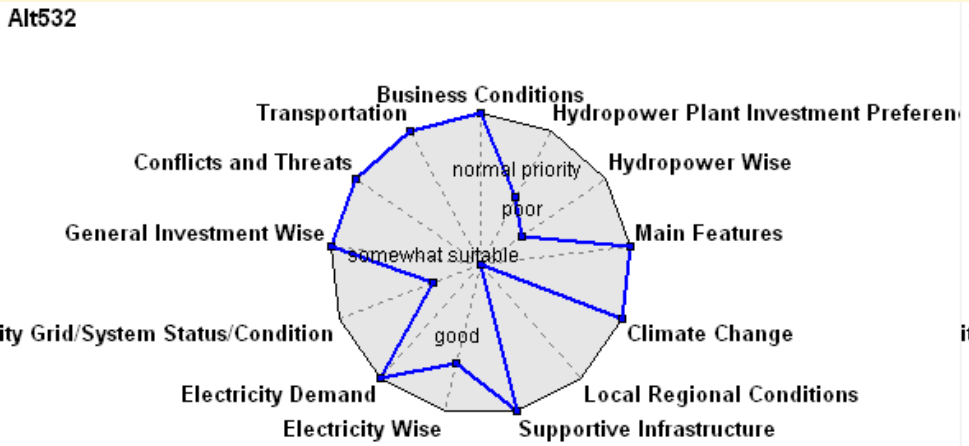

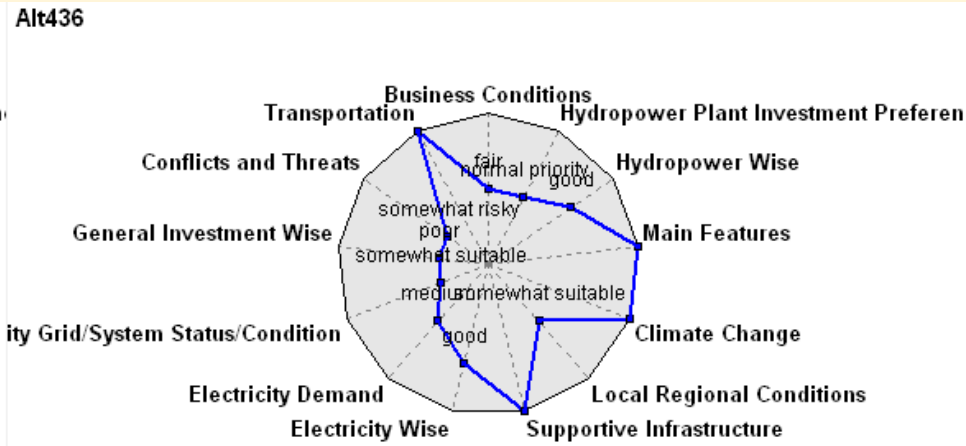

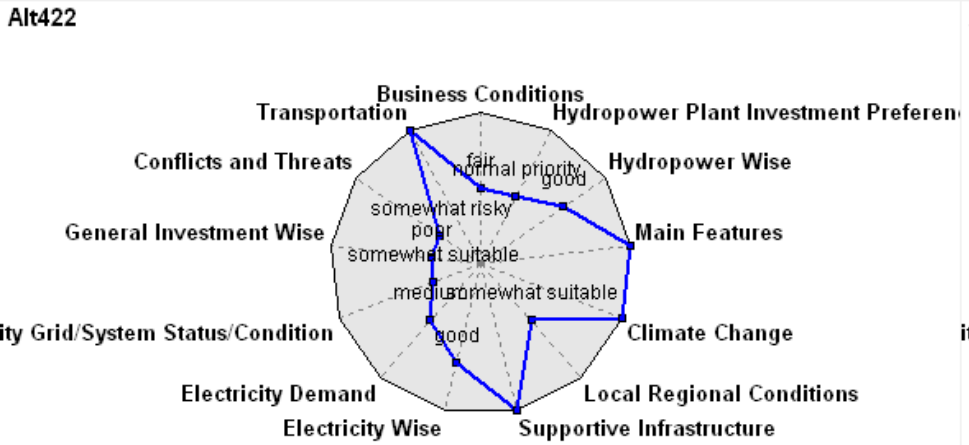

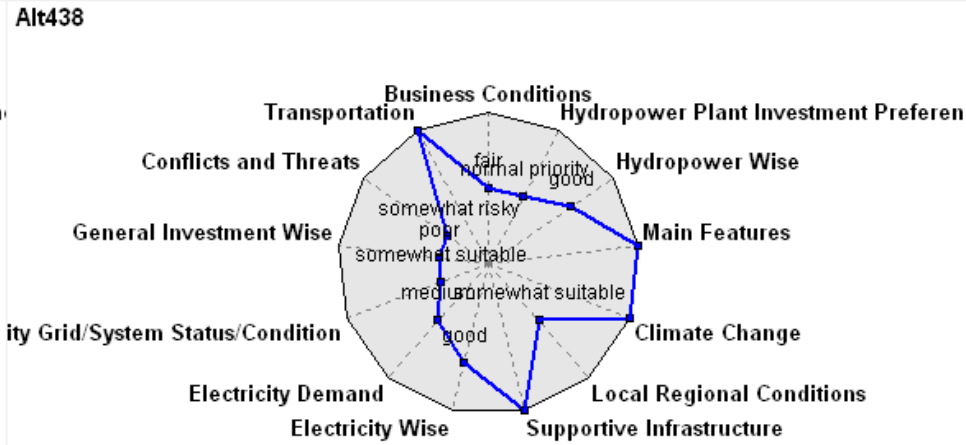

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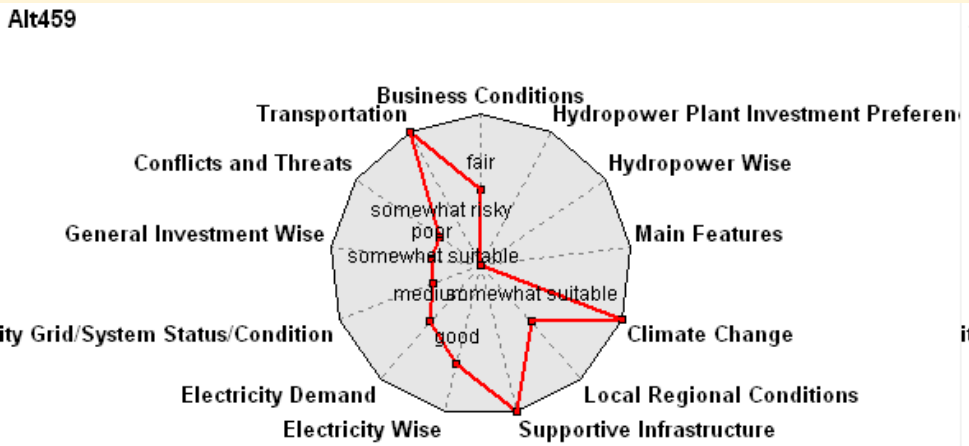

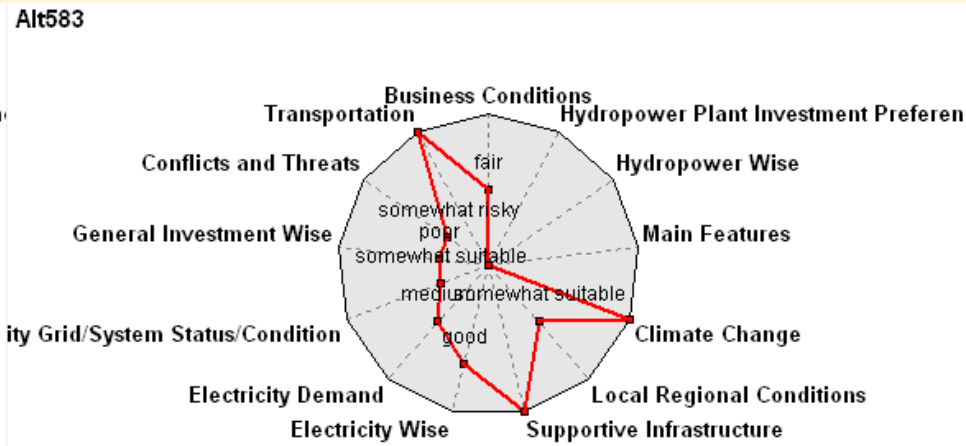

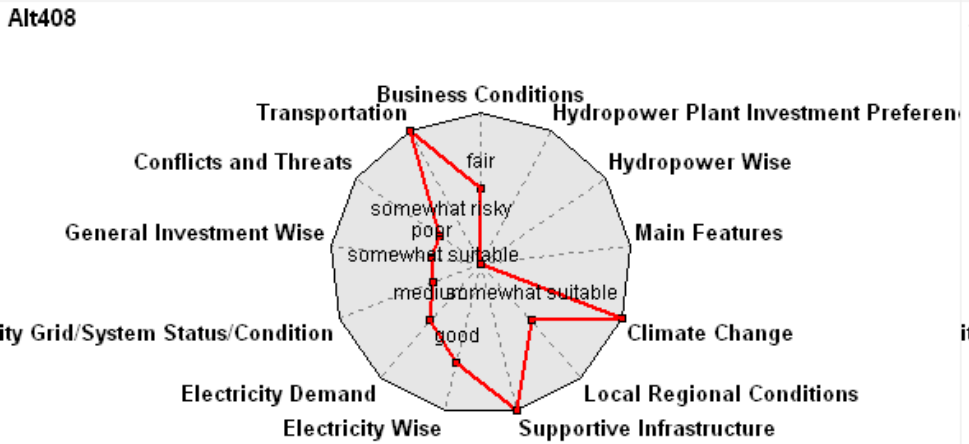

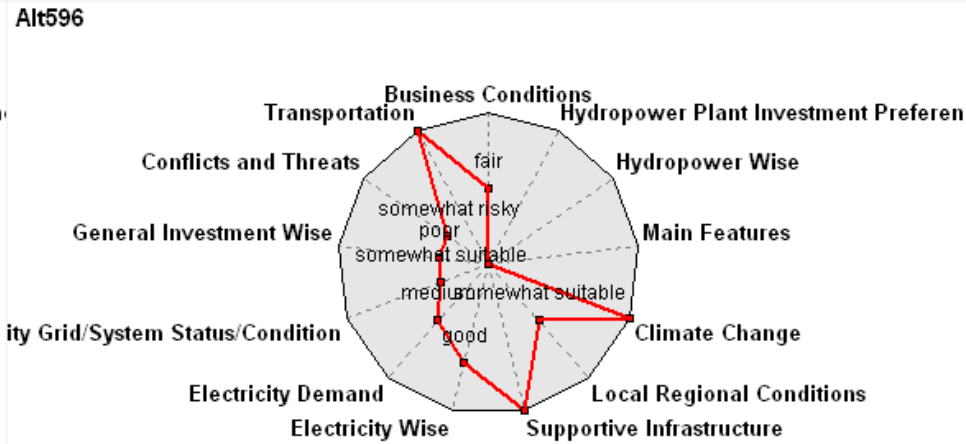

The chart of the evaluation of the DEXi model for the small private hydropower plant investment options cluster

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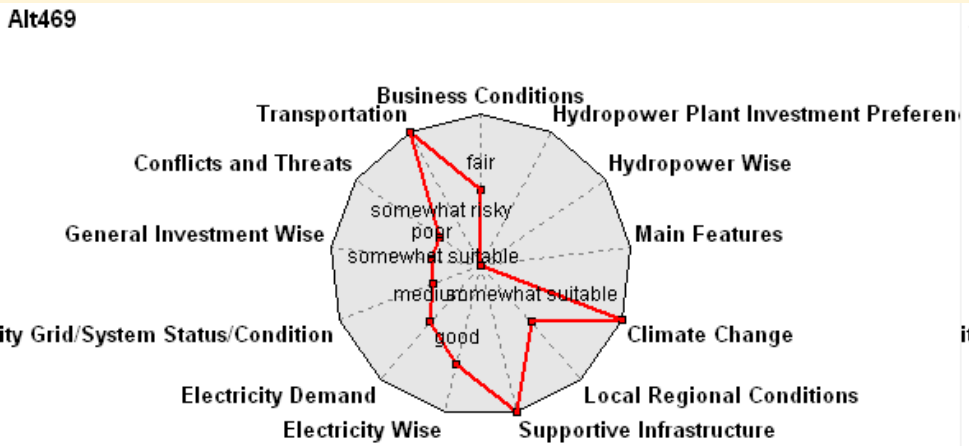
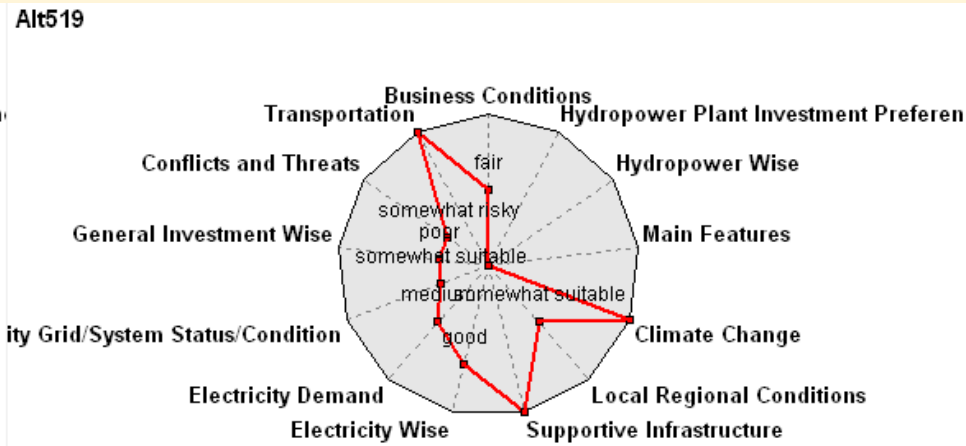
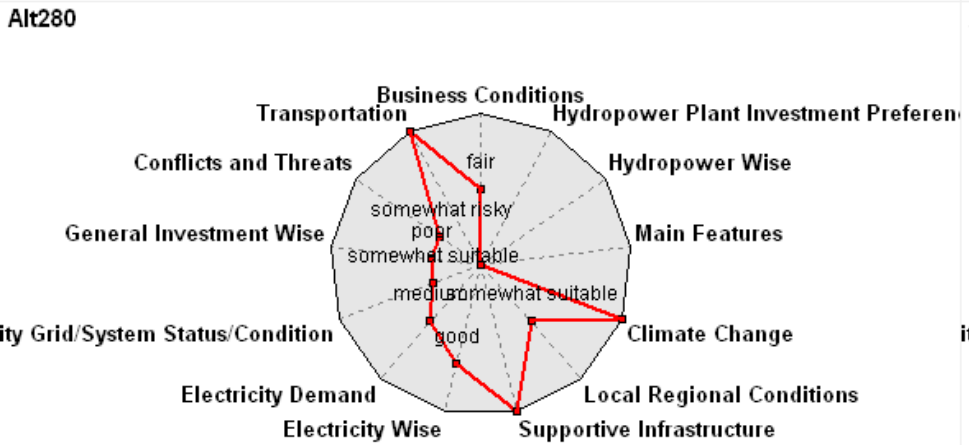
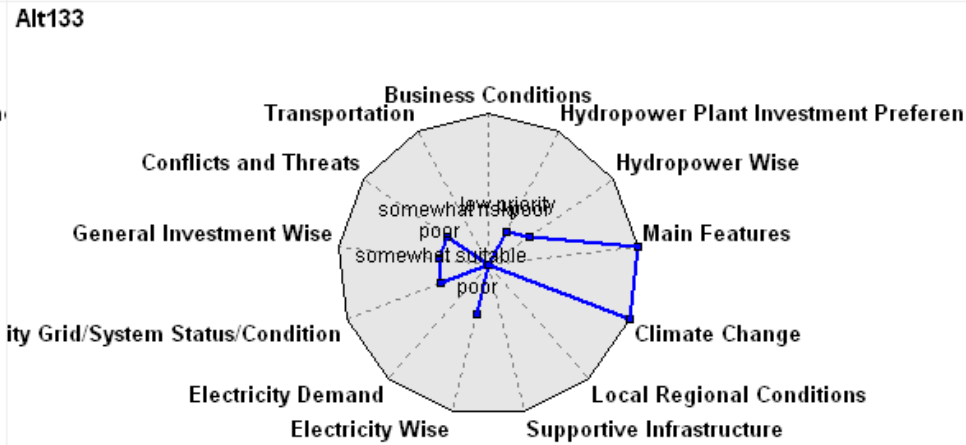
A QUALITATIVE MULTI-ATTRIBUTE MODEL FOR SELECTION OF PRIVATE HYDROPOWER PLANT INVESTMENTS IN TURKEY: BY FOUNDATION OF SEARCH RESULTS CLUSTERING ENGINE (Carrot²), HYDROPOWER PLANT CLUSTERING, DEXi AND DEXiTree

MODEL DEVELOPMENT, EXECUTION AND RESULTS









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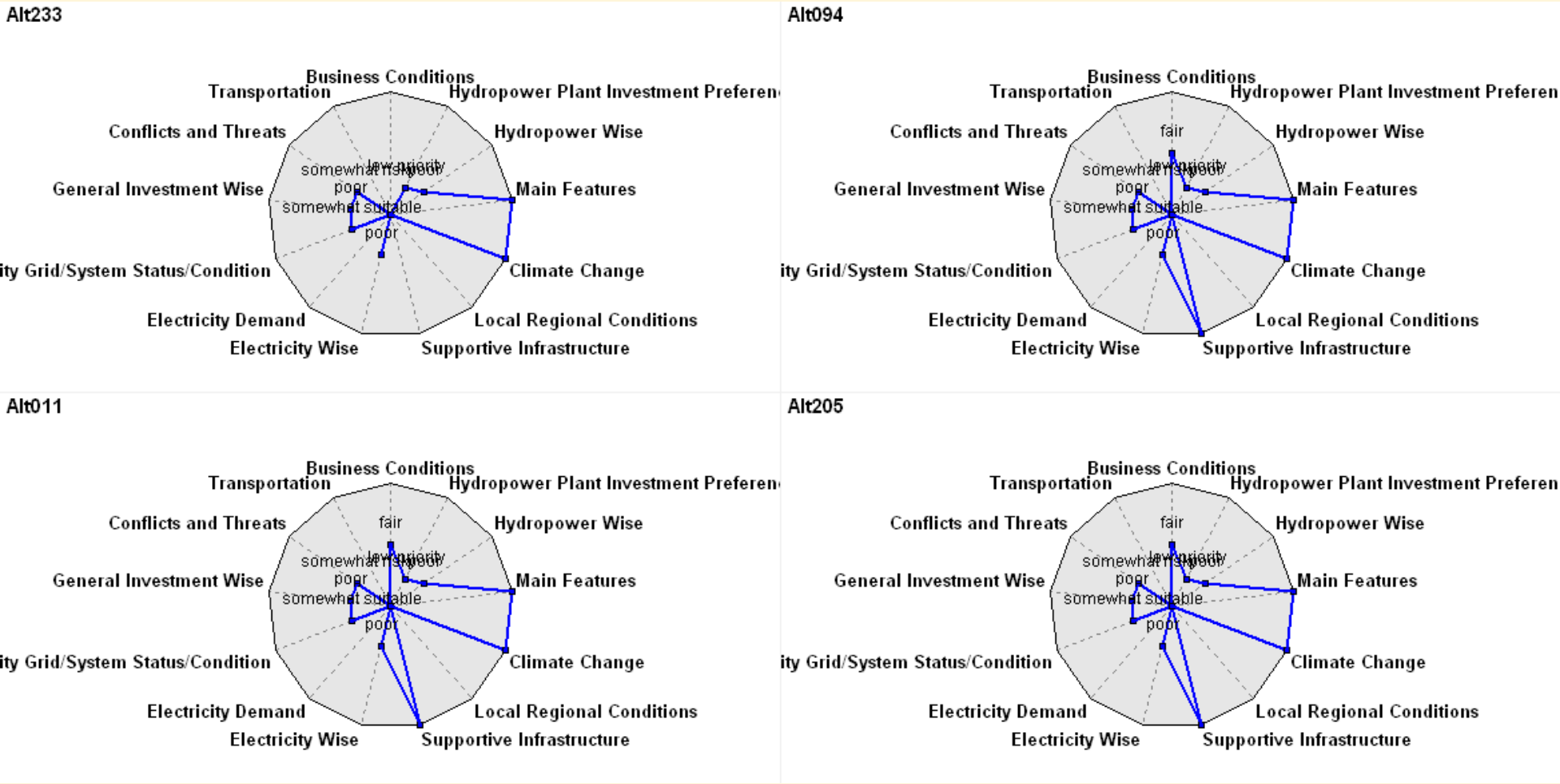

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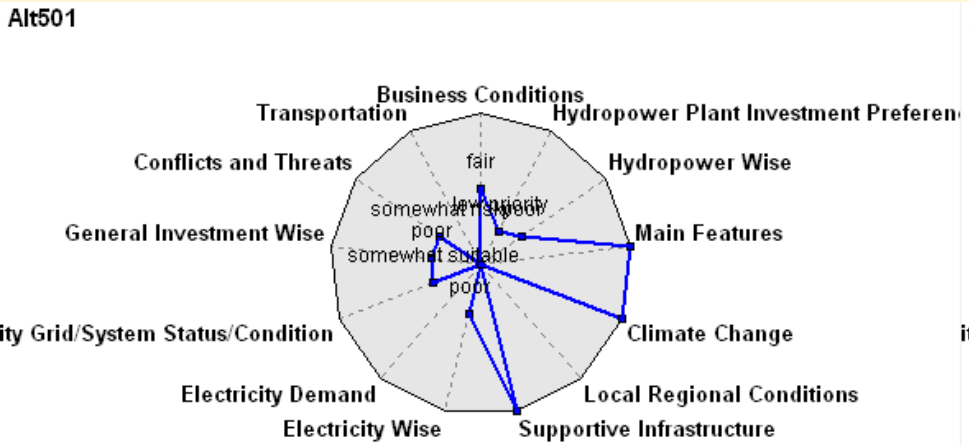

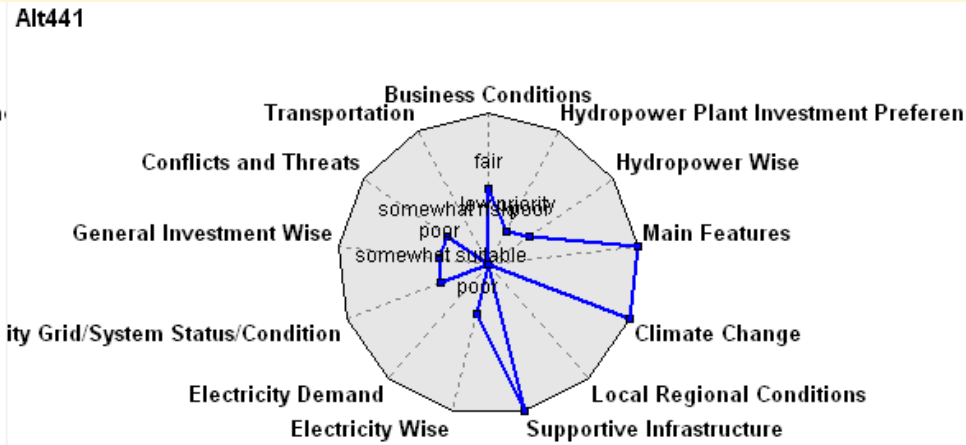

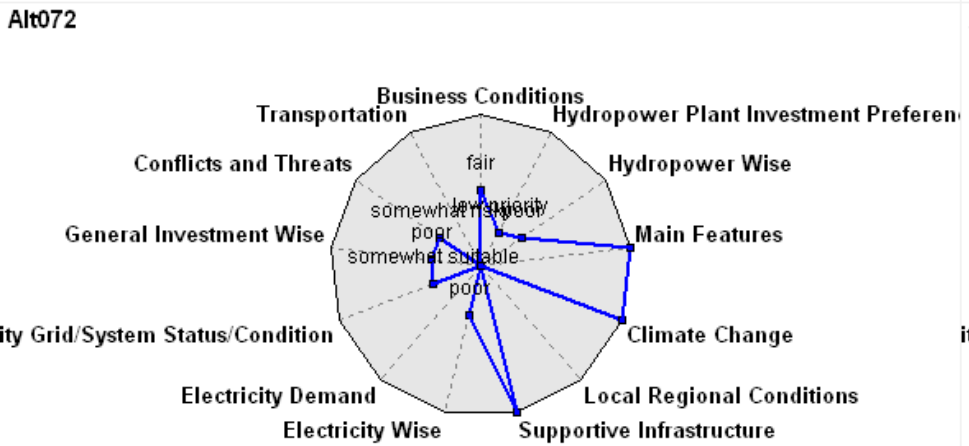

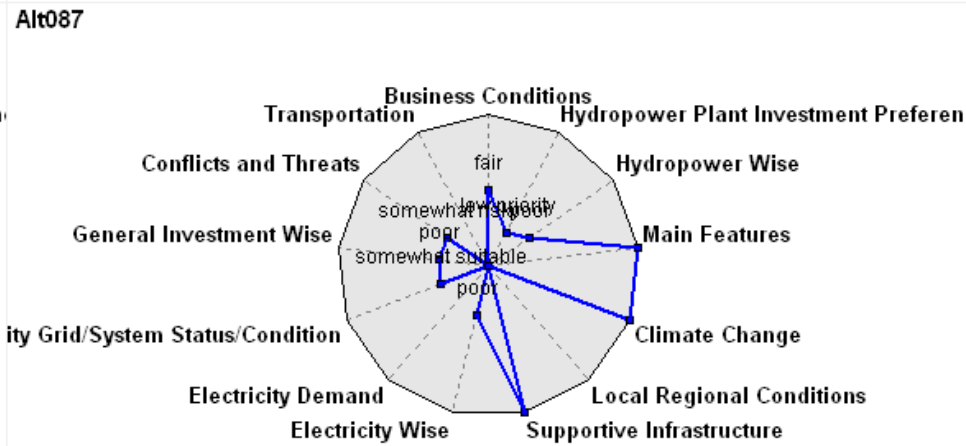

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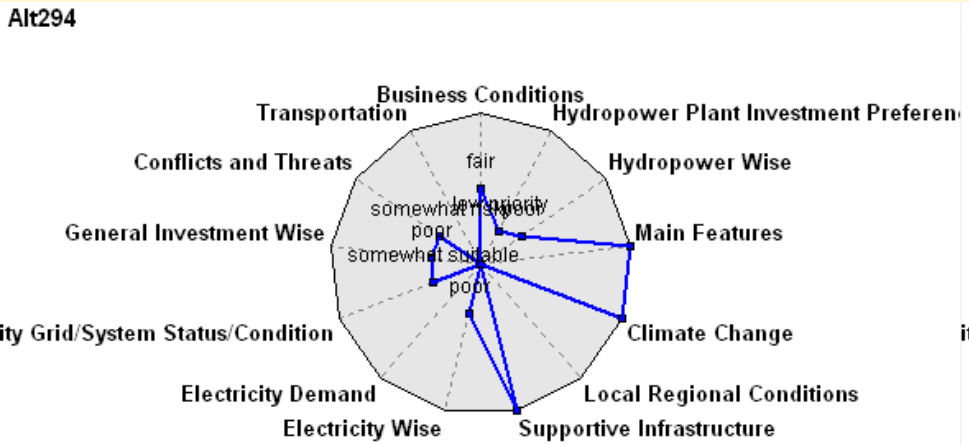

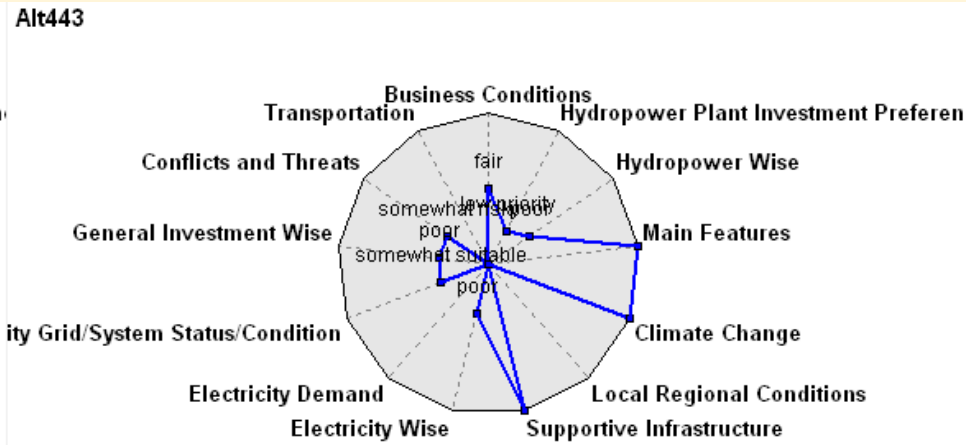

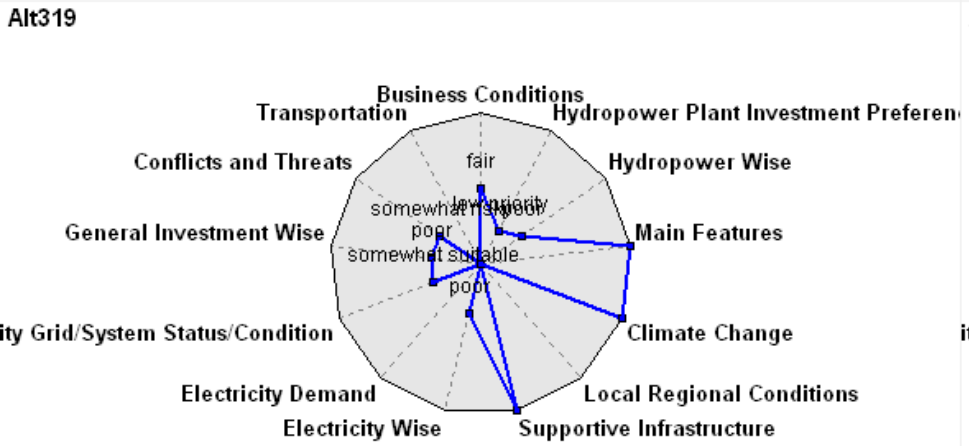

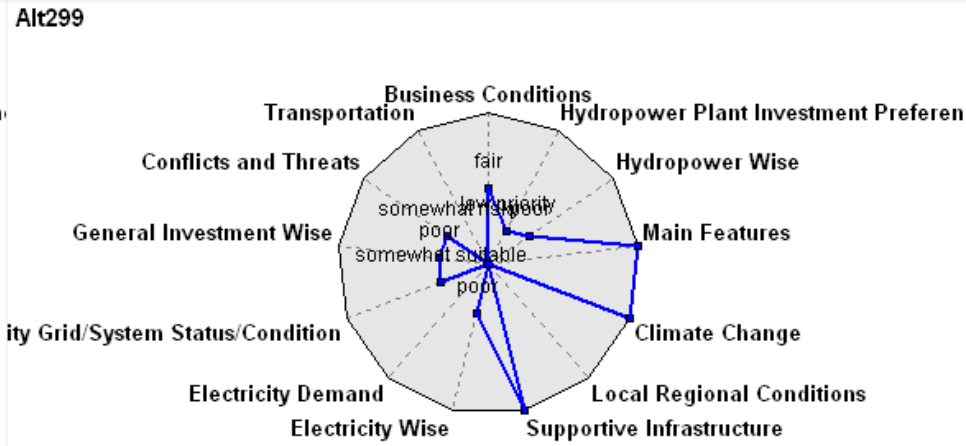

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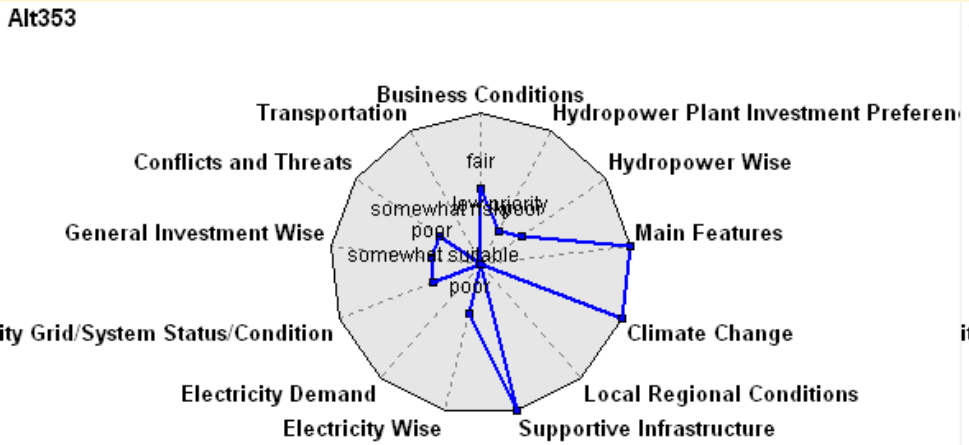

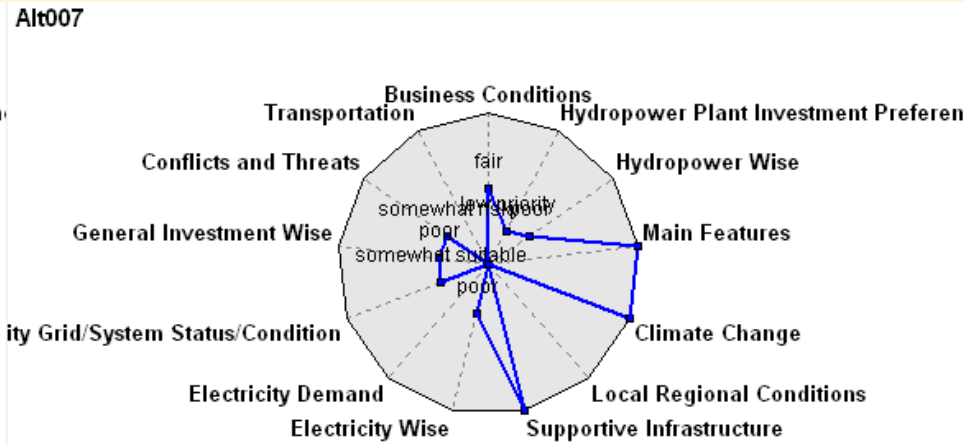

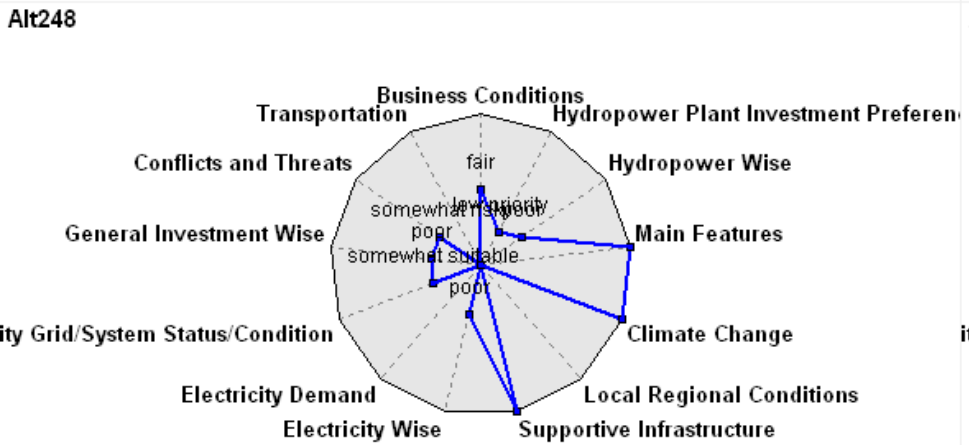

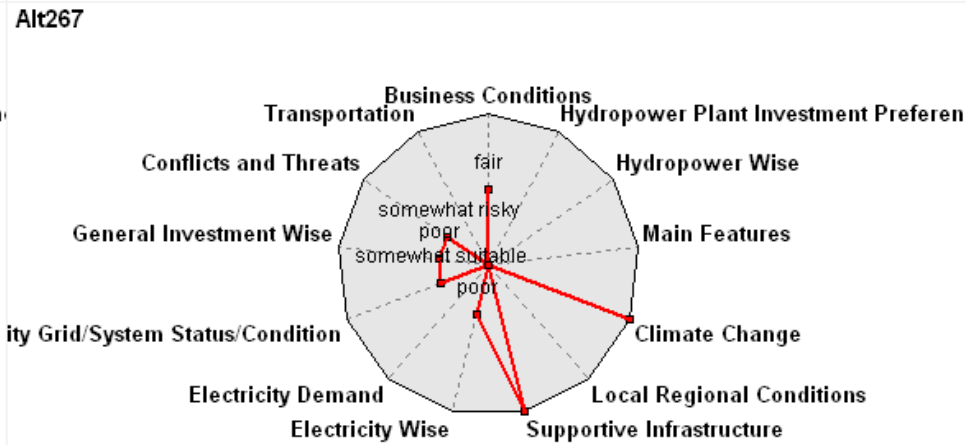

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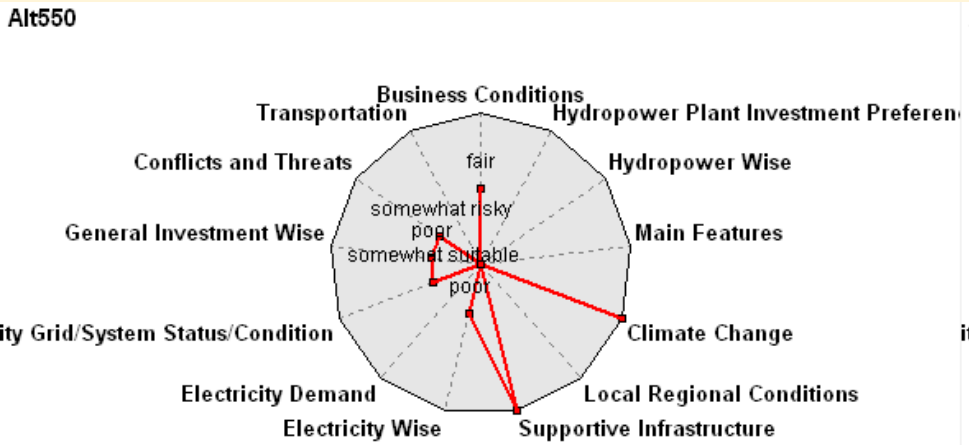

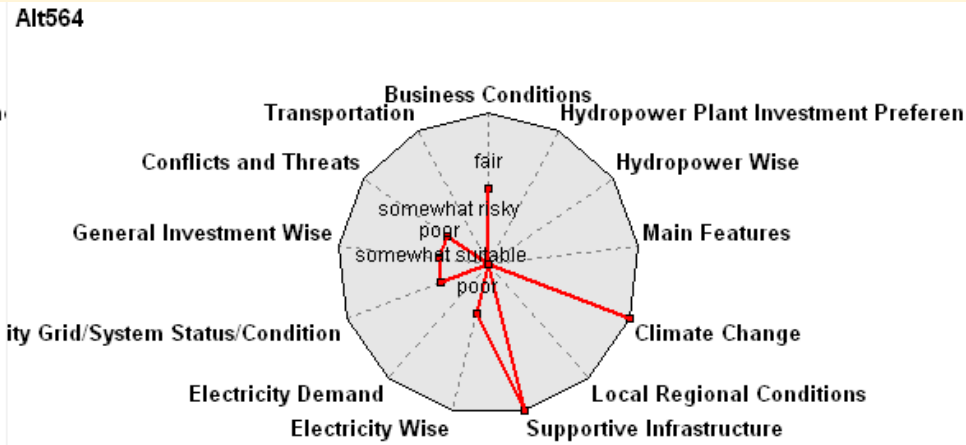

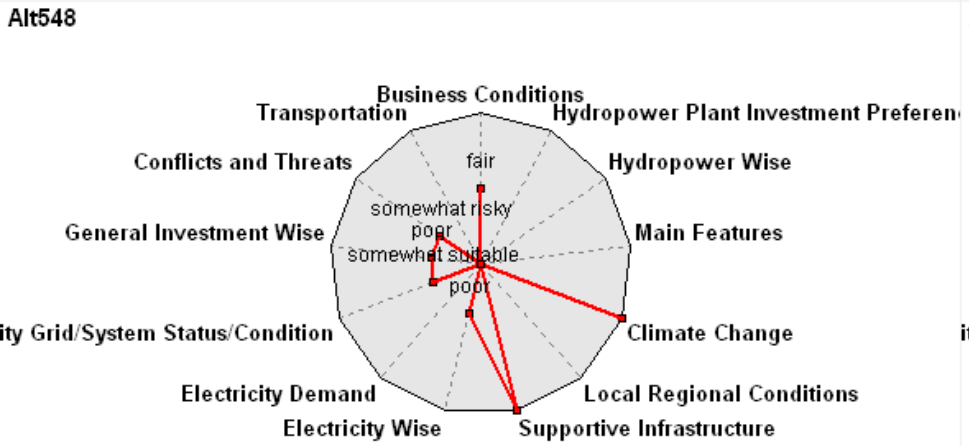

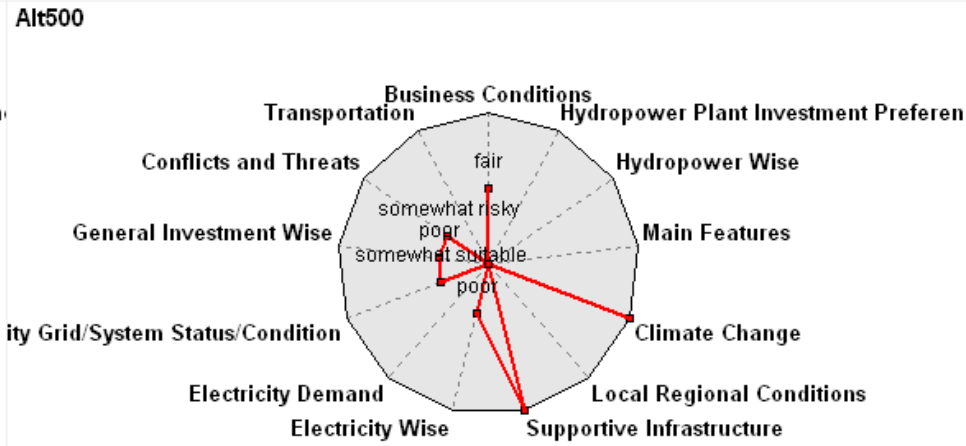

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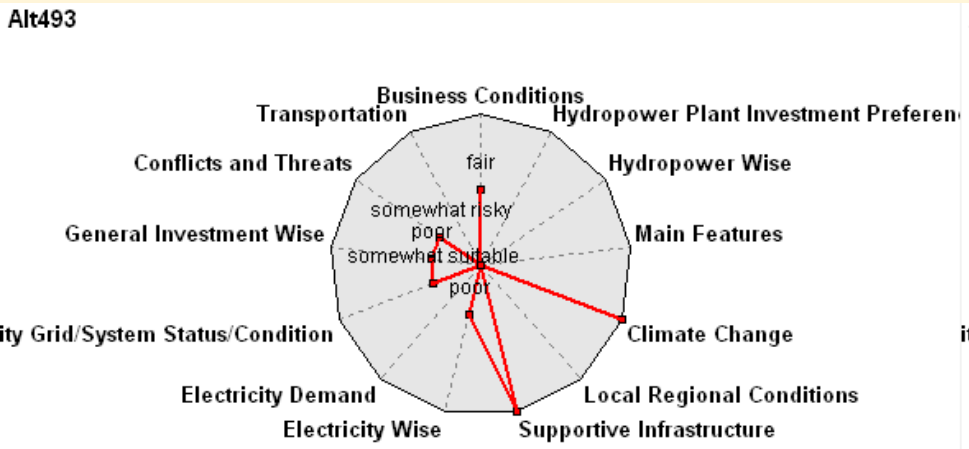
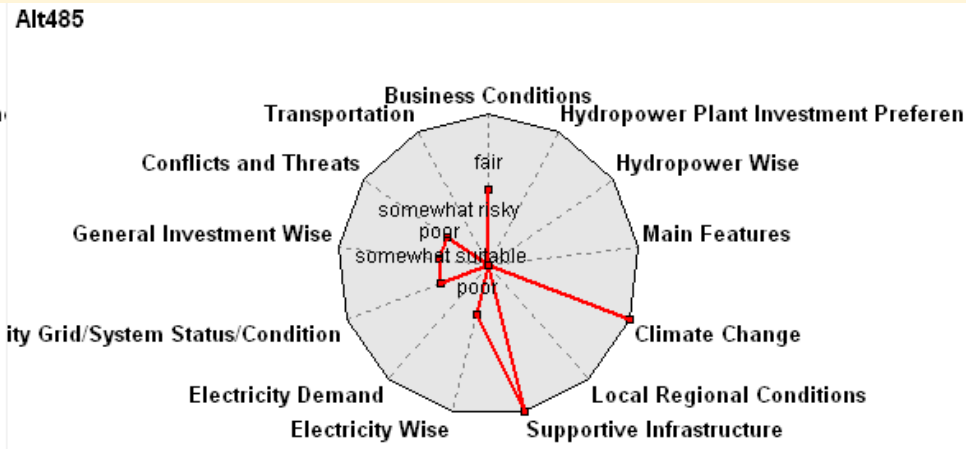
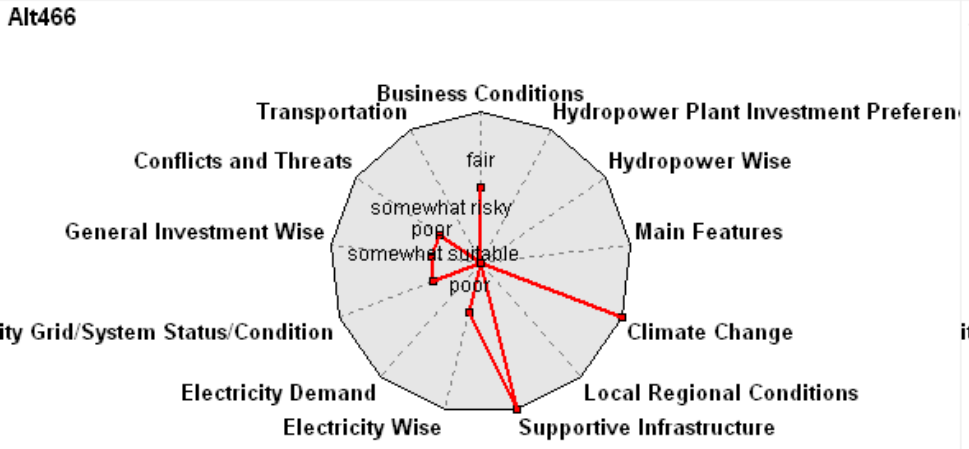
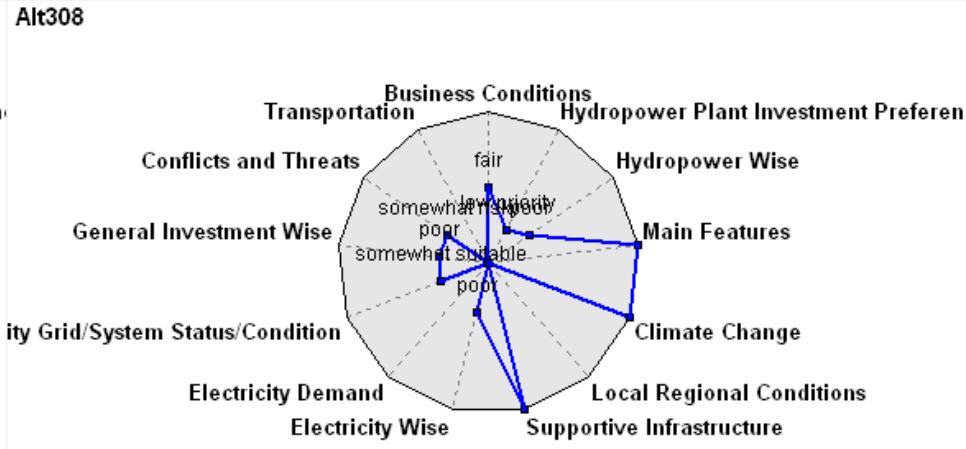
MODEL DEVELOPMENT, EXECUTION AND RESULTS









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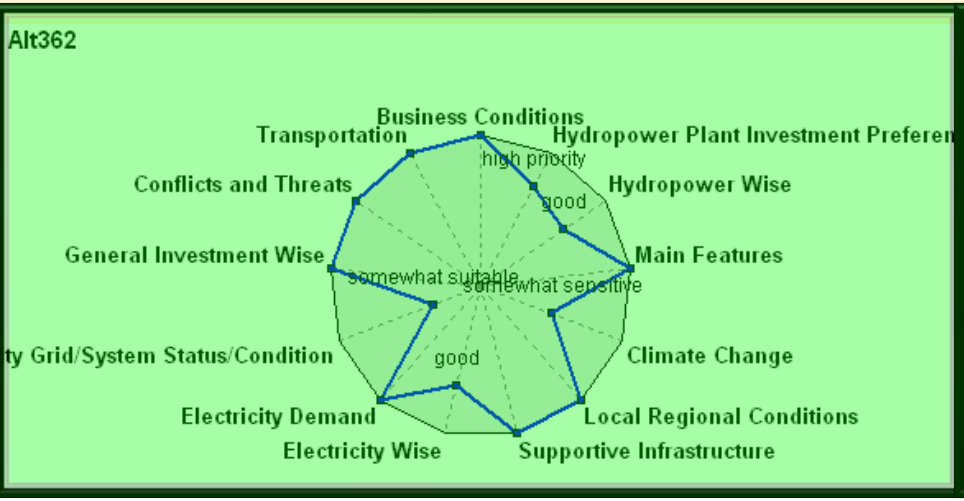

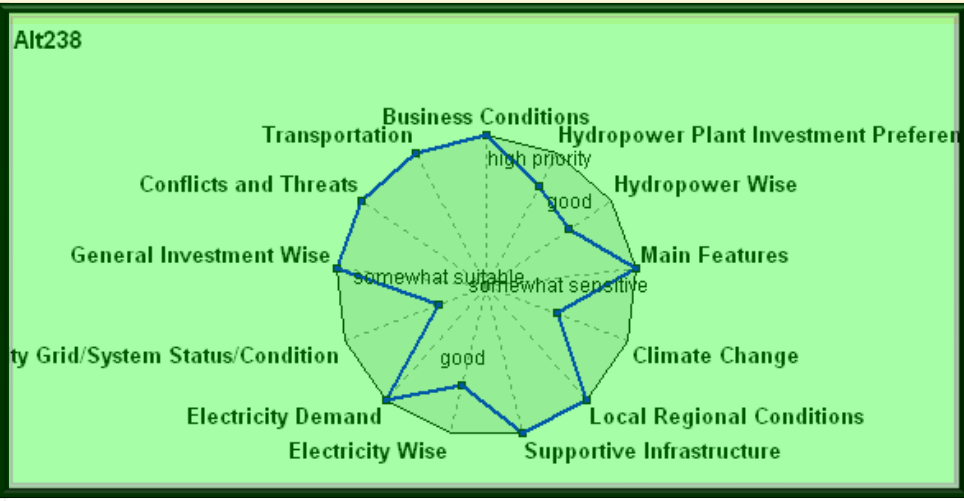

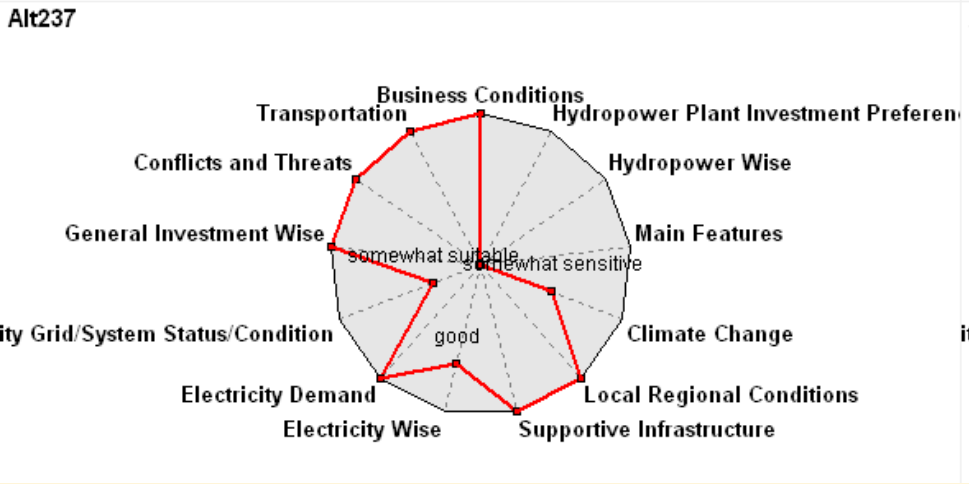

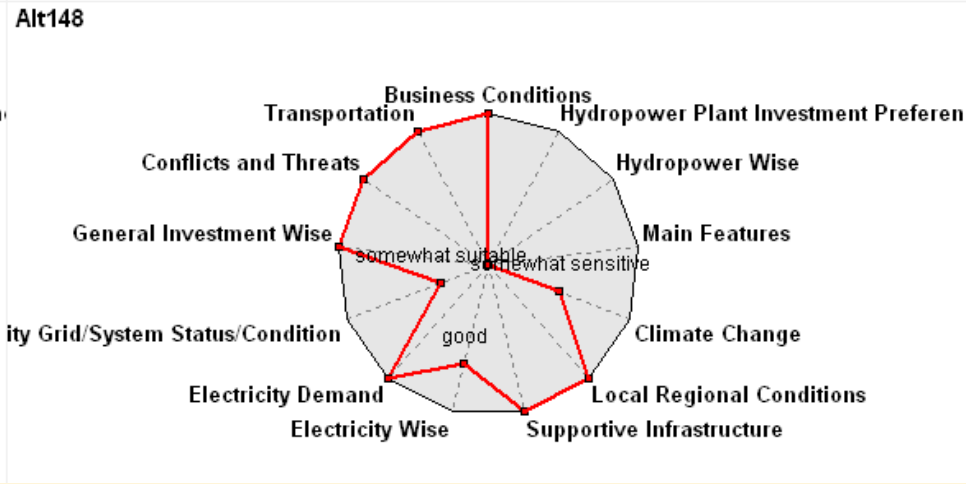

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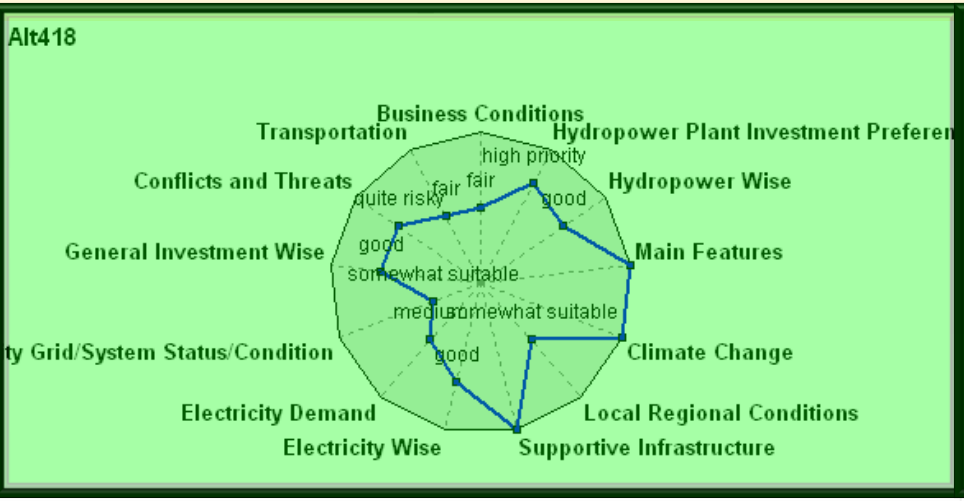

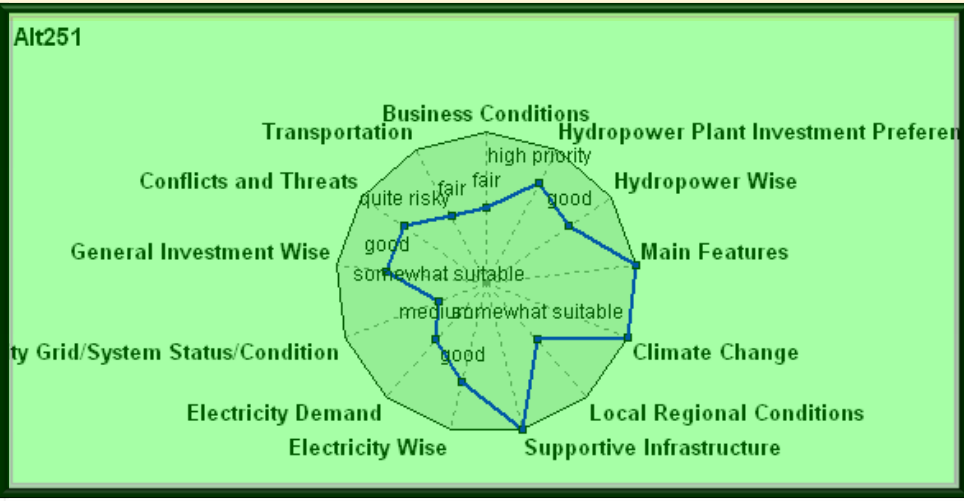

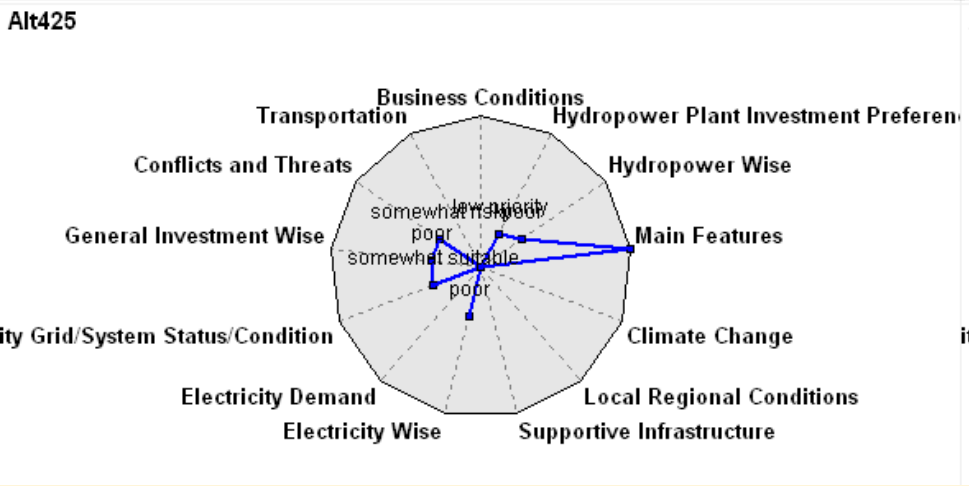

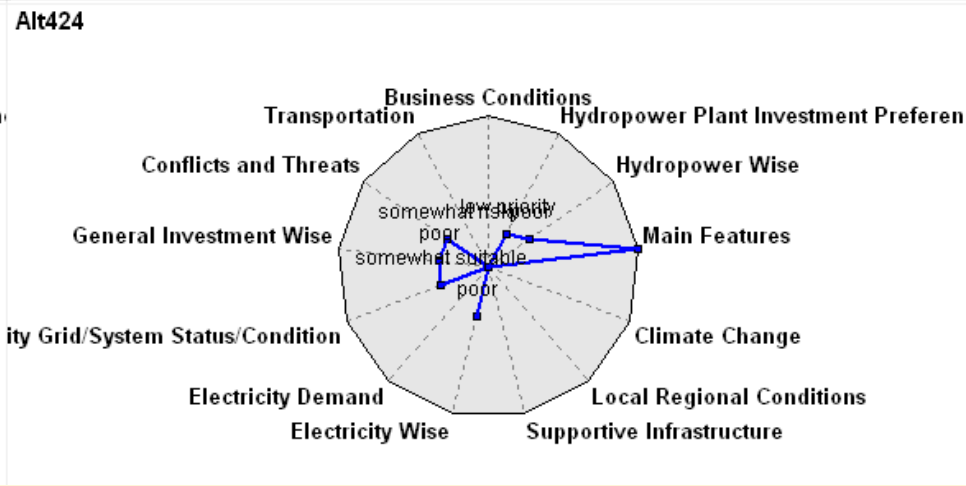

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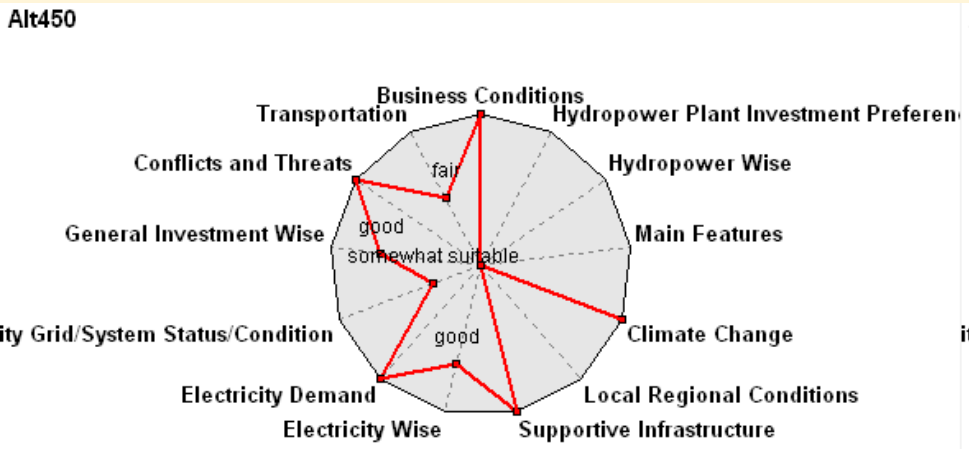

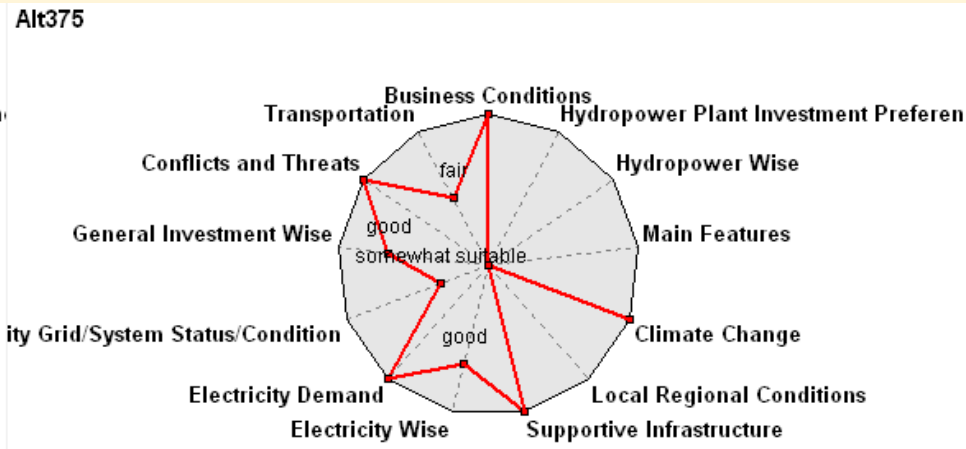

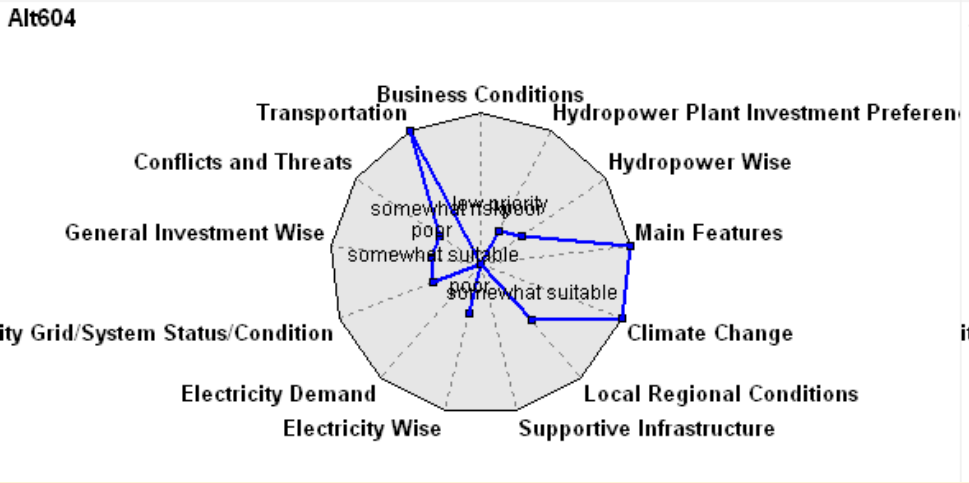

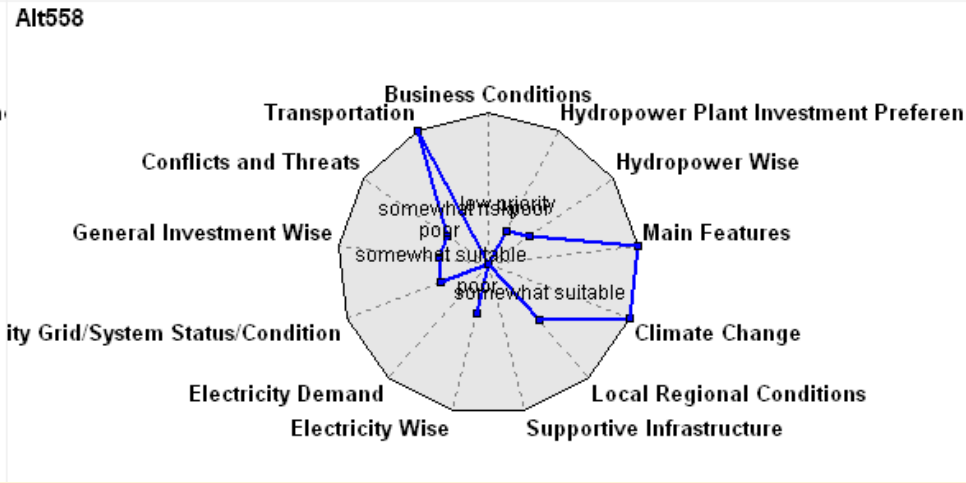

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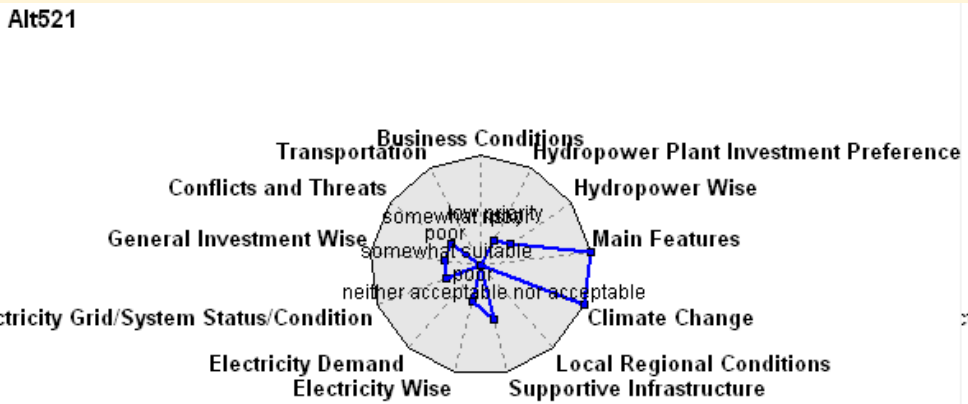
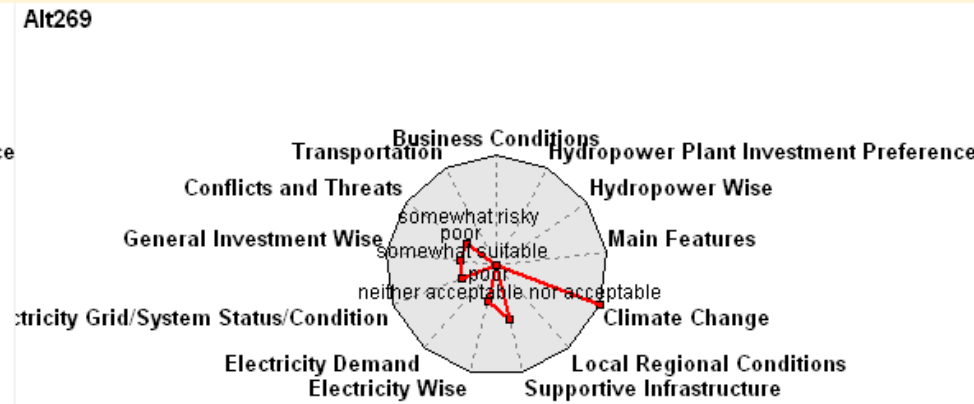
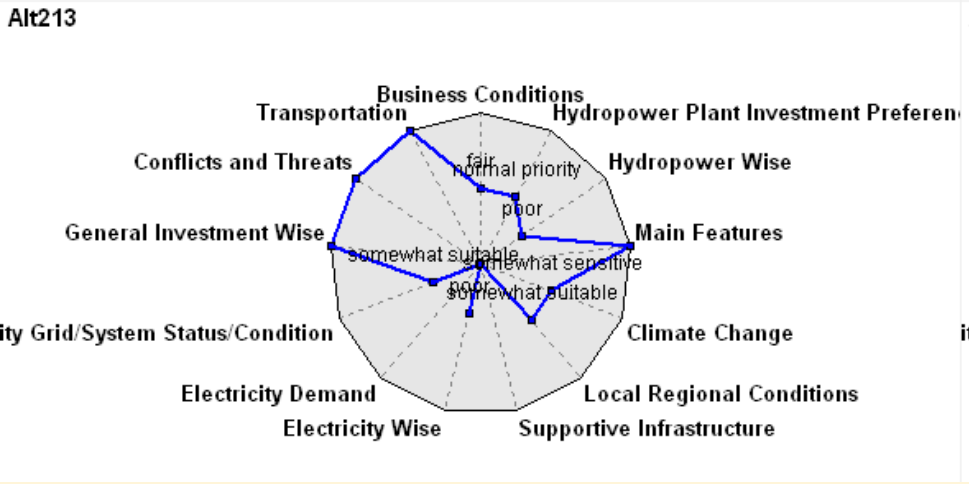
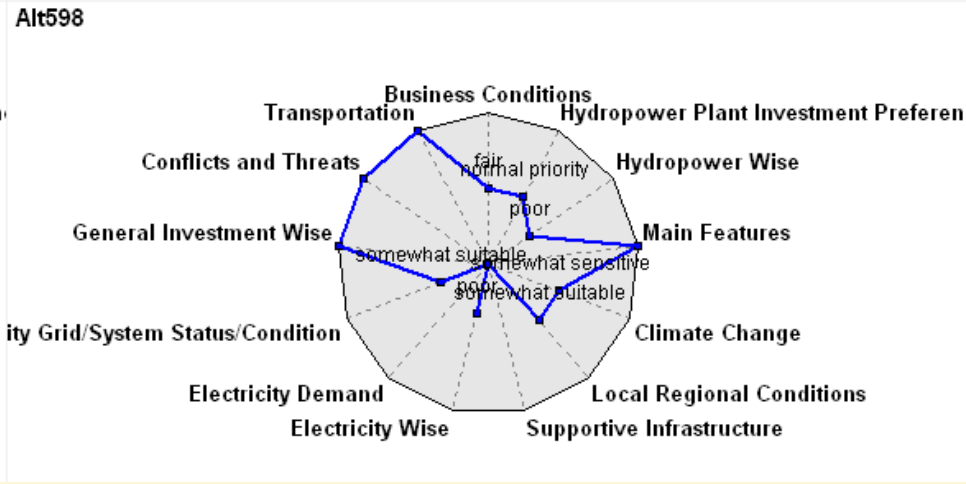
MODEL DEVELOPMENT, EXECUTION AND RESULTS









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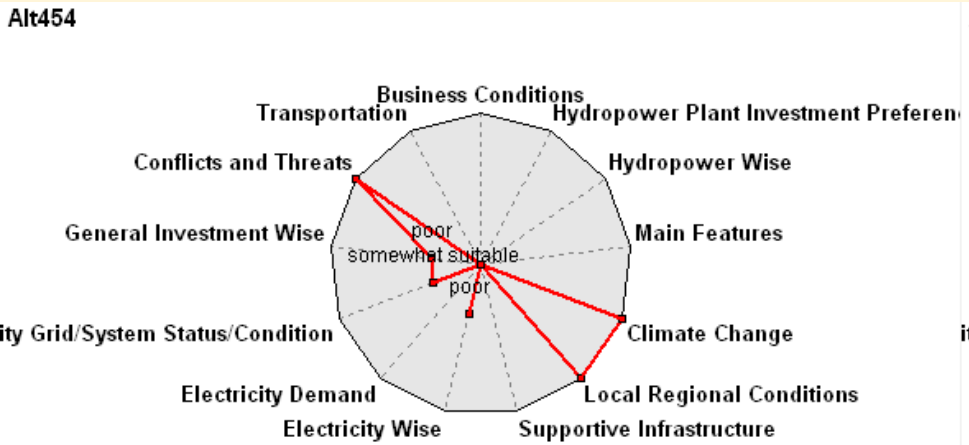

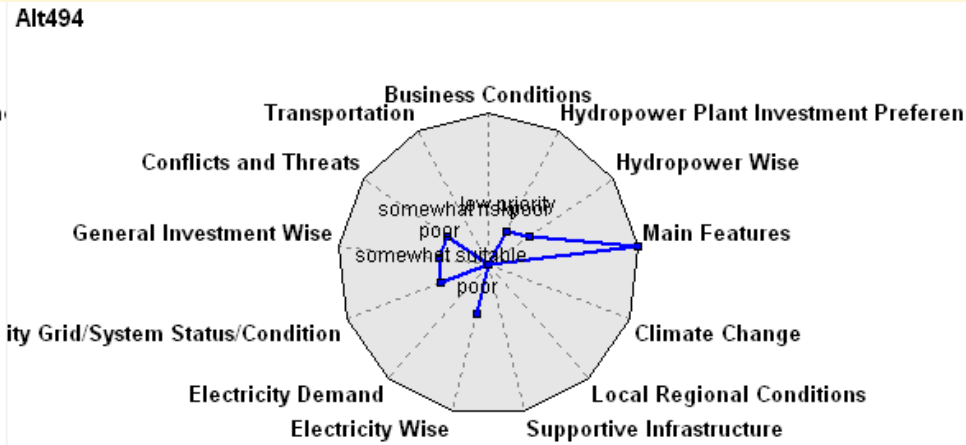

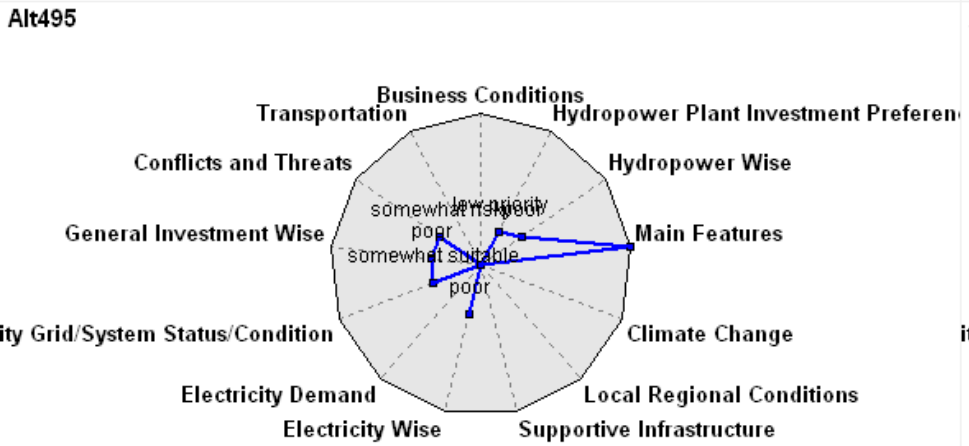

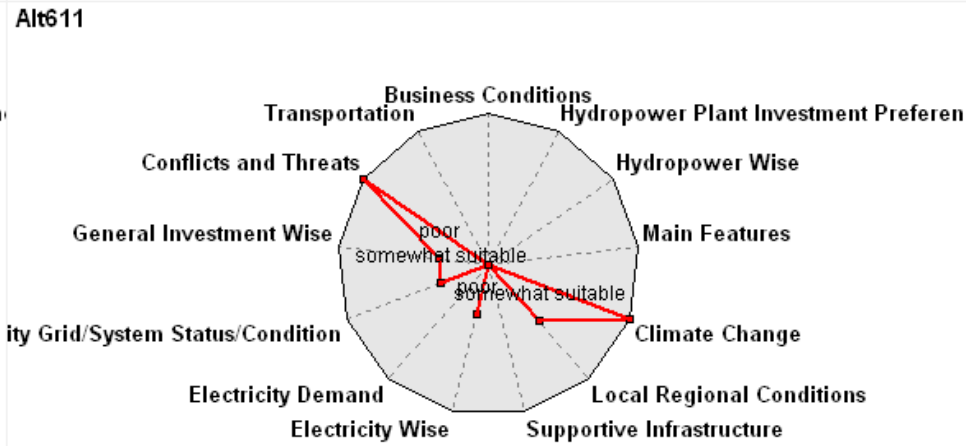

The chart of the evaluation of the DEXi model for the small private hydropower plant investment options cluster

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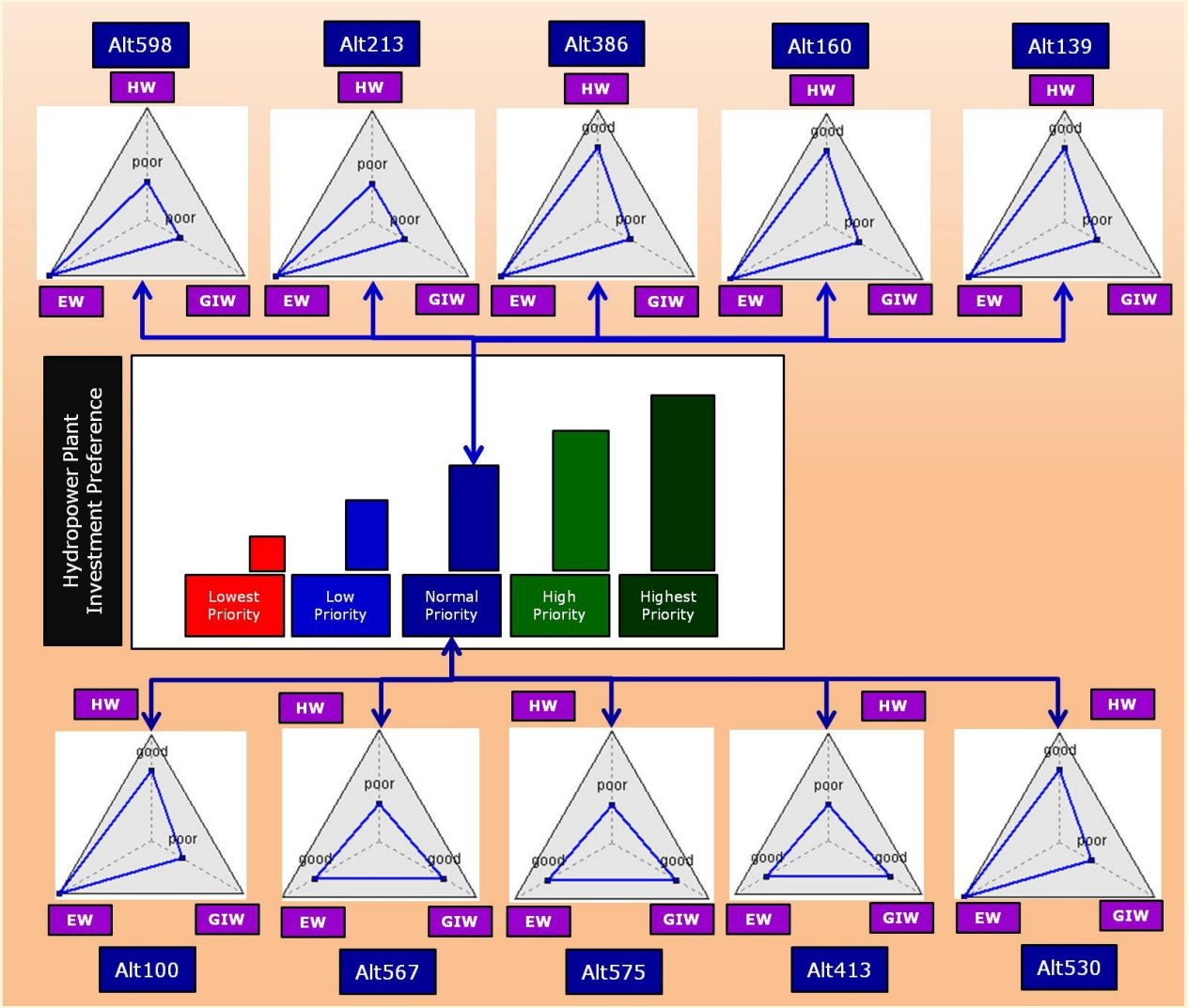
A QUALITATIVE MULTI-ATTRIBUTE MODEL FOR SELECTION OF PRIVATE HYDROPOWER PLANT INVESTMENTS IN TURKEY: BY FOUNDATION OF SEARCH RESULTS CLUSTERING ENGINE (Carrot²), HYDROPOWER PLANT CLUSTERING, DEXi AND DEXiTree

MODEL DEVELOPMENT, EXECUTION AND RESULTS

OVERALL THRESHOLD DEGREE: NORMAL PRIORITY



The graphical display of the evaluation of the DEXi model for the small private hydropower plant investment options cluster

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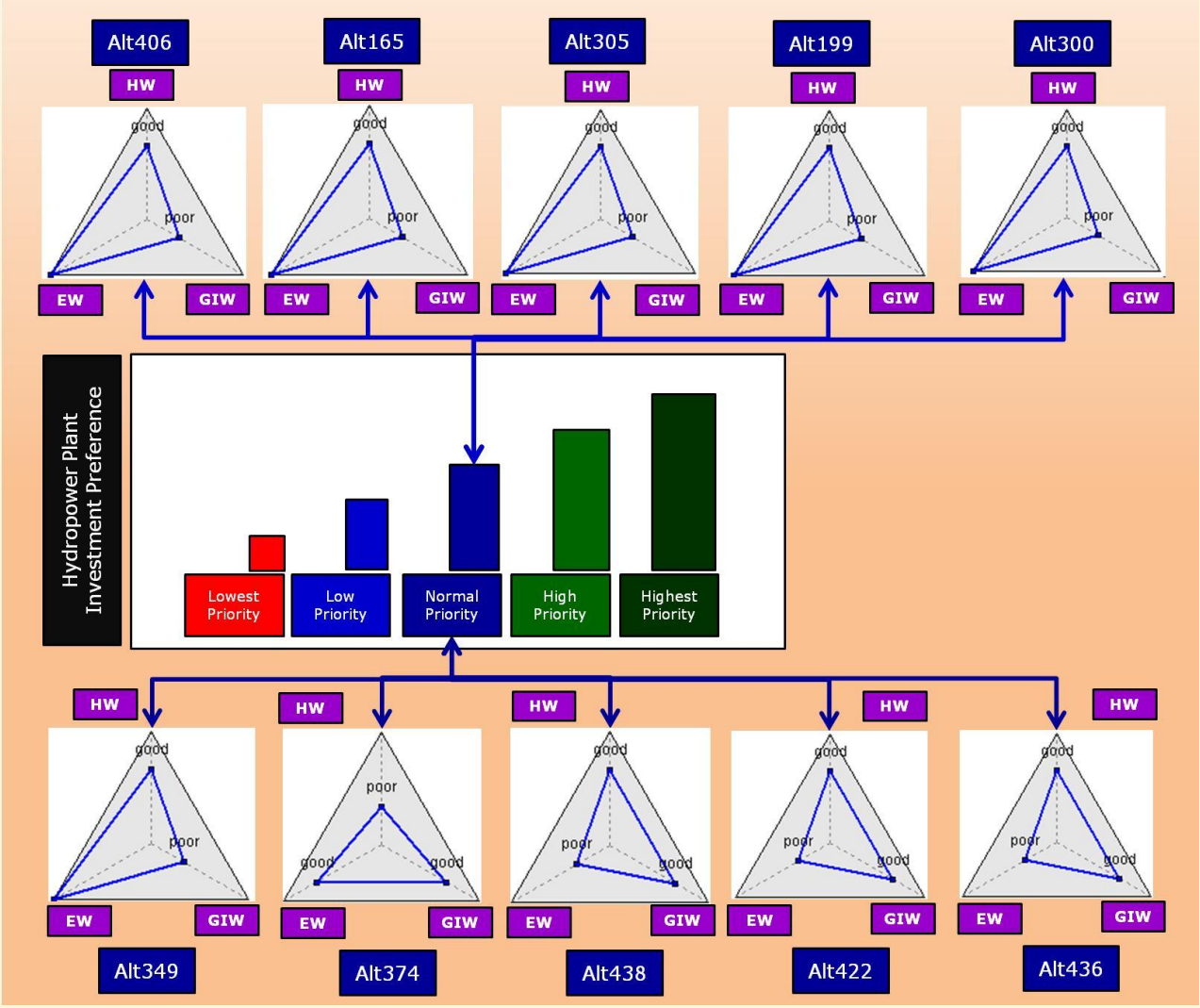
A QUALITATIVE MULTI-ATTRIBUTE MODEL FOR SELECTION OF PRIVATE HYDROPOWER PLANT INVESTMENTS IN TURKEY: BY FOUNDATION OF SEARCH RESULTS CLUSTERING ENGINE (Carrot^2), HYDROPOWER PLANT CLUSTERING, DEXi AND DEXiTree

MODEL DEVELOPMENT, EXECUTION AND RESULTS

OVERALL THRESHOLD DEGREE: NORMAL PRIORITY



The graphical display of the evaluation of the DEXi model for the small private hydropower plant investment options cluster

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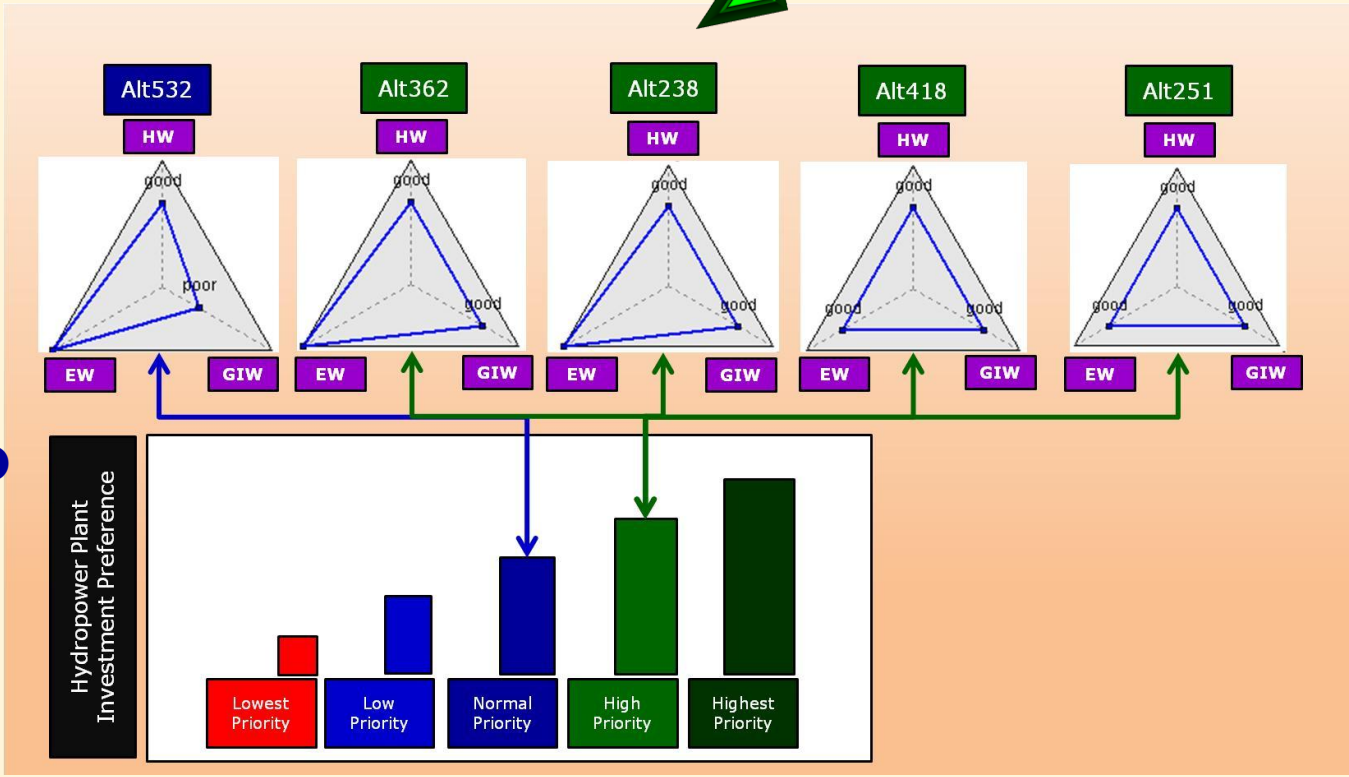
A QUALITATIVE MULTI-ATTRIBUTE MODEL FOR SELECTION OF PRIVATE HYDROPOWER PLANT INVESTMENTS IN TURKEY: BY FOUNDATION OF SEARCH RESULTS CLUSTERING ENGINE (Carrot^2), HYDROPOWER PLANT CLUSTERING, DEXi AND DEXiTree

MODEL DEVELOPMENT, EXECUTION AND RESULTS

BEST OPTIONS FOR VPI



OVERALL THRESHOLD DEGREE: NORMAL PRIORITY

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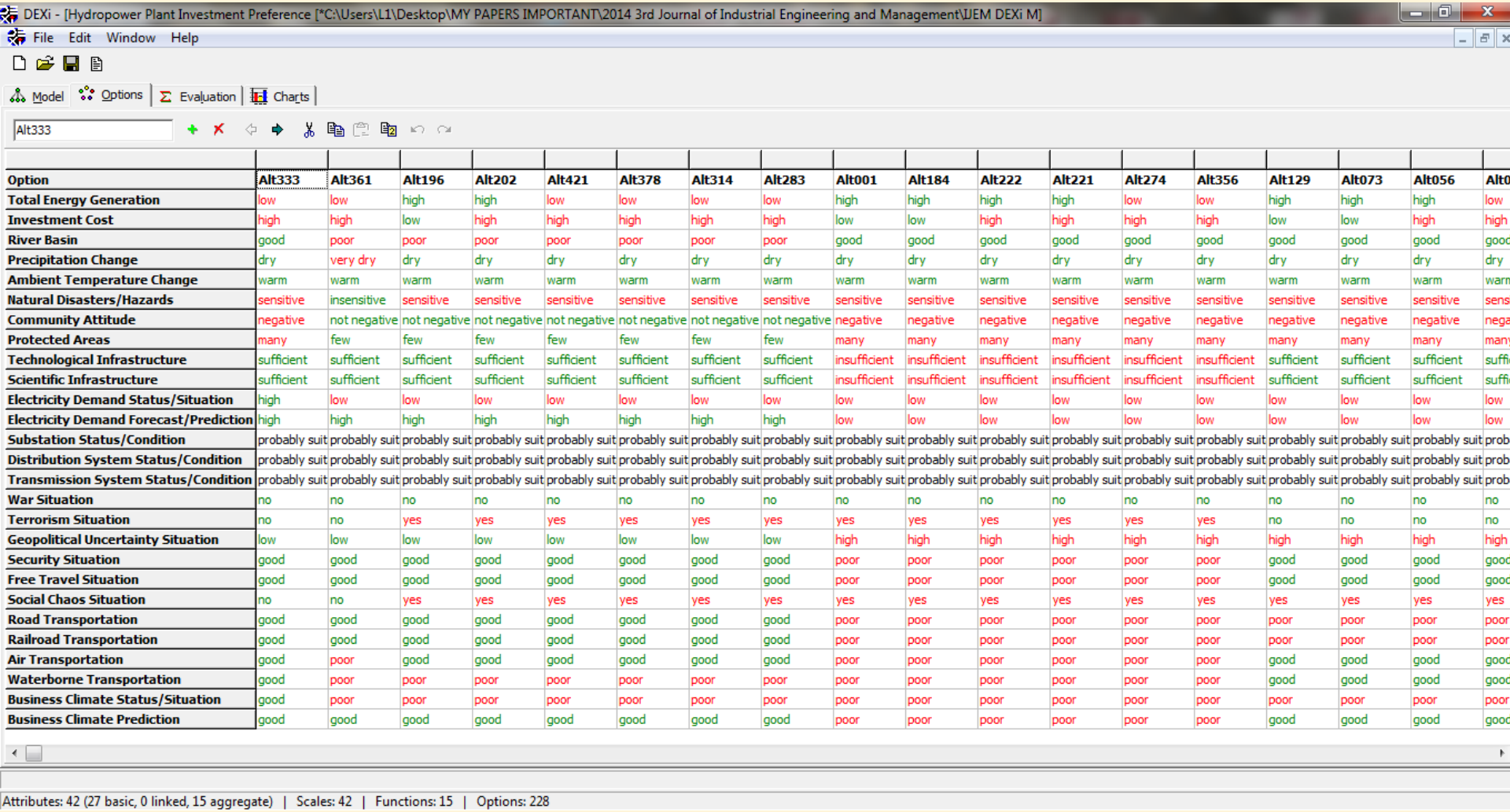
MODEL DEVELOPMENT, EXECUTION AND RESULTS



Option	Alt333	Alt361	Alt196	Alt202	Alt421	Alt378	Alt314	Alt283	Alt001	Alt184	Alt222	Alt221	Alt274	Alt356	Alt129	Alt073	Alt056	Alt0
Total Energy Generation	low	low	high	high	low	low	low	low	high	high	high	high	low	low	high	high	high	low
Investment Cost	high	high	low	high	high	high	high	high	low	low	high	high	high	high	low	low	high	high
River Basin	good	poor	poor	poor	poor	poor	poor	poor	good	good	good	good	good	good	good	good	good	good
Precipitation Change	dry	very dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry	dry
Ambient Temperature Change	warm	warm	warm	warm	warm	warm	warm	warm	warm	warm	warm	warm	warm	warm	warm	warm	warm	warm
Natural Disasters/Hazards	sensitive	insensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sens
Community Attitude	negative	not negative	not negative	not negative	not negative	not negative	not negative	not negative	negative	negative	negative	negative	negative	negative	negative	negative	negative	nega
Protected Areas	many	few	few	few	few	few	few	few	many	many	many	many	many	many	many	many	many	many
Technological Infrastructure	sufficient	sufficient	sufficient	sufficient	sufficient	sufficient	sufficient	sufficient	insufficient	insufficient	insufficient	insufficient	insufficient	insufficient	sufficient	sufficient	sufficient	suffi
Scientific Infrastructure	sufficient	sufficient	sufficient	sufficient	sufficient	sufficient	sufficient	sufficient	insufficient	insufficient	insufficient	insufficient	insufficient	insufficient	sufficient	sufficient	sufficient	suffi
Electricity Demand Status/Situation	high	low	low	low	low	low	low	low	low	low	low	low	low	low	low	low	low	low
Electricity Demand Forecast/Prediction	high	high	high	high	high	high	high	high	low	low	low	low	low	low	low	low	low	low
Substation Status/Condition	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	prob
Distribution System Status/Condition	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	prob
Transmission System Status/Condition	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	prob
War Situation	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Terrorism Situation	no	no	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	no	no	no	no
Geopolitical Uncertainty Situation	low	low	low	low	low	low	low	low	high	high	high	high	high	high	high	high	high	high
Security Situation	good	good	good	good	good	good	good	good	poor	poor	poor	poor	poor	poor	good	good	good	good
Free Travel Situation	good	good	good	good	good	good	good	good	poor	poor	poor	poor	poor	poor	good	good	good	good
Social Chaos Situation	no	no	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes	yes
Road Transportation	good	good	good	good	good	good	good	good	poor	poor	poor	poor	poor	poor	poor	poor	poor	poor
Railroad Transportation	good	good	good	good	good	good	good	good	poor	poor	poor	poor	poor	poor	poor	poor	poor	poor
Air Transportation	good	poor	good	good	good	good	good	good	poor	poor	poor	poor	poor	poor	good	good	good	good
Waterborne Transportation	good	poor	poor	poor	poor	poor	poor	poor	poor	poor	poor	poor	poor	poor	good	good	good	good
Business Climate Status/Situation	good	poor	poor	poor	poor	poor	poor	poor	poor	poor	poor	poor	poor	poor	poor	poor	poor	poor
Business Climate Prediction	good	good	good	good	good	good	good	good	poor	poor	poor	poor	poor	poor	good	good	good	good

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MODEL DEVELOPMENT, EXECUTION AND RESULTS

DEXi - [Hydropower Plant Investment Preference [*C:\Users\L1\Desktop\MY PAPERS IMPORTANT\2014 3rd Journal of Industrial Engineering and Management\IJEM DEXi M]

File Edit Analysis Window Help

Model | Options | Evaluation | Charts

Option	Alt337	Alt307	Alt260	Alt028	Alt518	Alt212	Alt085	Alt416	Alt171	Alt324	Alt464	Alt363	Alt327	Alt114	Alt002	Alt069
. Hydropower Plant Investment Preference	lowest prio	lowest prio	lowest prio	lowest prio	lowest prio	lowest prio	lowest prio	lowest prio	lowest prio	lowest prio	lowest prio	lowest prio	lowest prio	low priority	lowest prio	low priority
.. Hydropower Wise	very poor	very poor	very poor	very poor	very poor	very poor	very poor	very poor	very poor	very poor	very poor	very poor	very poor	poor	very poor	poor
... Main Features	unacceptal	unacceptal	unacceptal	unacceptal	unacceptal	unacceptal	unacceptal	unacceptal	unacceptal	unacceptal	unacceptal	unacceptal	unacceptal	acceptable	unacceptal	acceptable
.... Total Energy Generation	low	low	low	low	low	low	low	low	low	low	low	low	low	high	low	high
.... Investment Cost	high	high	high	high	high	high	high	high	high	high	high	high	high	high	high	high
.... River Basin	good	good	good	good	good	poor	good	good	good	good	good	good	good	good	good	good
... Climate Change	sensitive	sensitive	sensitive	sensitive	sensitive	insensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive
.... Precipitation Change	very dry	very dry	very dry	very dry	very dry	dry	very dry	very dry	very dry	very dry	very dry	very dry	very dry	very dry	very dry	very dry
.... Ambient Temperature Change	very warm	very warm	very warm	very warm	very warm	warm	very warm	very warm	very warm	very warm	very warm	very warm	very warm	very warm	very warm	very warm
... Local Regional Conditions	unsuitable	unsuitable	unsuitable	unsuitable	unsuitable	somewhat	somewhat	somewhat	suitable	suitable	suitable	suitable	suitable	suitable	suitable	suitable
.... Natural Disasters/Hazards	insensitive	insensitive	insensitive	insensitive	insensitive	sensitive	sensitive	sensitive	insensitive	insensitive	insensitive	insensitive	insensitive	insensitive	insensitive	insensitive
.... Community Attitude	negative	negative	negative	negative	negative	not negative	not negative	not negative	not negative	not negative	not negative	not negative	not negative	not negative	not negative	not negative
.... Protected Areas	many	many	many	many	many	few	few	few	few	few	few	few	few	few	few	few
... Supportive Infrastructure	acceptable	acceptable	acceptable	acceptable	acceptable	unacceptal	unacceptal	unacceptal	acceptable	acceptable	acceptable	acceptable	acceptable	acceptable	acceptable	acceptable
.... Technological Infrastructure	sufficient	sufficient	sufficient	sufficient	sufficient	insufficient	insufficient	insufficient	sufficient	sufficient	sufficient	sufficient	sufficient	sufficient	sufficient	sufficient
.... Scientific Infrastructure	sufficient	sufficient	sufficient	sufficient	sufficient	insufficient	insufficient	insufficient	sufficient	sufficient	sufficient	sufficient	sufficient	sufficient	sufficient	sufficient
.. Electricity Wise	good	good	good	good	good	poor	poor	poor	good	good	good	good	good	good	good	good
... Electricity Demand	high	high	high	high	high	low	low	low	high	high	high	high	high	high	high	high
.... Electricity Demand Status/Situation	high	high	high	high	high	low	low	low	high	high	high	high	high	high	high	high
.... Electricity Demand Forecast/Prediction	high	high	high	high	high	low	low	low	high	high	high	high	high	high	high	high
... Electricity Grid/System Status/Condition	somewhat	somewhat	somewhat	somewhat	somewhat	somewhat	somewhat	somewhat	somewhat	somewhat	somewhat	somewhat	somewhat	somewhat	somewhat	somewhat
.... Substation Status/Condition	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit
.... Distribution System Status/Condition	unsuitable	unsuitable	unsuitable	unsuitable	unsuitable	probably suit	probably suit	probably suit	unsuitable	unsuitable	unsuitable	unsuitable	unsuitable	unsuitable	unsuitable	unsuitable
.... Transmission System Status/Condition	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit
.. General Investment Wise	good	good	good	good	good	very good	poor	poor	good	good	good	good	good	good	good	good
... Conflicts and Threats	somewhat	somewhat	somewhat	somewhat	somewhat	not risky	somewhat	somewhat	somewhat	somewhat	somewhat	somewhat	somewhat	somewhat	somewhat	somewhat
.... Major Conflicts and Threats	quite risky	quite risky	quite risky	quite risky	quite risky	not risky	quite risky	quite risky	quite risky	quite risky	quite risky	quite risky	quite risky	quite risky	quite risky	quite risky
..... War Situation	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no

Attributes: 42 (27 basic, 0 linked, 15 aggregate) | Scales: 42 | Functions: 15 | Options: 228

The evaluation screenview of the DEXi model for the medium private hydropower plant investment options cluster

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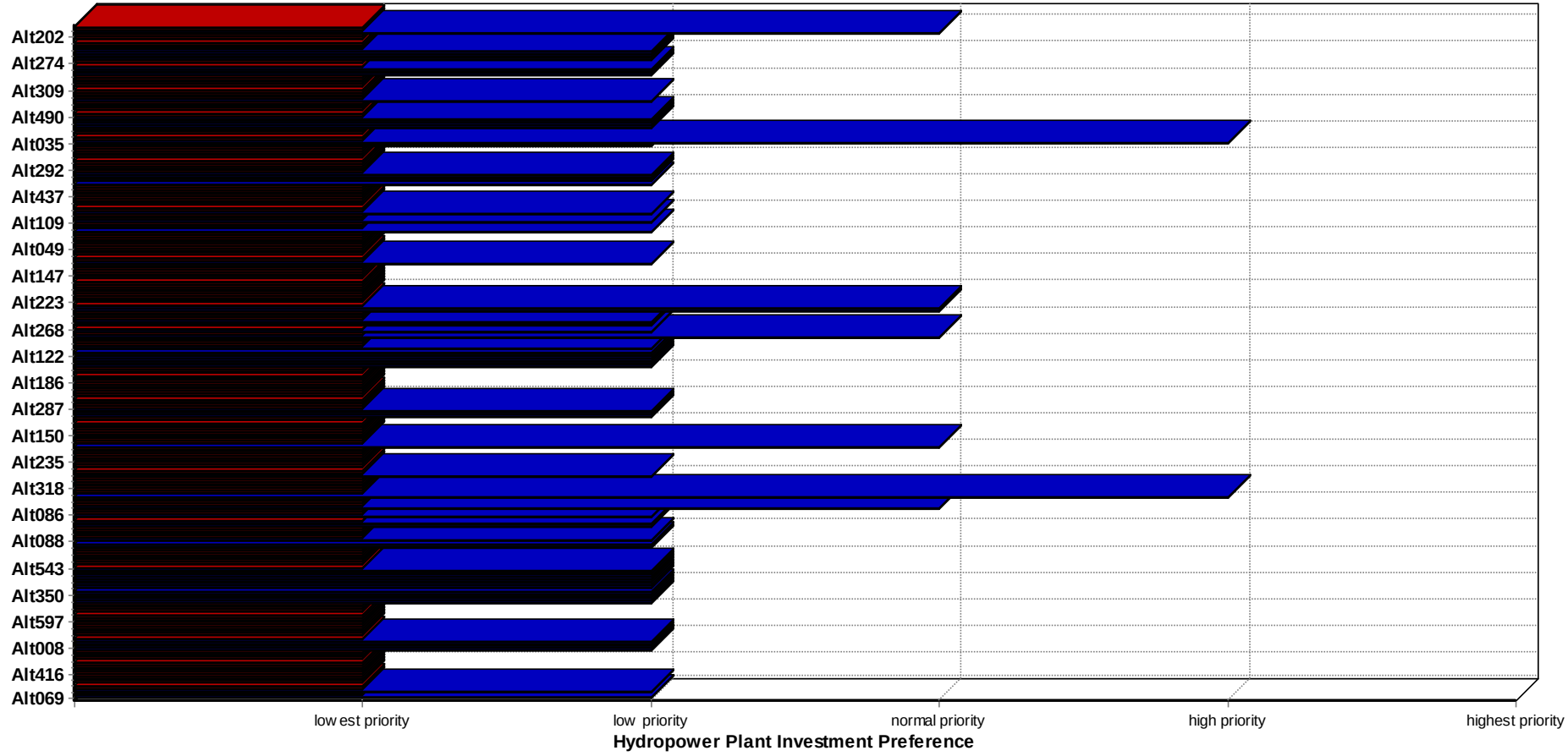
MODEL DEVELOPMENT, EXECUTION AND RESULTS



The chart of the evaluation of the DEXi model for the medium private hydropower plant investment options cluster

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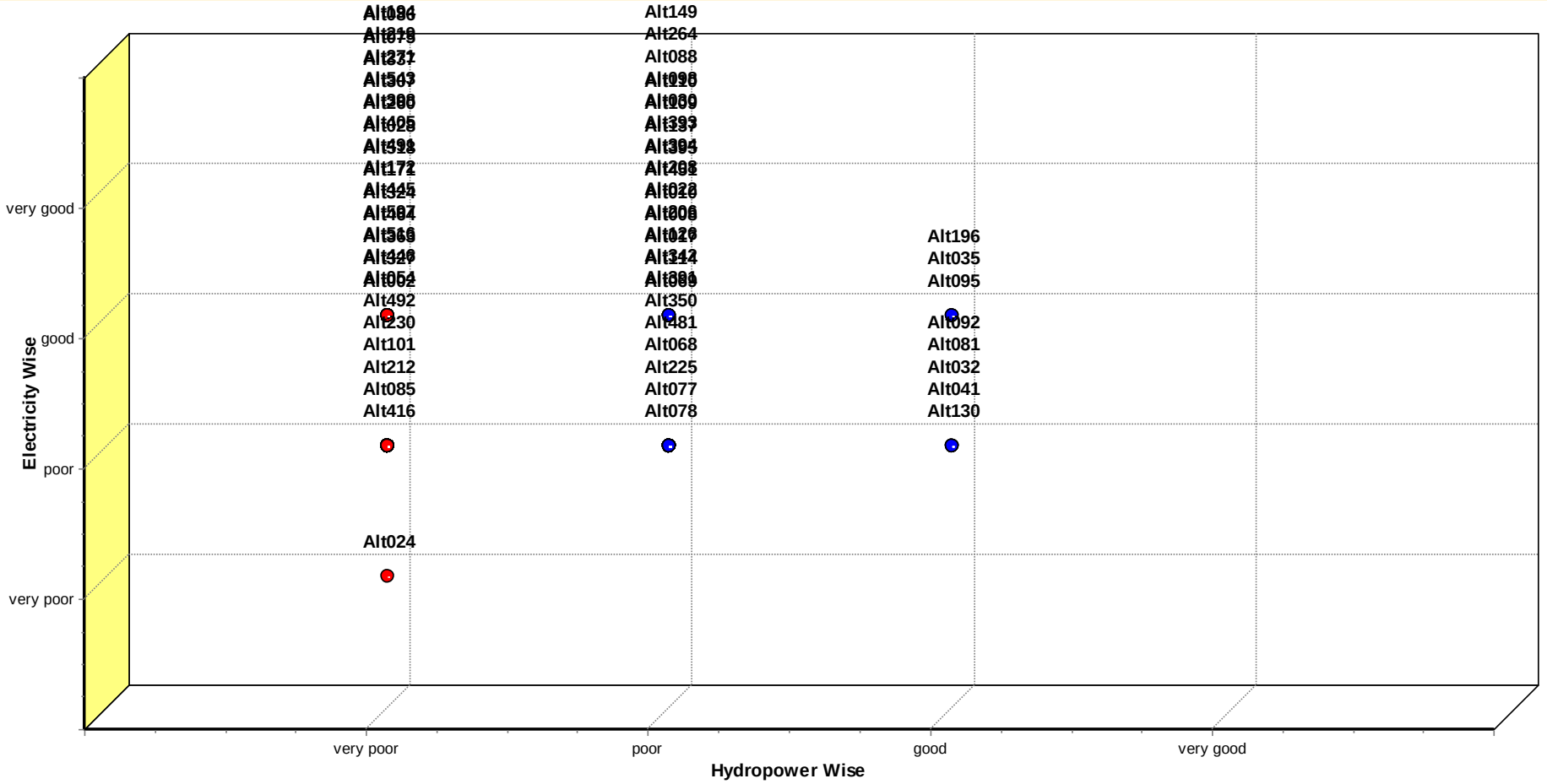

The chart of the evaluation of the DEXi model for the medium private hydropower plant investment options cluster (hydropower wise-electricity wise)

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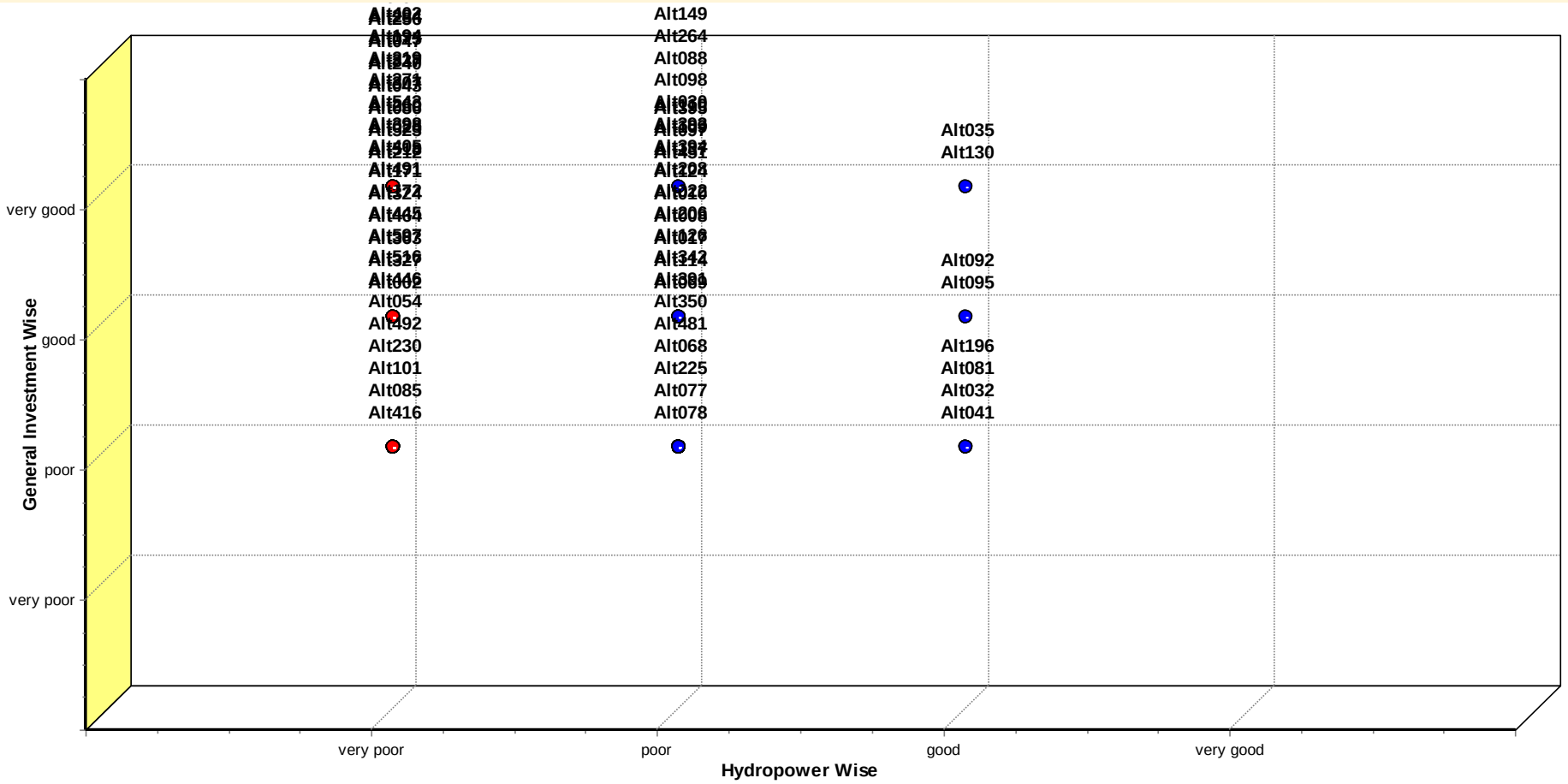

The chart of the evaluation of the DEXi model for the medium private hydropower plant investment options cluster (hydropower wise-general investment wise)

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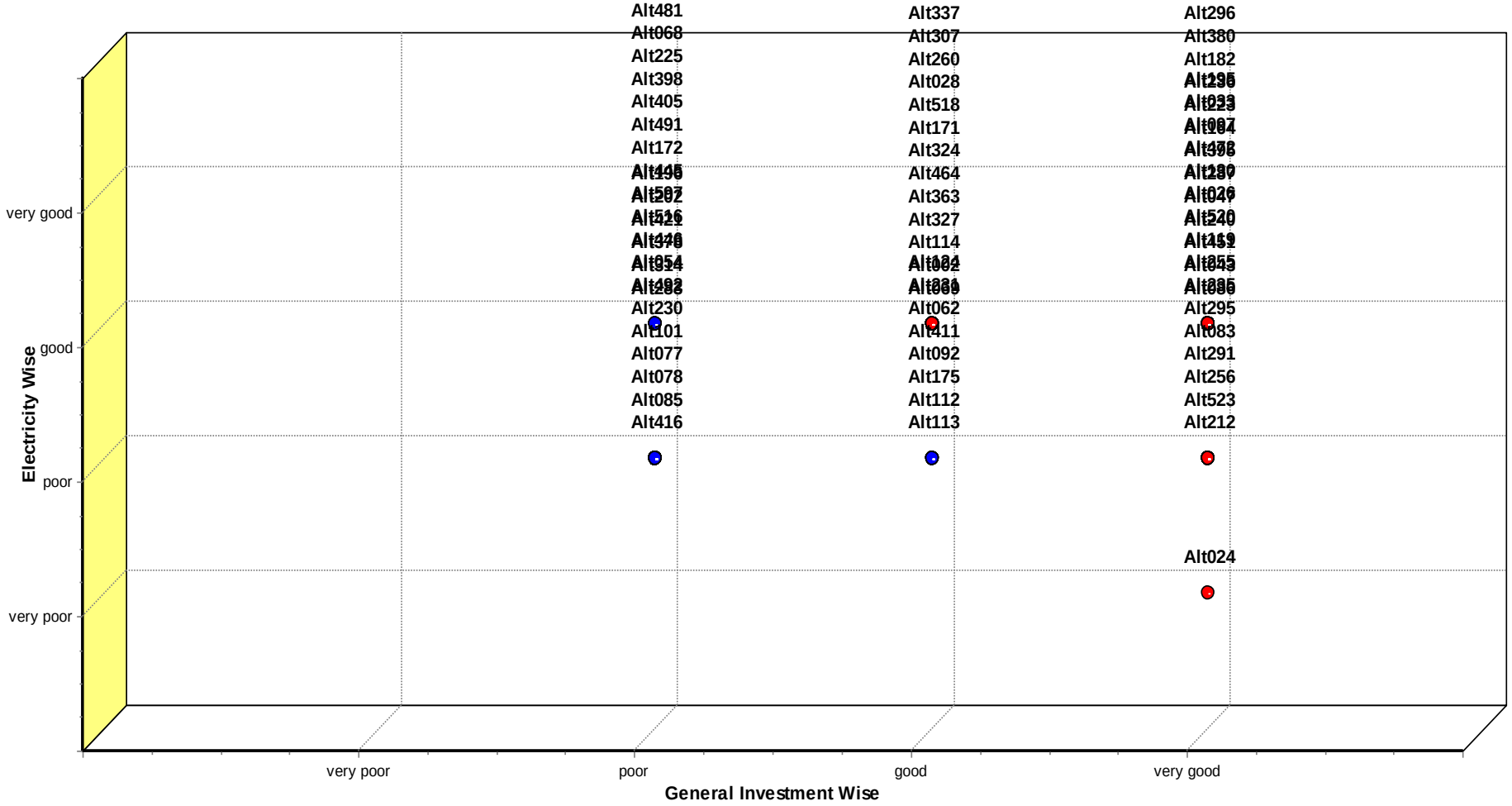

The chart of the evaluation of the DEXi model for the medium private hydropower plant investment options cluster (electricity wise-general investment wise)

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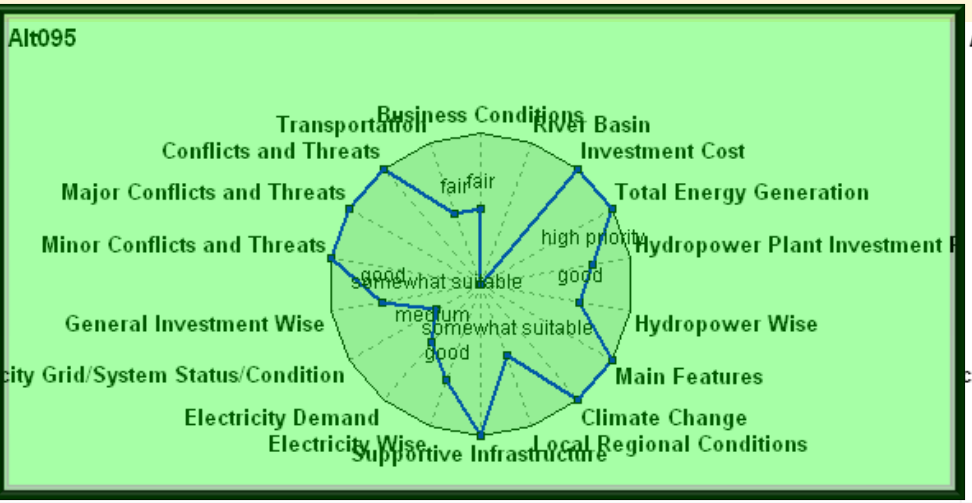

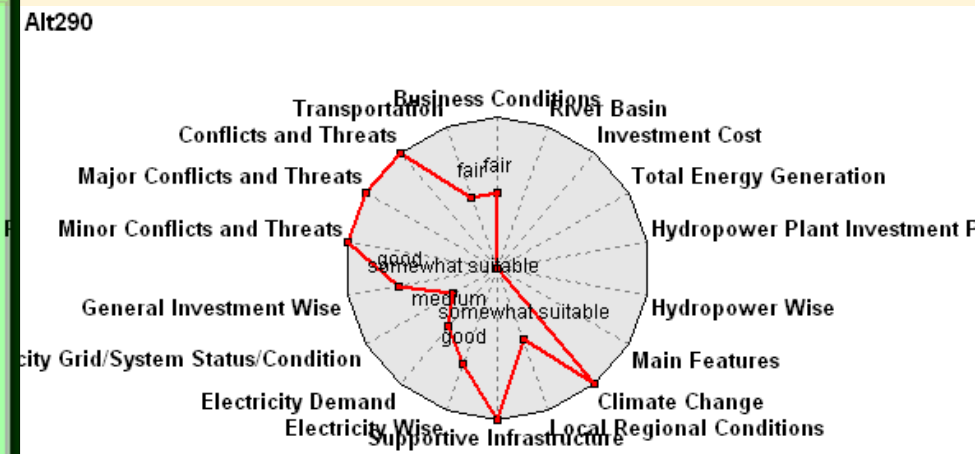

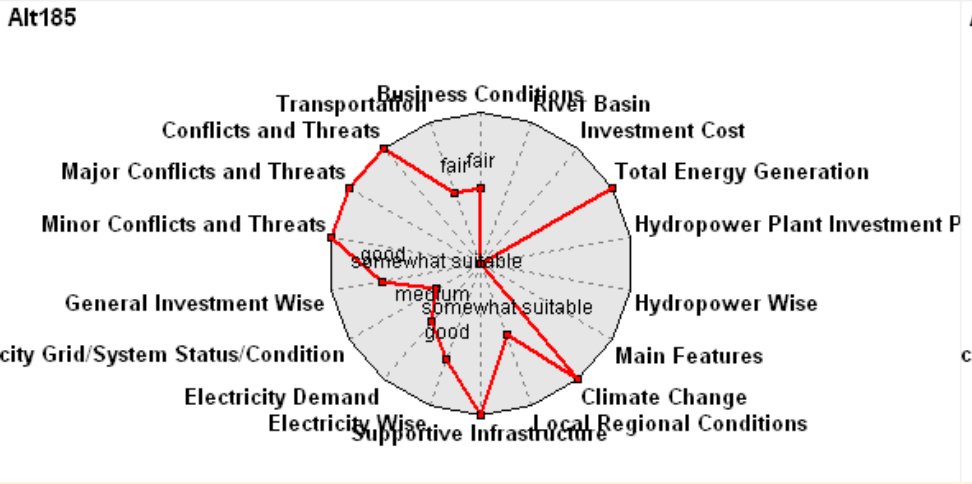

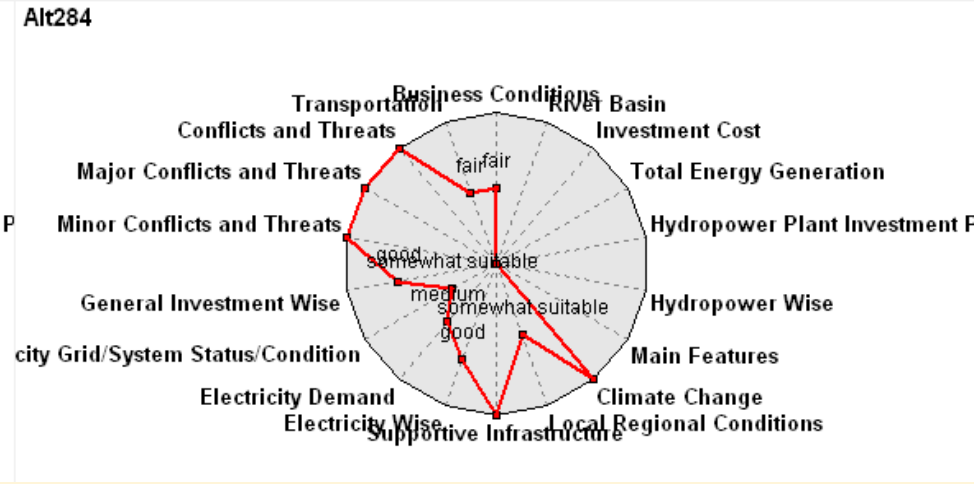

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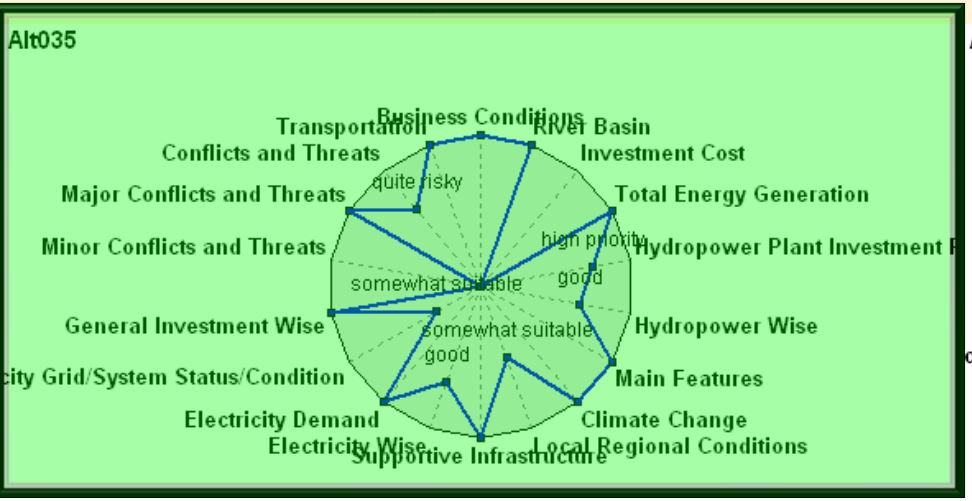

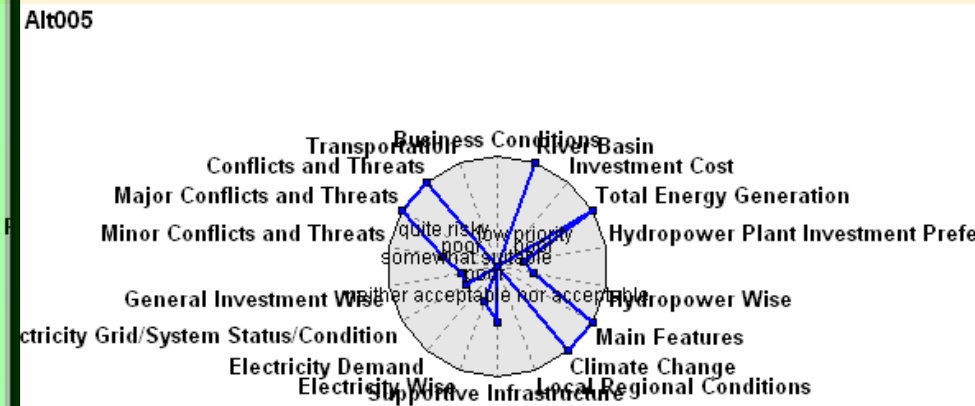

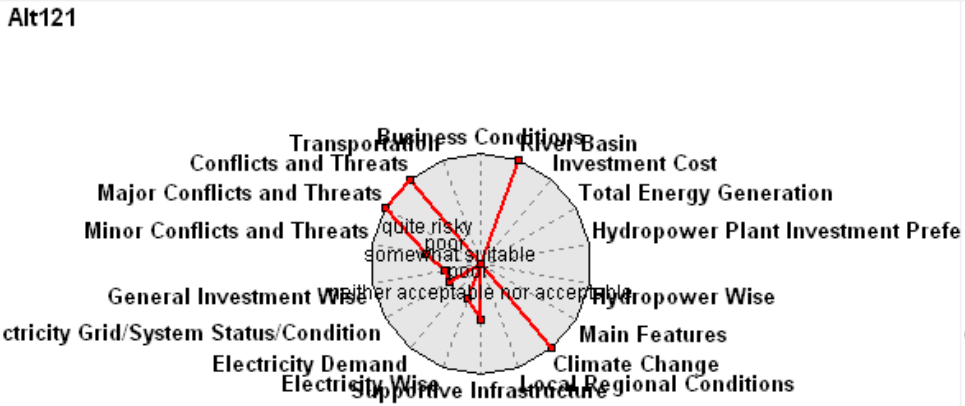

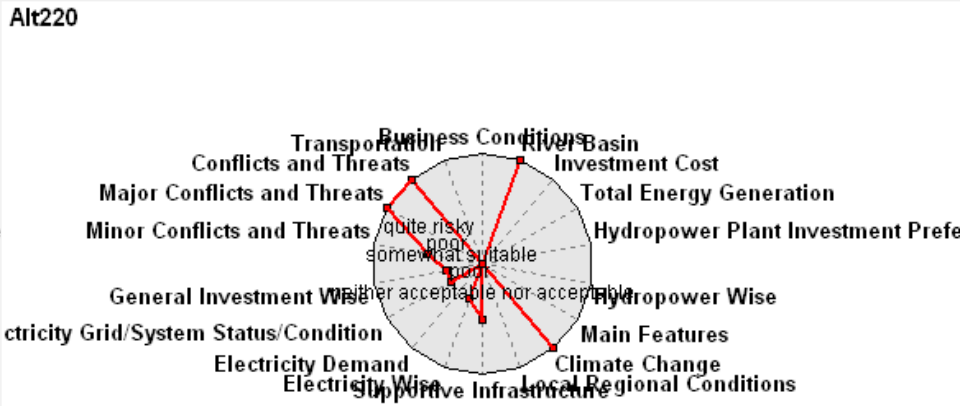

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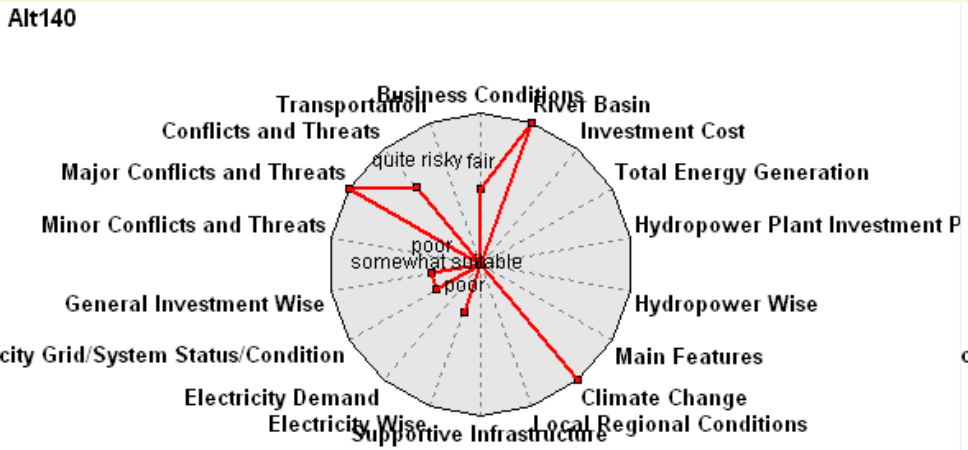

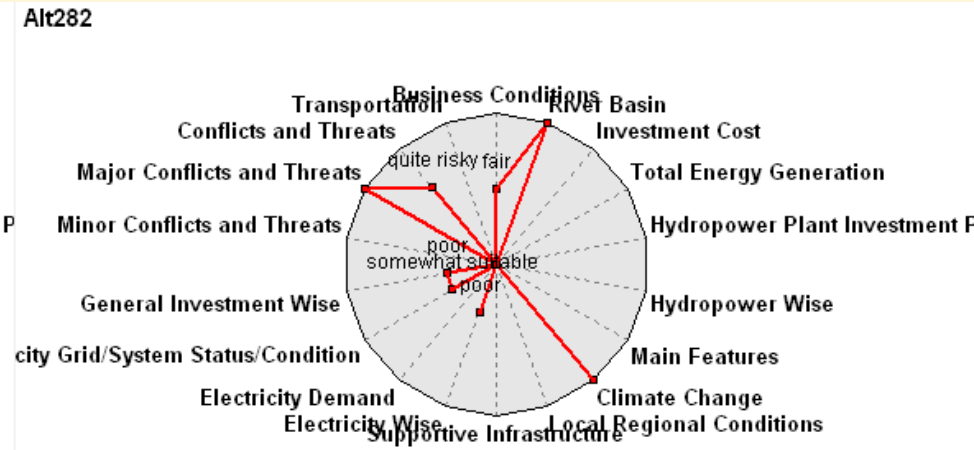

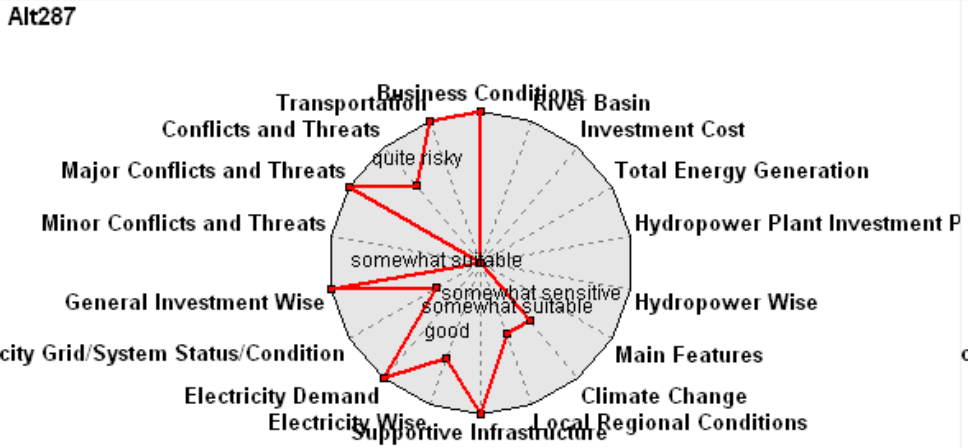

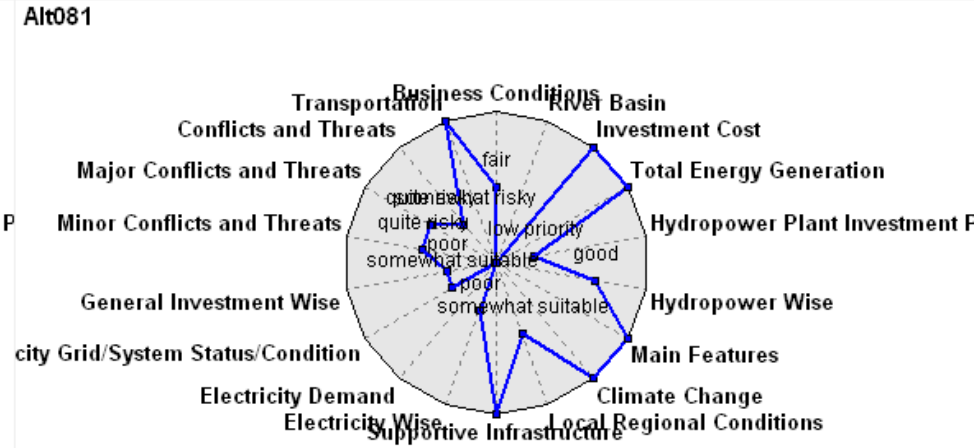

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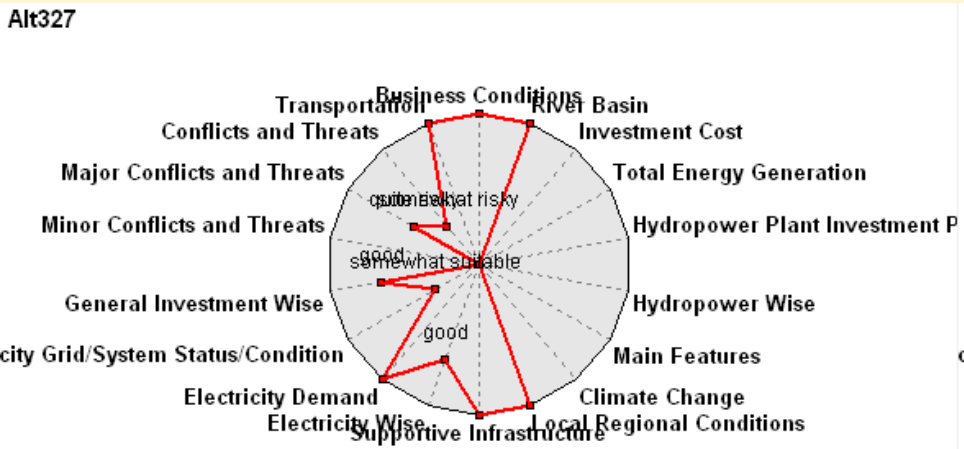

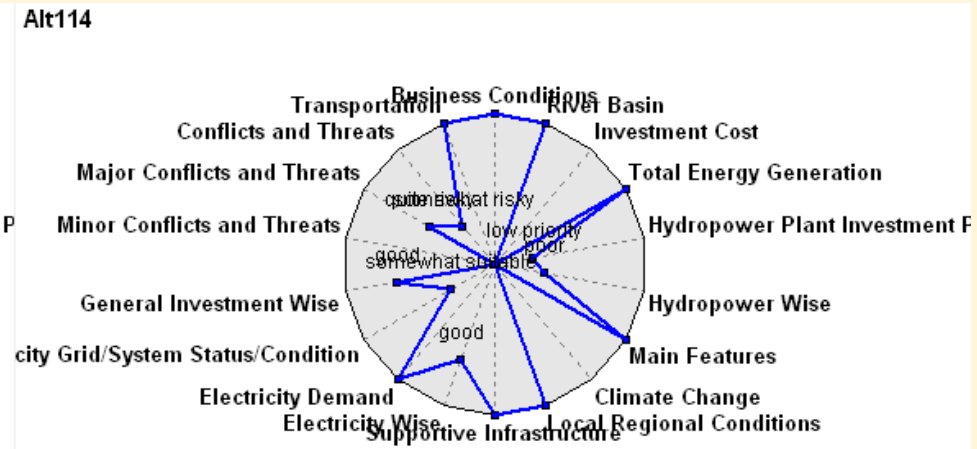

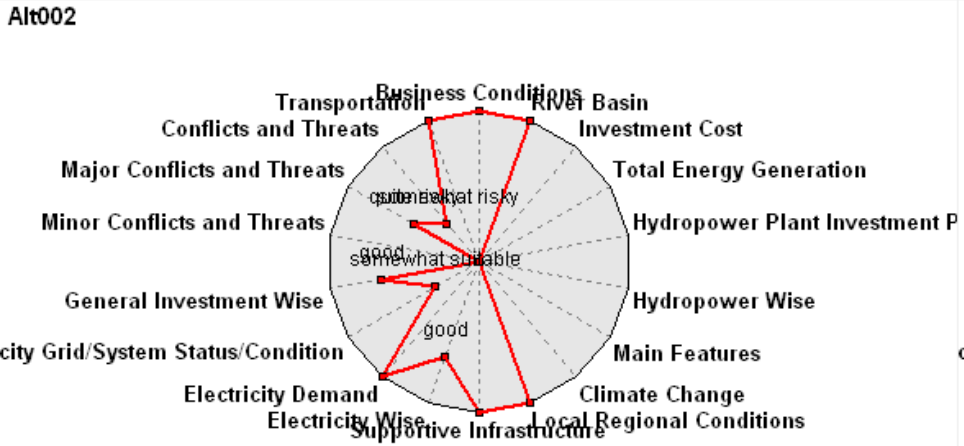

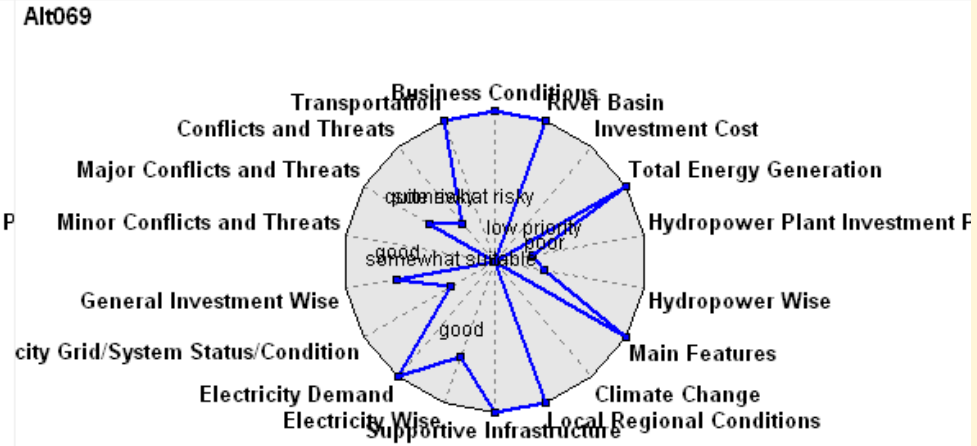

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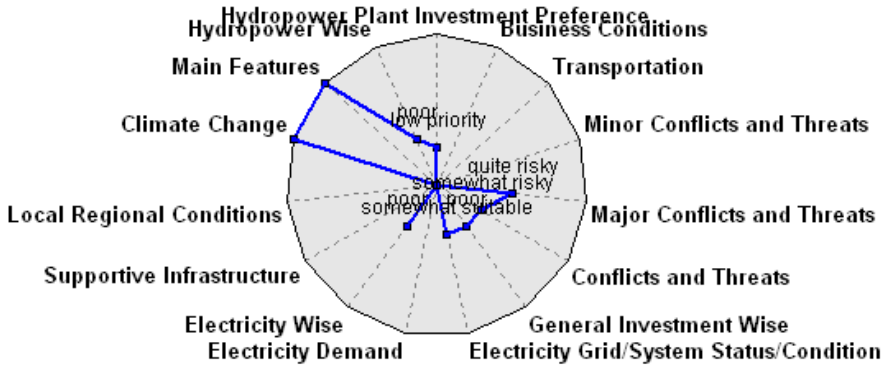
MODEL DEVELOPMENT, EXECUTION AND RESULTS

Alt233



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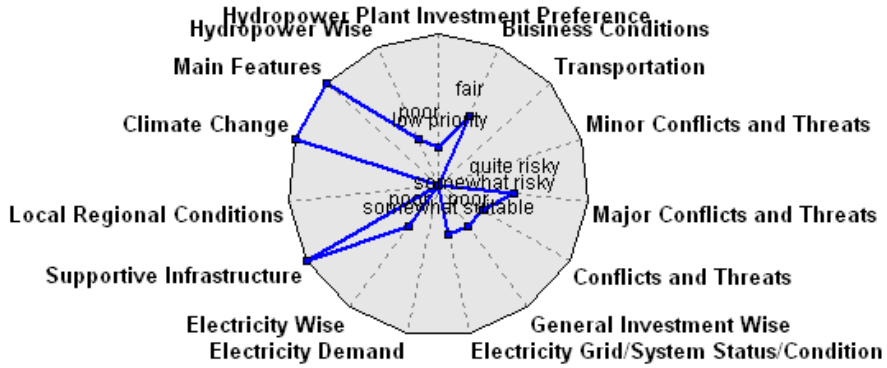

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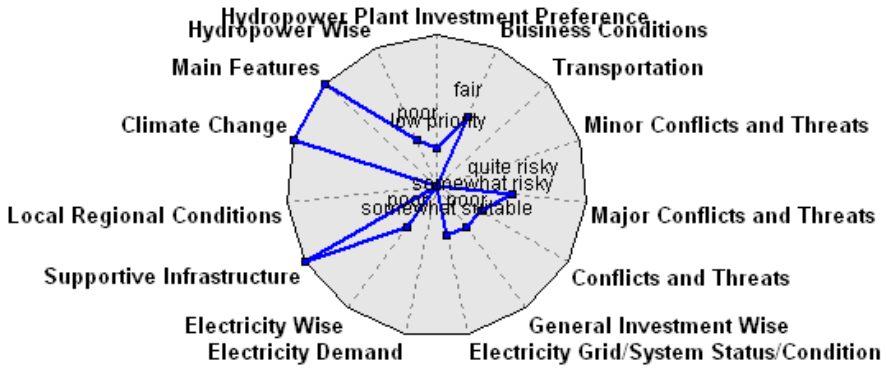

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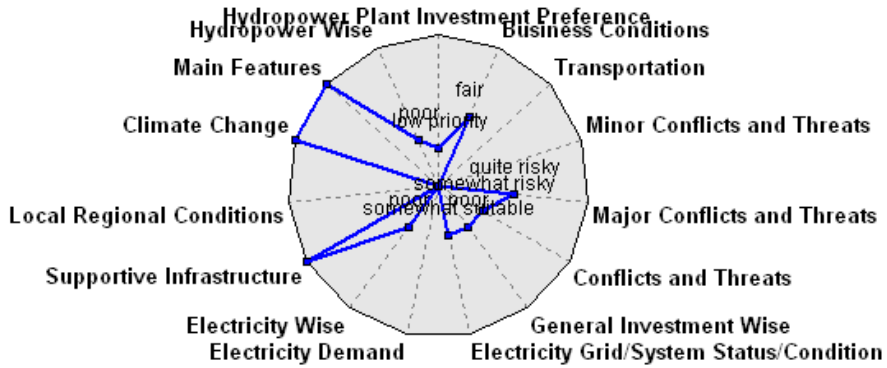

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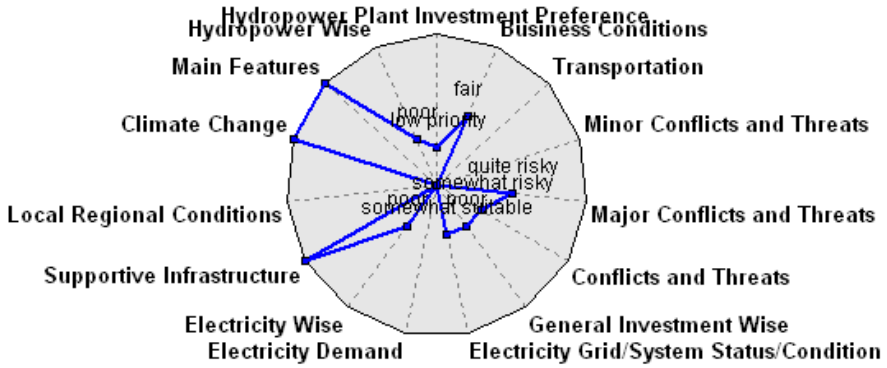
MODEL DEVELOPMENT, EXECUTION AND RESULTS

Alt353



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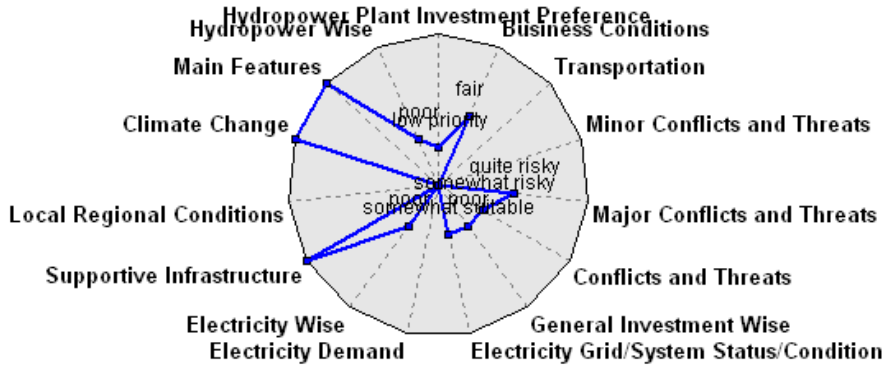
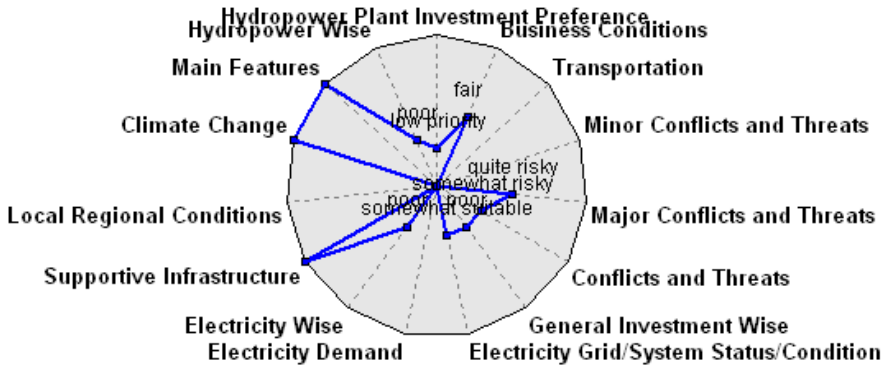


Alt248



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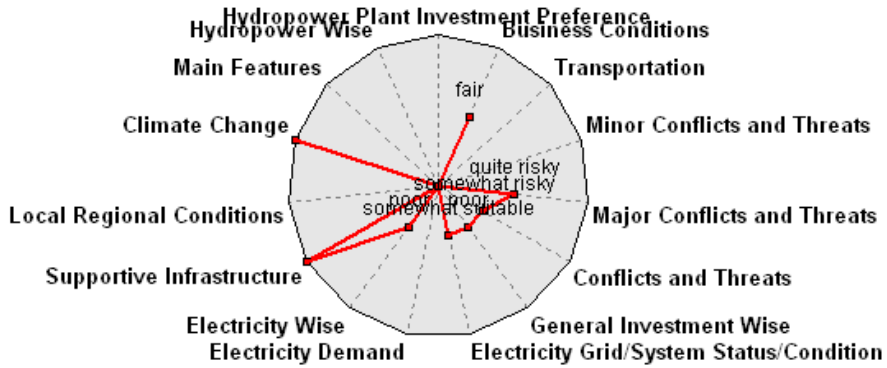


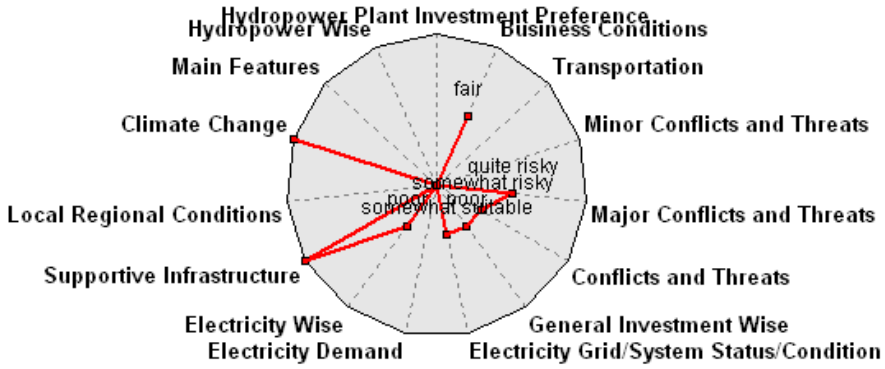
The chart of the evaluation of the DEXi model for the medium private hydropower plant investment options cluster

Journal of Industrial Engineering and Management

A QUALITATIVE MULTI-ATTRIBUTE MODEL FOR SELECTION OF PRIVATE HYDROPOWER PLANT INVESTMENTS IN TURKEY: BY FOUNDATION OF SEARCH RESULTS CLUSTERING ENGINE (Carrot²), HYDROPOWER PLANT CLUSTERING, DEXi AND DEXiTree

MODEL DEVELOPMENT, EXECUTION AND RESULTS

Alt297



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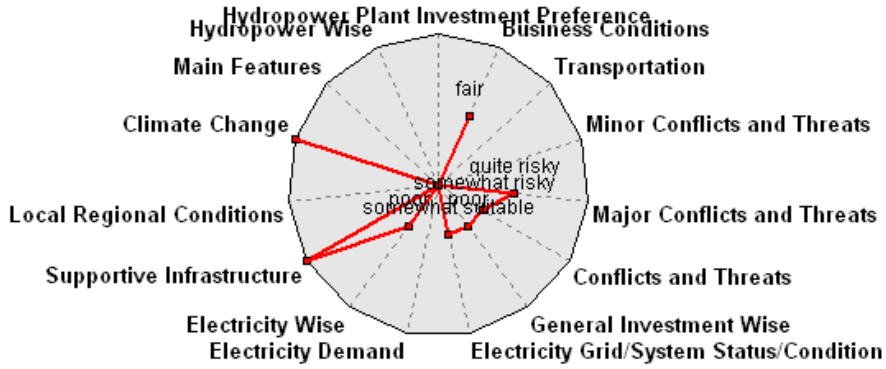

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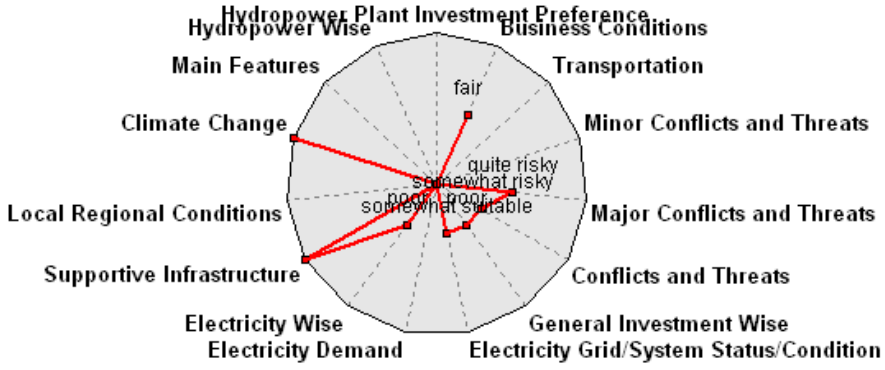

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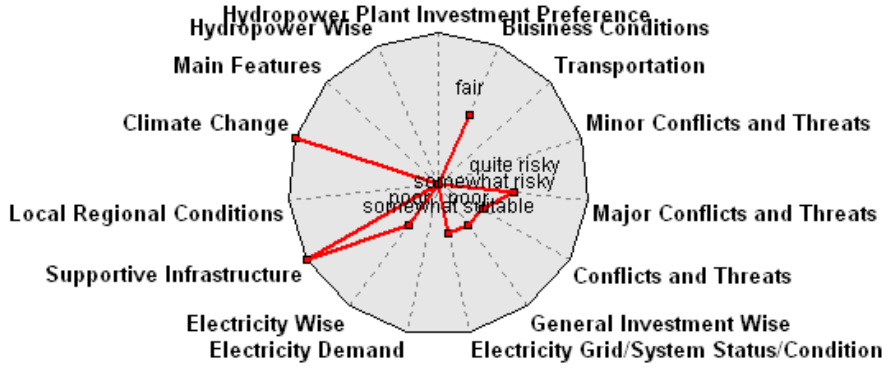

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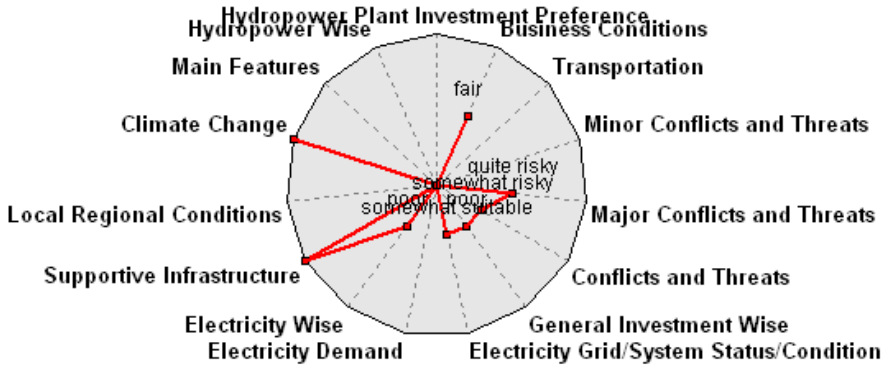
MODEL DEVELOPMENT, EXECUTION AND RESULTS

Alt528



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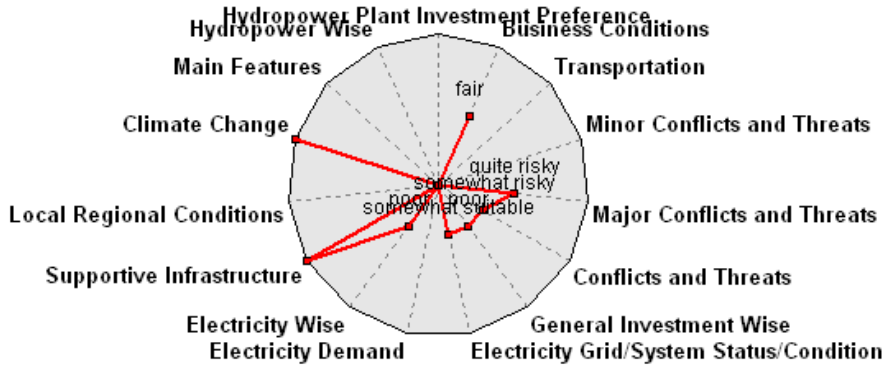

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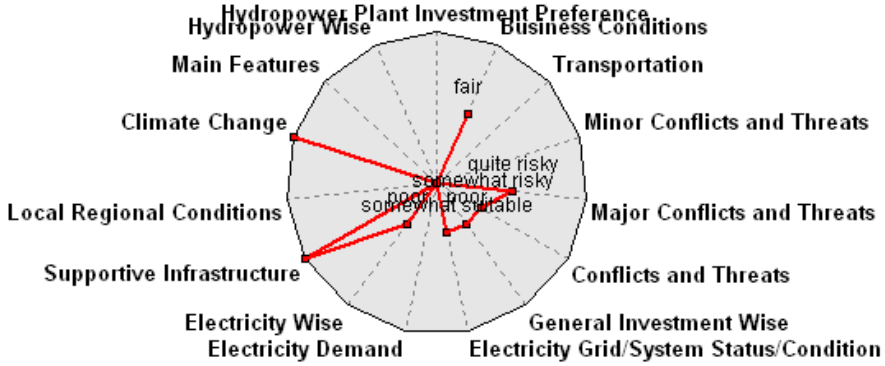

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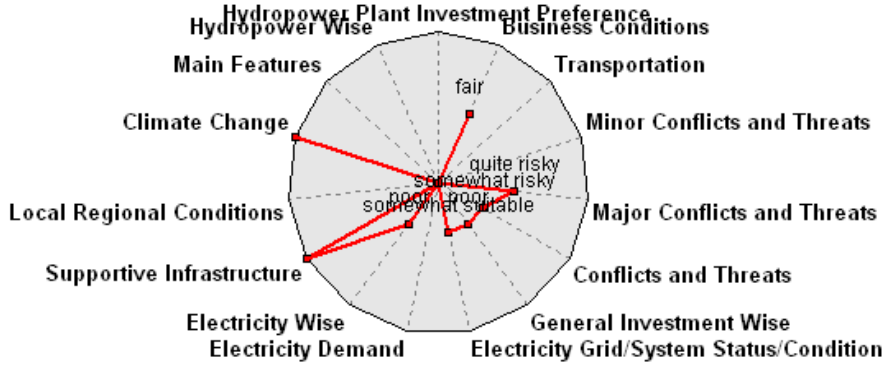

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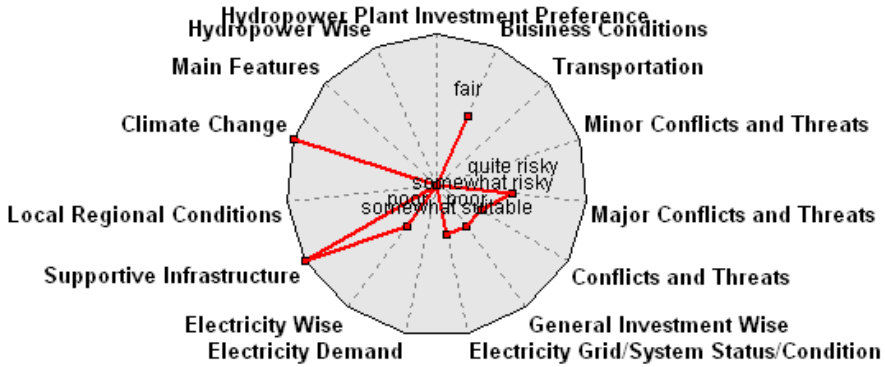
MODEL DEVELOPMENT, EXECUTION AND RESULTS

Alt060



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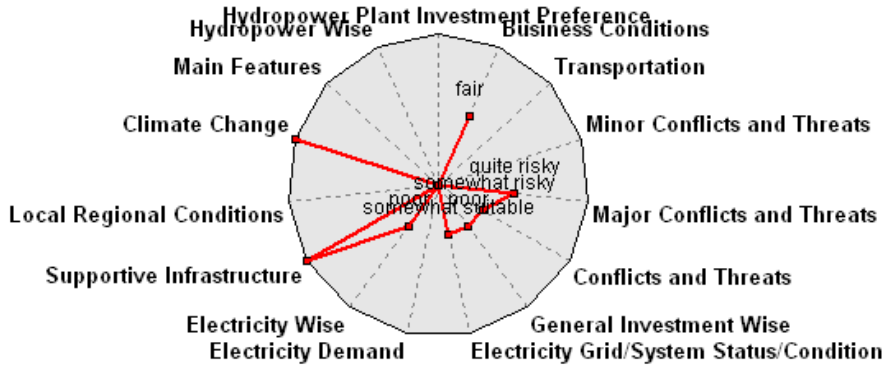

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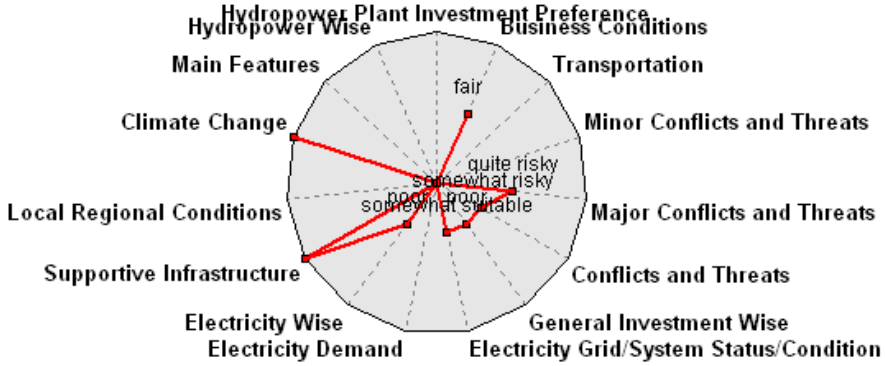

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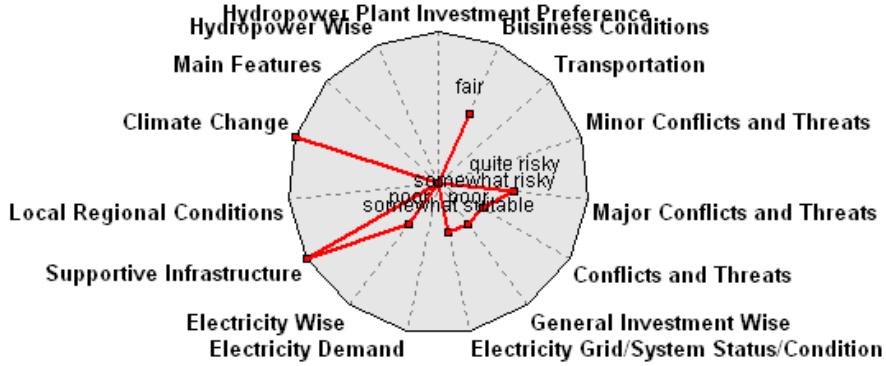

The chart of the evaluation of the DEXi model for the medium private hydropower plant investment options cluster

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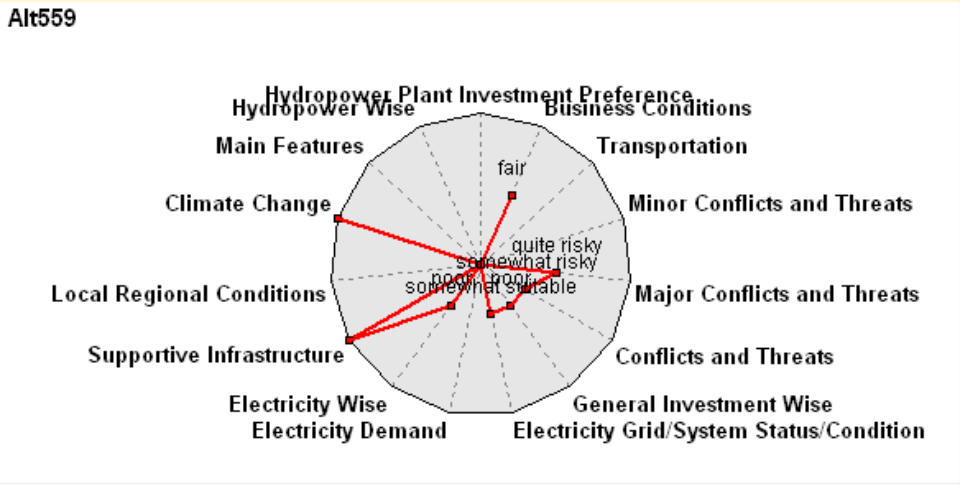
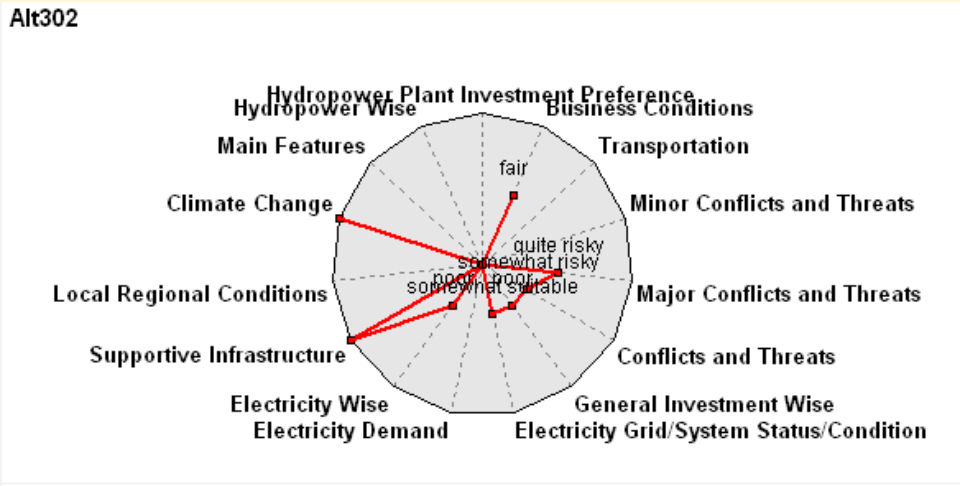
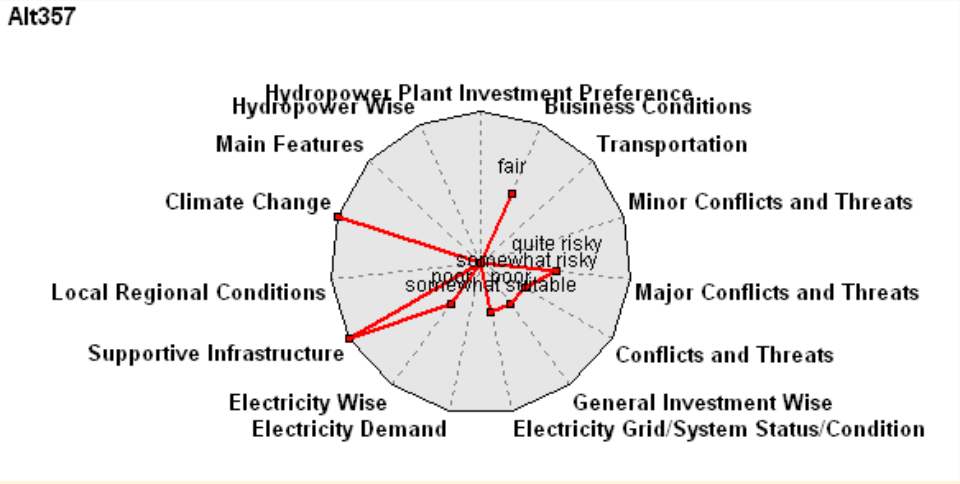
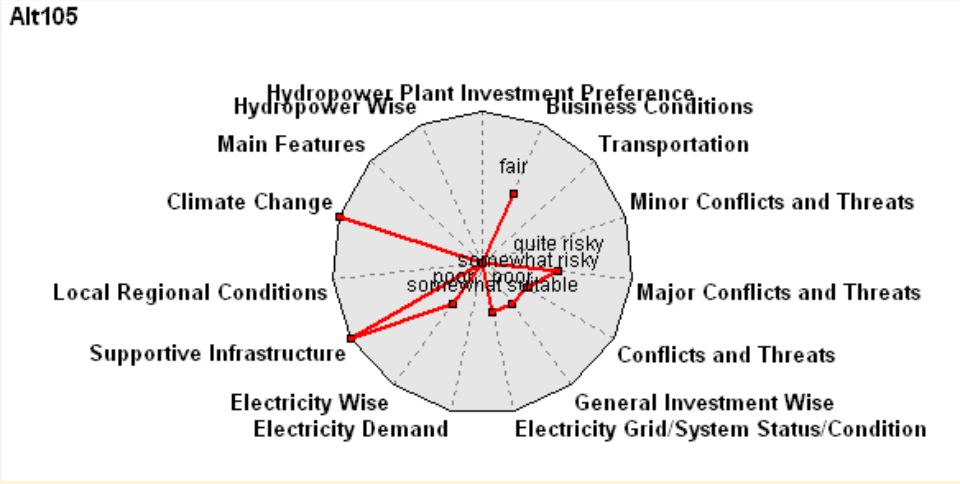
MODEL DEVELOPMENT, EXECUTION AND RESULTS









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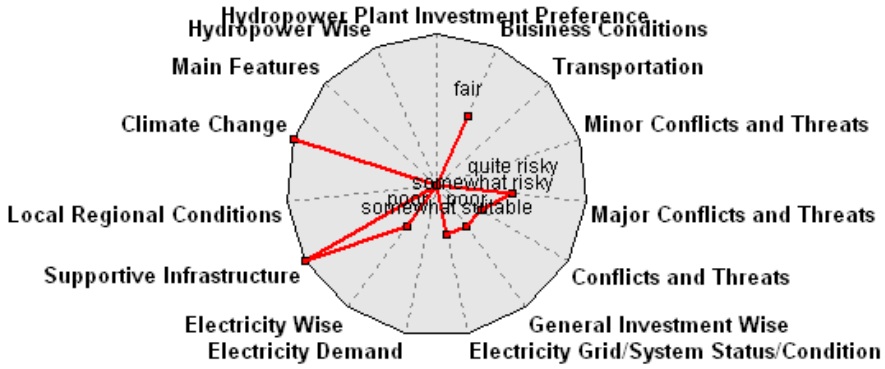
MODEL DEVELOPMENT, EXECUTION AND RESULTS

Alt344



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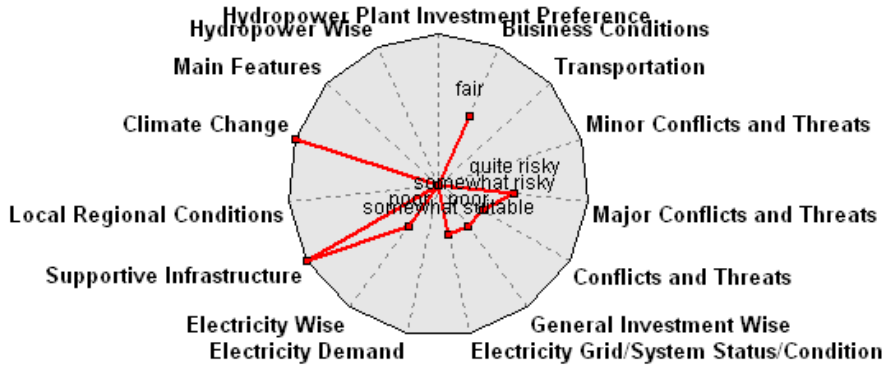

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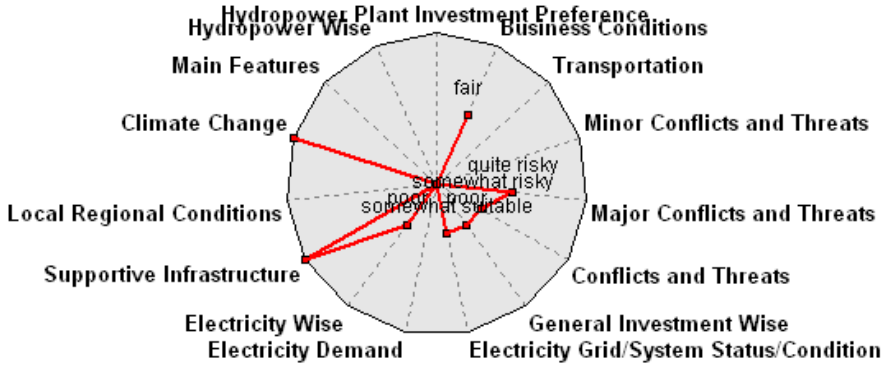

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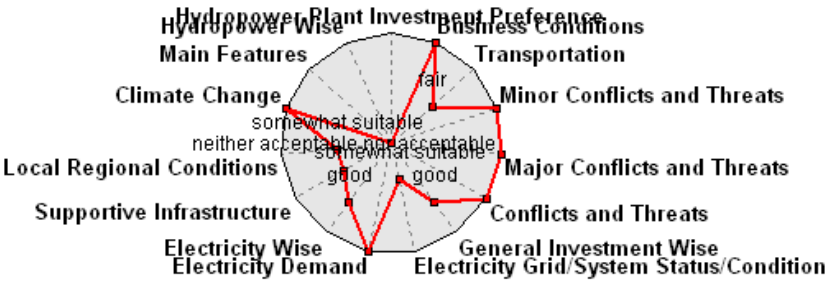

The chart of the evaluation of the DEXi model for the medium private hydropower plant investment options cluster

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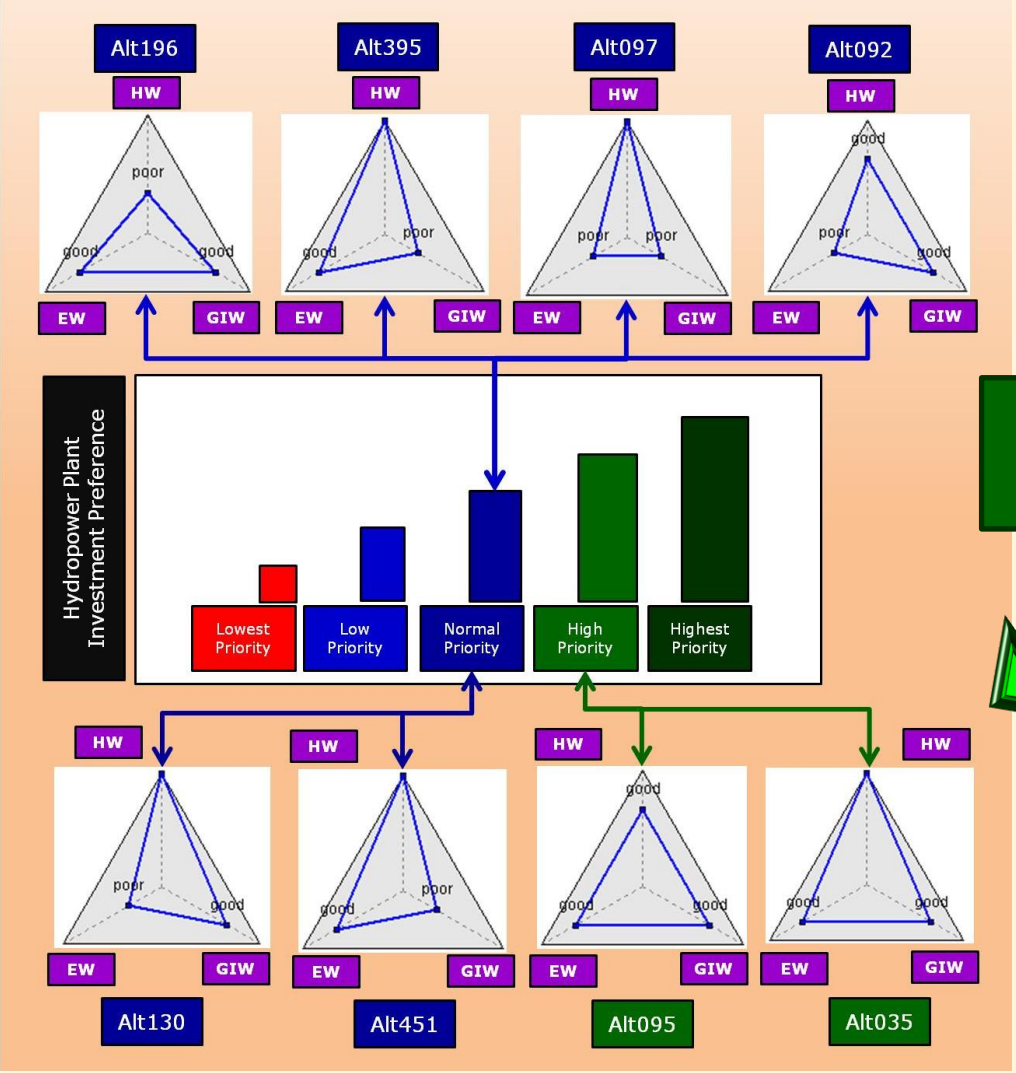
MODEL DEVELOPMENT, EXECUTION AND RESULTS



OVERALL THRESHOLD DEGREE: NORMAL PRIORITY

The graphical display of the evaluation of the DEXi model for the medium private hydropower plant investment options cluster

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MODEL DEVELOPMENT, EXECUTION AND RESULTS

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Model | Options | Evaluation | Charts

Alt187

Option	Alt187	Alt155	Alt265	Alt120	Alt123	Alt387	Alt080	Alt040	Alt034	Alt204	Alt082	Alt569	Alt560	Alt600	Alt159	Alt027	Alt115	Alt1
Total Energy Generation	high	low	low	high	high	high	low	high	low	high	low	low	low	low	low	low	low	low
Investment Cost	low	high	high	low	low	high	high	high	high	low	high	high	high	high	high	high	high	high
River Basin	good	good	good	good	good	good	good	good	good	good	poor	poor	poor	good	good	poor	poor	poor
Precipitation Change	very dry	very dry	very dry	very dry	very dry	very dry	dry	very dry	very dry	very dry	dry	dry	dry	very dry	very dry	dry	dry	dry
Ambient Temperature Change	very warm	very warm	very warm	very warm	very warm	very warm	warm	very warm	very warm	warm	warm	warm	warm	very warm	very warm	warm	warm	warm
Natural Disasters/Hazards	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sens
Community Attitude	negative	negative	negative	not negative	not negative	not negative	negative	not negative	not negative	negative	not negative	not negative	not negative	negative	negative	not negative	not negative	not r
Protected Areas	few	few	few	few	few	few	many	many	many	many	many	many	many	few	few	few	few	few
Technological Infrastructure	insufficient	insufficient	insufficient	insufficient	insufficient	insufficient	sufficient	sufficient	sufficient	sufficient	insufficient	insufficient	insufficient	insufficient	insufficient	sufficient	sufficient	suffi
Scientific Infrastructure	insufficient	insufficient	insufficient	insufficient	insufficient	insufficient	insufficient	sufficient	sufficient	sufficient	insufficient	insufficient	insufficient	insufficient	insufficient	sufficient	sufficient	suffi
Electricity Demand Status/Situation	low	low	low	low	low	low	low	high	high	high	low	low	low	low	low	low	low	low
Electricity Demand Forecast/Prediction	low	low	low	low	low	low	low	high	high	high	low	low	low	low	low	low	low	low
Substation Status/Condition	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	unsuitable	unsuitable	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	prob
Distribution System Status/Condition	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	unsuitable	unsuitable	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	prob
Transmission System Status/Condition	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	prob
War Situation	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no
Terrorism Situation	yes	yes	yes	yes	yes	yes	no	no	no	yes	no	no	no	yes	yes	yes	yes	no
Geopolitical Uncertainty Situation	high	high	high	high	high	high	low	low	low	high	low	low	low	high	high	low	low	low
Security Situation	poor	poor	poor	poor	poor	poor	poor	poor	poor	poor	good	good	good	poor	poor	poor	poor	good
Free Travel Situation	poor	poor	poor	poor	poor	poor	good	good	good	poor	good	good	good	poor	poor	good	good	good
Social Chaos Situation	yes	yes	yes	yes	yes	yes	no	no	no	yes	no	no	no	yes	yes	no	no	no
Road Transportation	poor	poor	poor	poor	poor	poor	poor	good	good	good	poor	poor	poor	poor	poor	good	good	good
Railroad Transportation	poor	poor	poor	poor	poor	poor	poor	poor	poor	good	good	good	good	poor	poor	good	good	good
Air Transportation	poor	poor	poor	good	good	good	poor	good	good	good	good	good	good	poor	poor	good	good	good
Waterborne Transportation	poor	poor	poor	poor	poor	poor	good	good	good	good	poor	poor	poor	poor	poor	poor	poor	poor
Business Climate Status/Situation	poor	poor	poor	poor	poor	poor	poor	good	good	good	poor	poor	poor	poor	poor	poor	poor	poor
Business Climate Prediction	poor	poor	poor	poor	poor	poor	poor	good	good	good	poor	poor	poor	poor	poor	good	good	good

Attributes: 42 (27 basic, 0 linked, 15 aggregate) | Scales: 42 | Functions: 15 | Options: 27

The options screenview of the DEXi model for the large private hydropower plant investment options cluster

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MODEL DEVELOPMENT, EXECUTION AND RESULTS

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File Edit Analysis Window Help

Model | Options | Evaluation | Charts

Option	Alt187	Alt155	Alt265	Alt120	Alt123	Alt387	Alt080	Alt040	Alt034	Alt204	Alt082	Alt569	Alt560	Alt600	Alt159	Alt027	Alt115
. Hydropower Plant Investment Preference	low priority	lowest prio	lowest prio	low priority	low priority	low priority	lowest prio	lowest prio	lowest prio	low priority	lowest prio	lowest prio	lowest prio	lowest prio	lowest prio	lowest prio	lowest p
.. Hydropower Wise	poor	very poor	very poor	poor	poor	poor	very poor	poor	very poor	poor	very poor	very poor	very poor	very poor	very poor	very poor	very po
... Main Features	acceptable	unacceptal	unacceptal	acceptable	acceptable	acceptable	unacceptal	acceptable	unacceptal	acceptable	unacceptal	unacceptal	unacceptal	unacceptal	unacceptal	unacceptal	unacce
.... Total Energy Generation	high	low	low	high	high	high	low	high	low	high	low	low	low	low	low	low	low
.... Investment Cost	low	high	high	low	low	high	high	high	high	low	high	high	high	high	high	high	high
.... River Basin	good	good	good	good	good	good	good	good	good	good	poor	poor	poor	good	good	poor	poor
... Climate Change	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	insensitive	sensitive	sensitive	somewhat	insensitive	insensitive	insensitive	sensitive	sensitive	insensitive	insensit
.... Precipitation Change	very dry	very dry	very dry	very dry	very dry	very dry	dry	very dry	very dry	very dry	dry	dry	dry	very dry	very dry	dry	dry
.... Ambient Temperature Change	very warm	very warm	very warm	very warm	very warm	very warm	warm	very warm	very warm	warm	warm	warm	warm	very warm	very warm	warm	warm
... Local Regional Conditions	unsuitable	unsuitable	unsuitable	somewhat	somewhat	somewhat	unsuitable	unsuitable	unsuitable	unsuitable	unsuitable	unsuitable	unsuitable	unsuitable	unsuitable	somewhat	somewh
.... Natural Disasters/Hazards	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive	sensitive
.... Community Attitude	negative	negative	negative	not negative	not negative	not negative	negative	not negative	not negative	negative	not negative	not negative	not negative	negative	negative	not negative	not nega
.... Protected Areas	few	few	few	few	few	few	many	many	many	many	many	many	many	few	few	few	few
... Supportive Infrastructure	unacceptal	unacceptal	unacceptal	unacceptal	unacceptal	unacceptal	neither acc	acceptable	acceptable	acceptable	unacceptal	unacceptal	unacceptal	unacceptal	unacceptal	acceptable	accepta
.... Technological Infrastructure	insufficient	insufficient	insufficient	insufficient	insufficient	insufficient	sufficient	sufficient	sufficient	sufficient	insufficient	insufficient	insufficient	insufficient	insufficient	sufficient	sufficient
.... Scientific Infrastructure	insufficient	insufficient	insufficient	insufficient	insufficient	insufficient	insufficient	sufficient	sufficient	sufficient	insufficient	insufficient	insufficient	insufficient	insufficient	sufficient	sufficient
.. Electricity Wise	poor	poor	poor	poor	poor	poor	poor	very poor	very poor	good	poor	poor	poor	poor	poor	poor	poor
... Electricity Demand	low	low	low	low	low	low	low	high	high	high	low	low	low	low	low	low	low
.... Electricity Demand Status/Situation	low	low	low	low	low	low	low	high	high	high	low	low	low	low	low	low	low
.... Electricity Demand Forecast/Prediction	low	low	low	low	low	low	low	high	high	high	low	low	low	low	low	low	low
... Electricity Grid/System Status/Condition	somewhat	somewhat	somewhat	somewhat	somewhat	somewhat	somewhat	unsuitable	unsuitable	somewhat	somewhat	somewhat	somewhat	somewhat	somewhat	somewhat	somewh
.... Substation Status/Condition	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	unsuitable	unsuitable	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably
.... Distribution System Status/Condition	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	unsuitable	unsuitable	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably
.... Transmission System Status/Condition	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably suit	probably
.. General Investment Wise	poor	poor	poor	poor	poor	poor	poor	very good	very good	good	poor	poor	poor	poor	poor	poor	poor
... Conflicts and Threats	somewhat	somewhat	somewhat	somewhat	somewhat	somewhat	not risky	not risky	not risky	somewhat	not risky	not risky	not risky	somewhat	somewhat	somewhat	somewh
.... Major Conflicts and Threats	quite risky	quite risky	quite risky	quite risky	quite risky	quite risky	not risky	not risky	not risky	quite risky	not risky	not risky	not risky	quite risky	quite risky	quite risky	quite ris
..... War Situation	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no	no

Attributes: 42 (27 basic, 0 linked, 15 aggregate) | Scales: 42 | Functions: 15 | Options: 27

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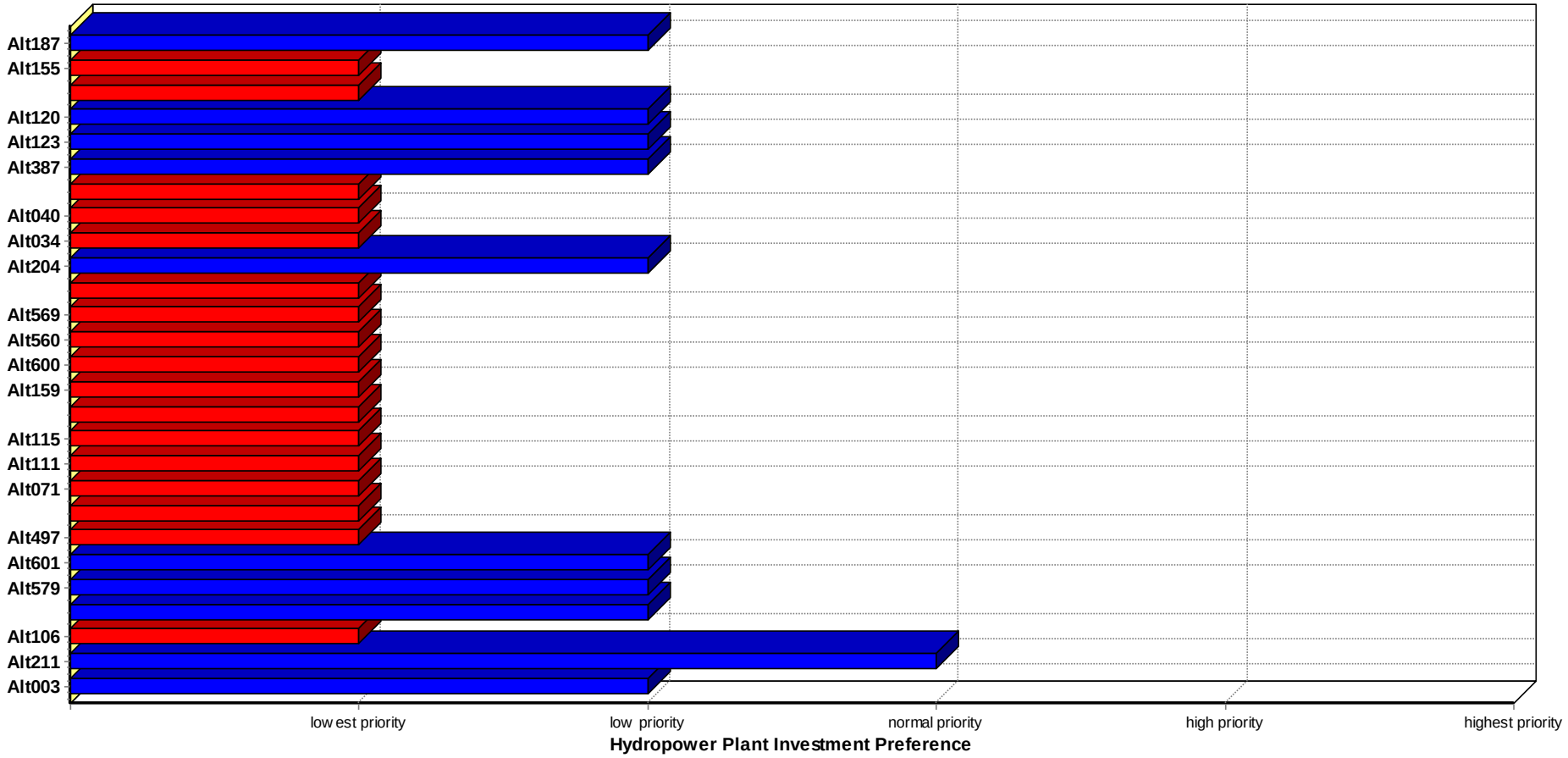
MODEL DEVELOPMENT, EXECUTION AND RESULTS



The chart of the evaluation of the DEXi model for the large private hydropower plant investment options cluster

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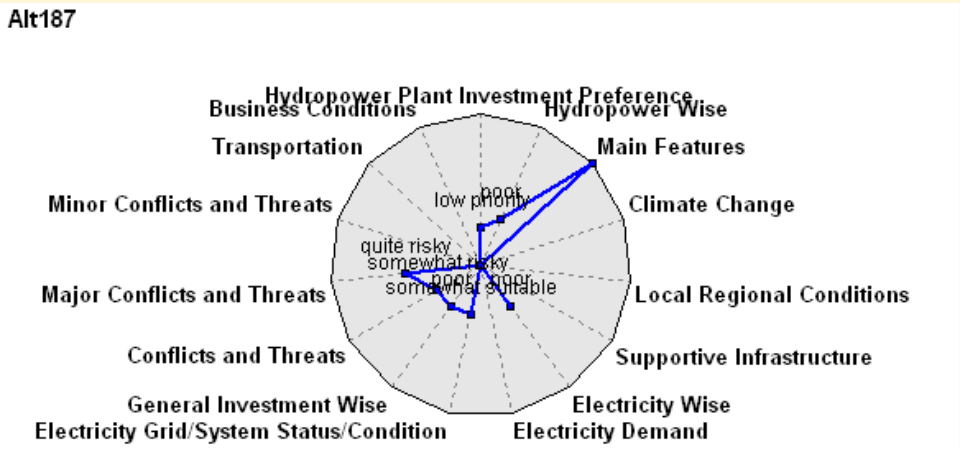

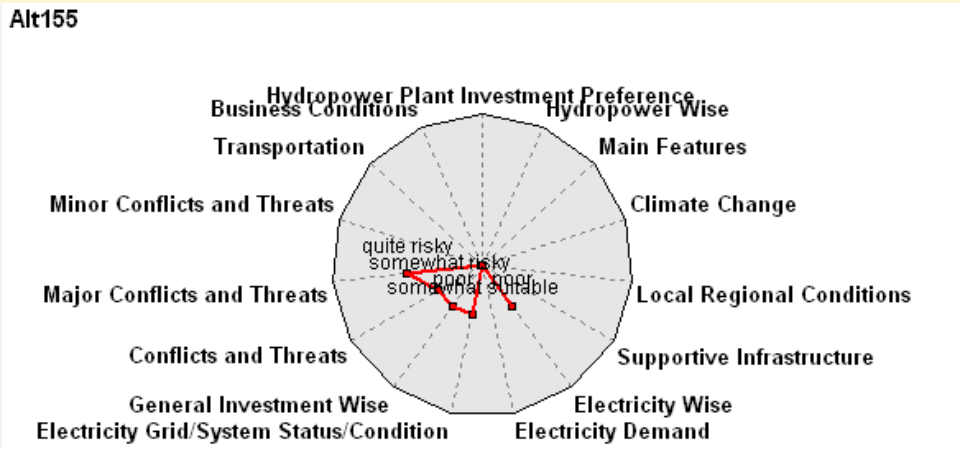

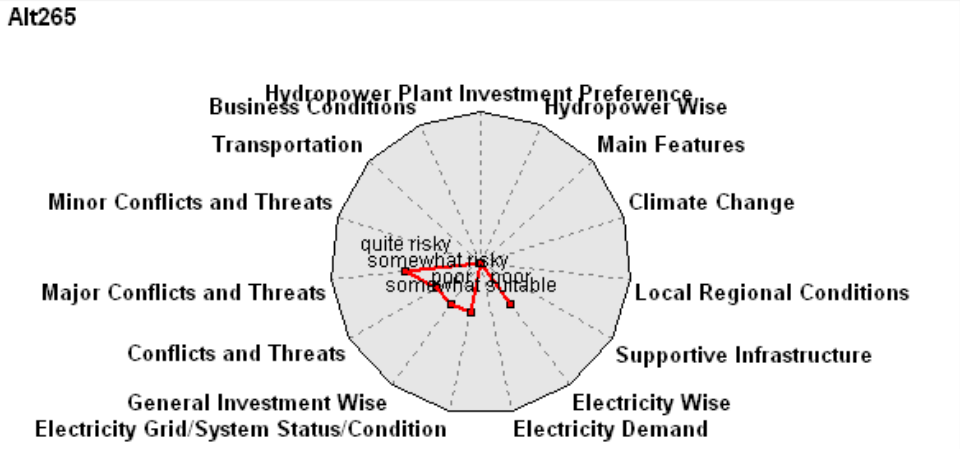

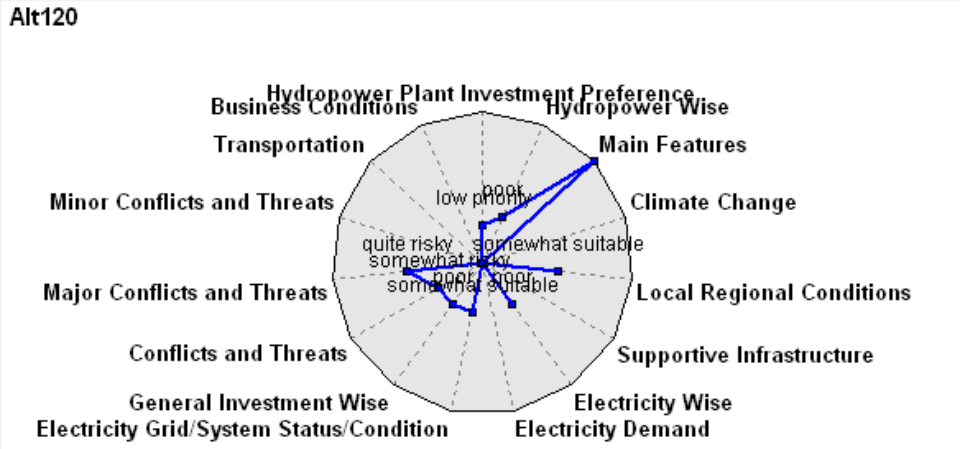

The chart of the evaluation of the DEXi model for the large private hydropower plant investment options cluster

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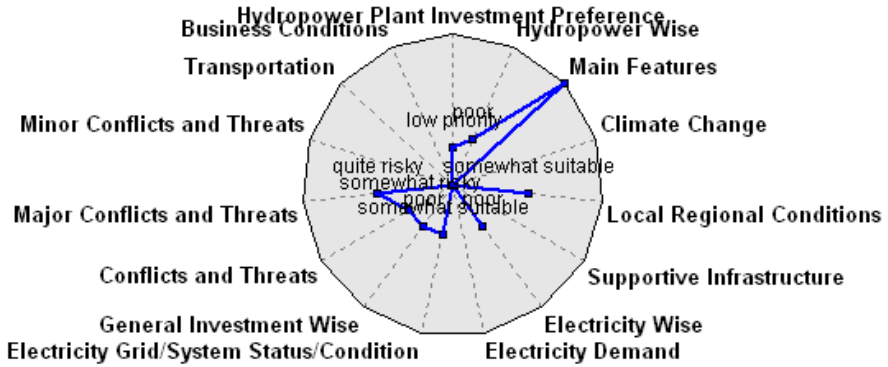
A QUALITATIVE MULTI-ATTRIBUTE MODEL FOR SELECTION OF PRIVATE HYDROPOWER PLANT INVESTMENTS IN TURKEY: BY FOUNDATION OF SEARCH RESULTS CLUSTERING ENGINE (Carrot²), HYDROPOWER PLANT CLUSTERING, DEXi AND DEXiTree

MODEL DEVELOPMENT, EXECUTION AND RESULTS

Alt123



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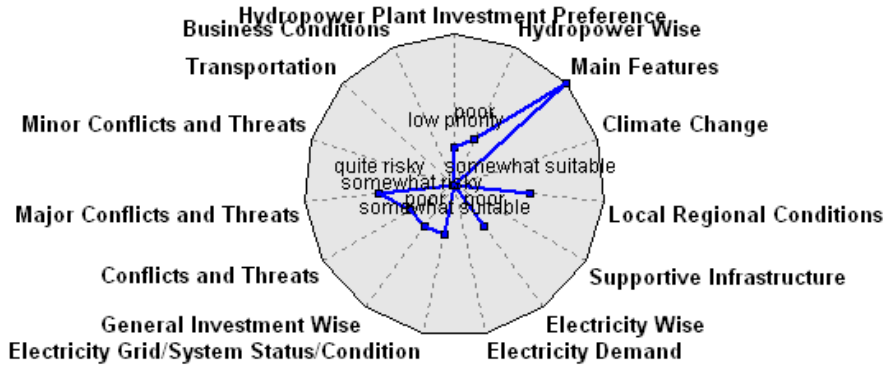
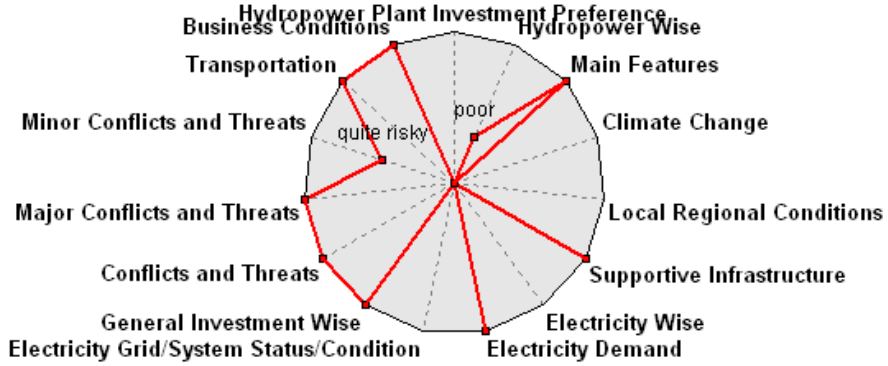


Alt080

Alt040



The chart of the evaluation of the DEXi model for the large private hydropower plant investment options cluster

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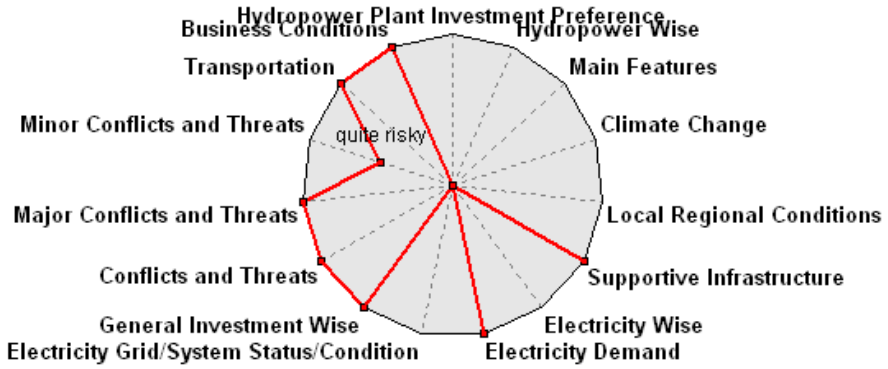
MODEL DEVELOPMENT, EXECUTION AND RESULTS

Alt034



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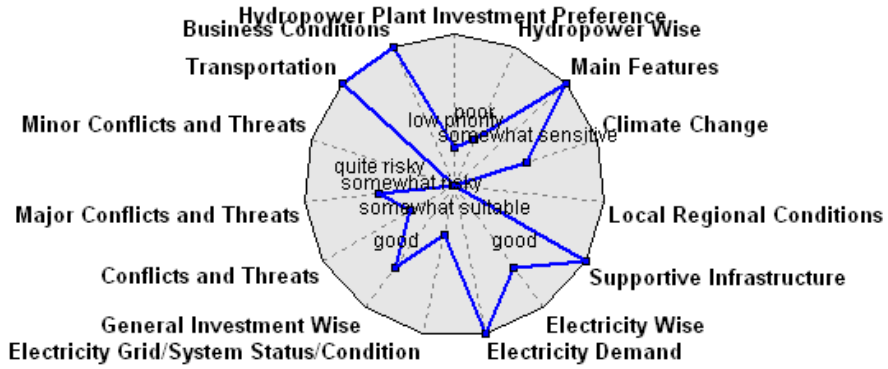

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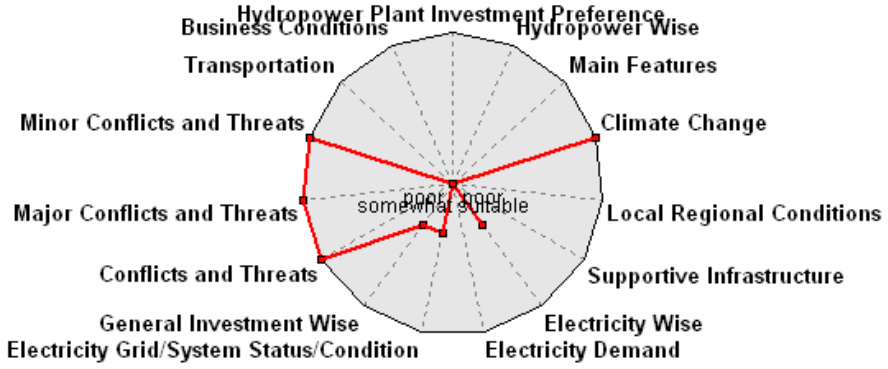

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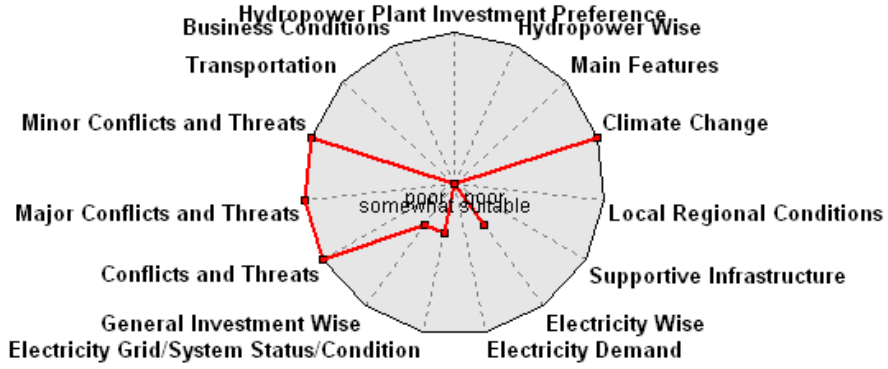

The chart of the evaluation of the DEXi model for the large private hydropower plant investment options cluster

Journal of Industrial Engineering and Management

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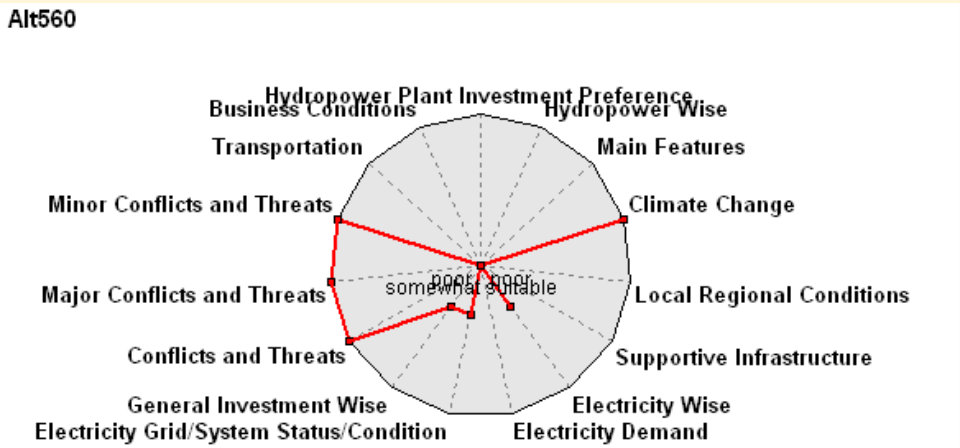
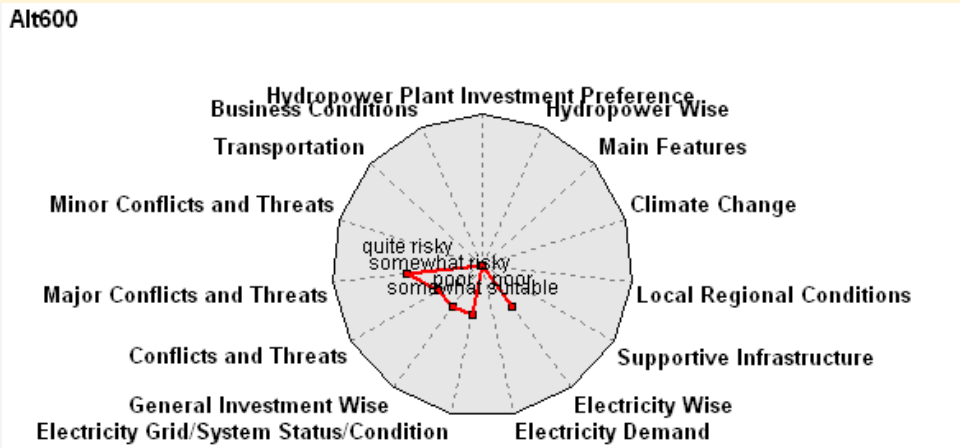
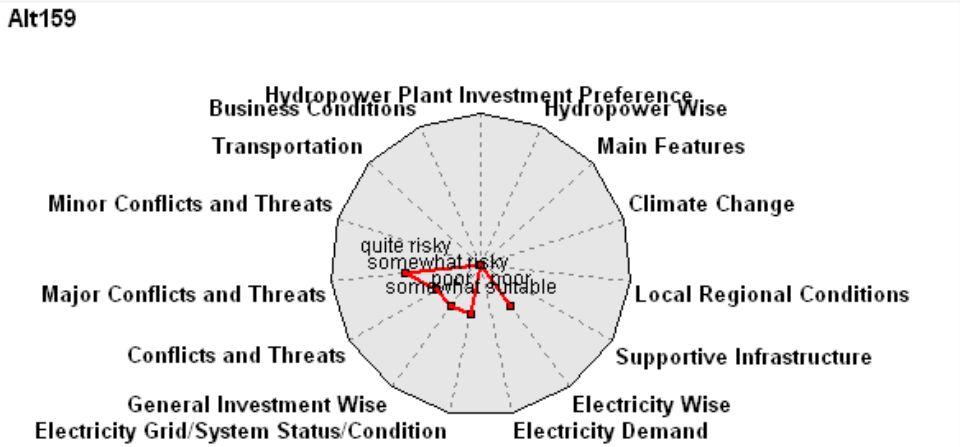
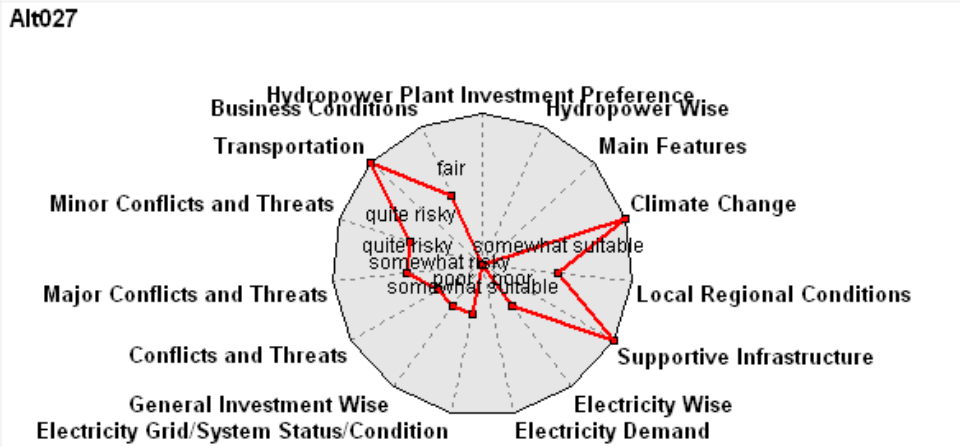
MODEL DEVELOPMENT, EXECUTION AND RESULTS









The chart of the evaluation of the DEXi model for the large private hydropower plant investment options cluster

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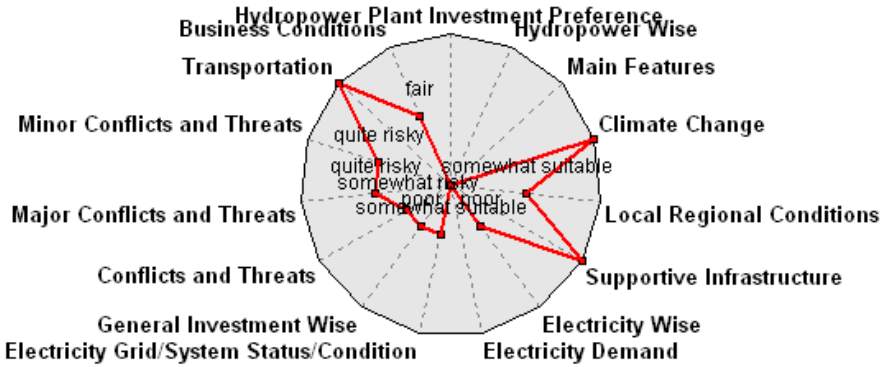
MODEL DEVELOPMENT, EXECUTION AND RESULTS

Alt115



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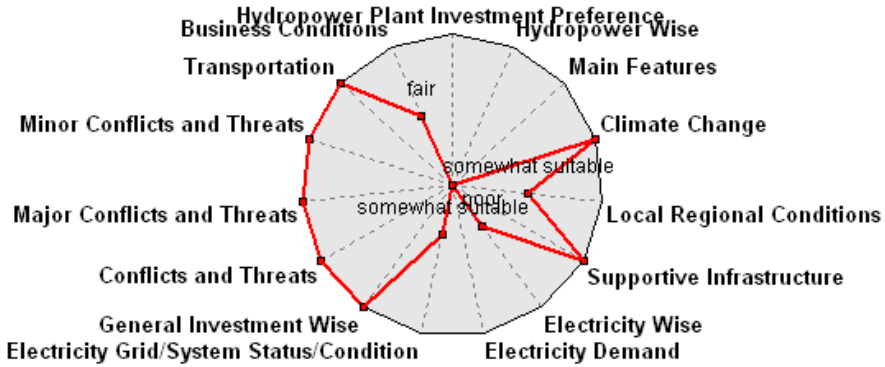

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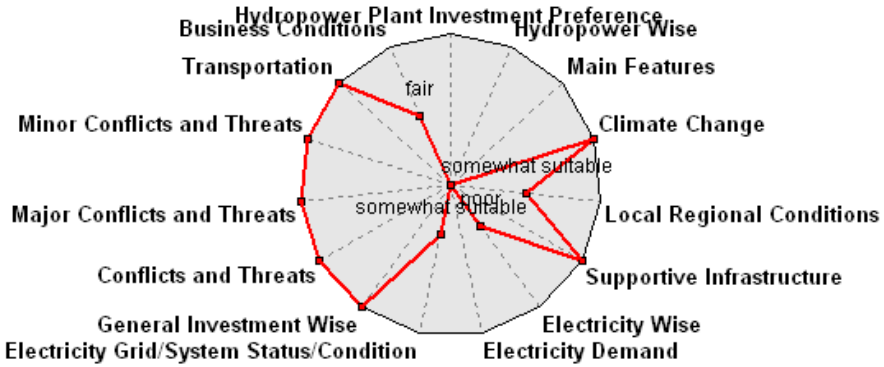

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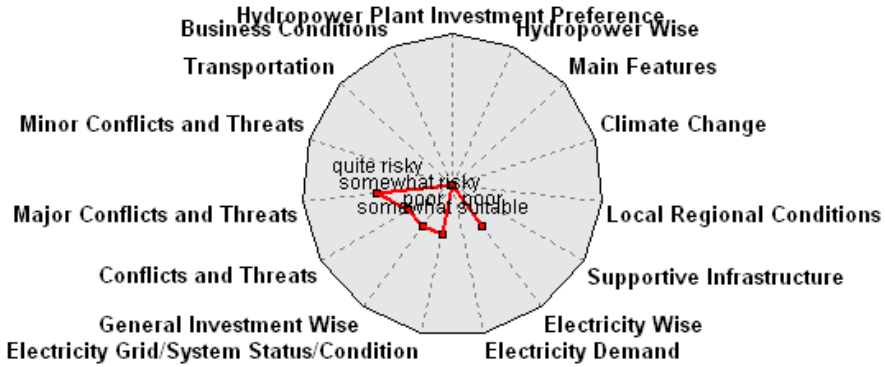

The chart of the evaluation of the DEXi model for the large private hydropower plant investment options cluster

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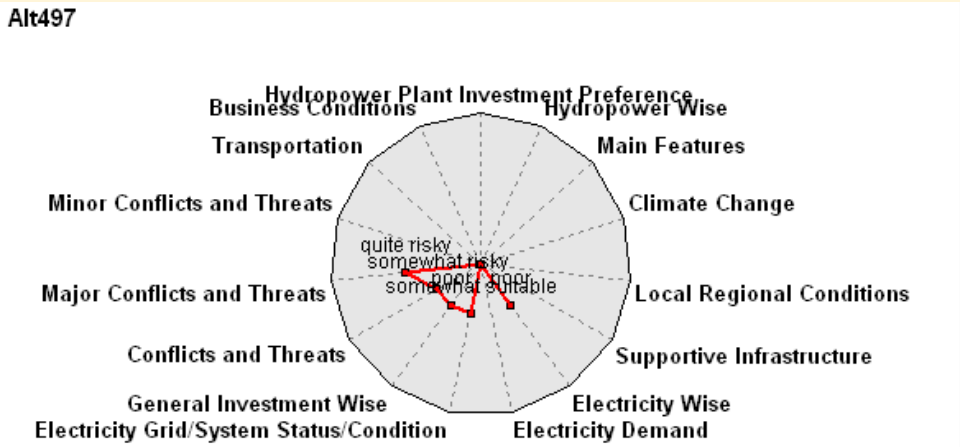
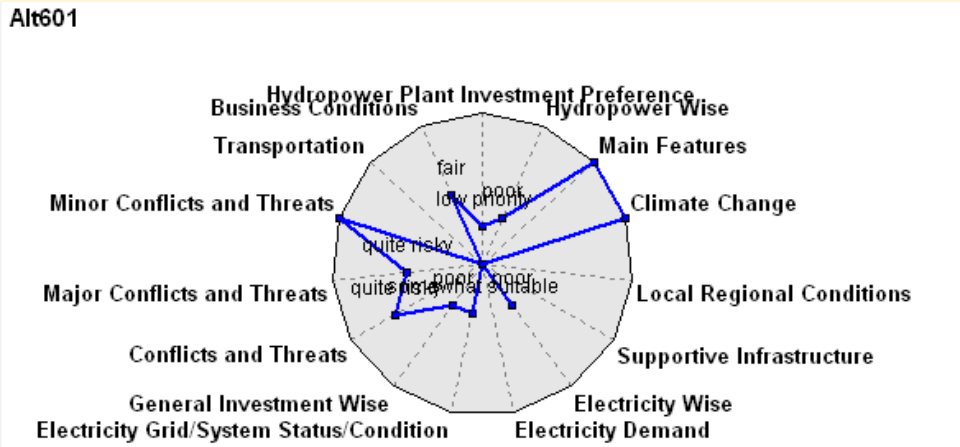
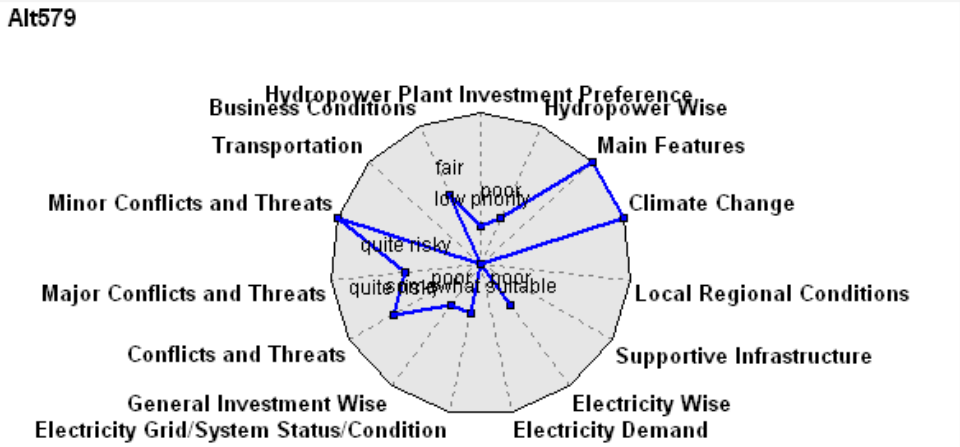
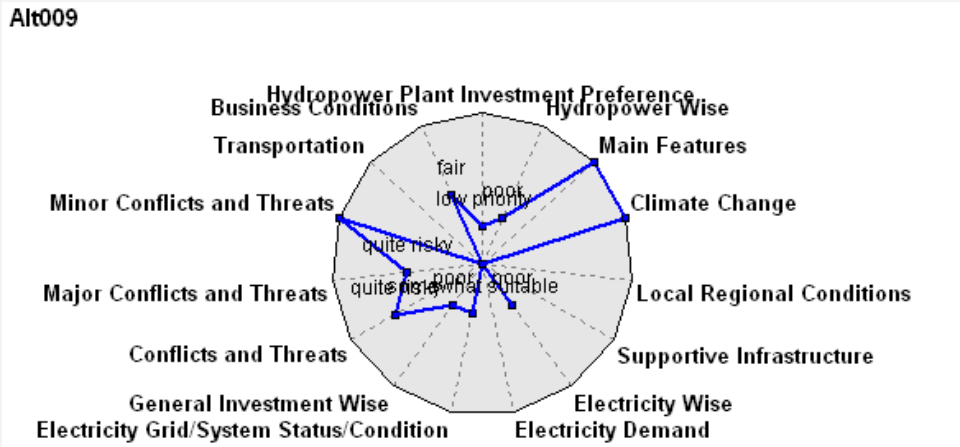
A QUALITATIVE MULTI-ATTRIBUTE MODEL FOR SELECTION OF PRIVATE HYDROPOWER PLANT INVESTMENTS IN TURKEY: BY FOUNDATION OF SEARCH RESULTS CLUSTERING ENGINE (Carrot²), HYDROPOWER PLANT CLUSTERING, DEXi AND DEXiTree

MODEL DEVELOPMENT, EXECUTION AND RESULTS









The chart of the evaluation of the DEXi model for the large private hydropower plant investment options cluster

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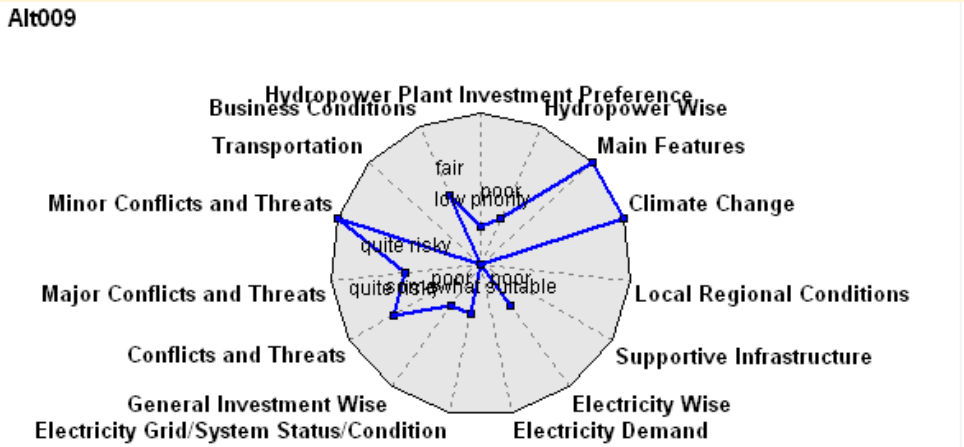
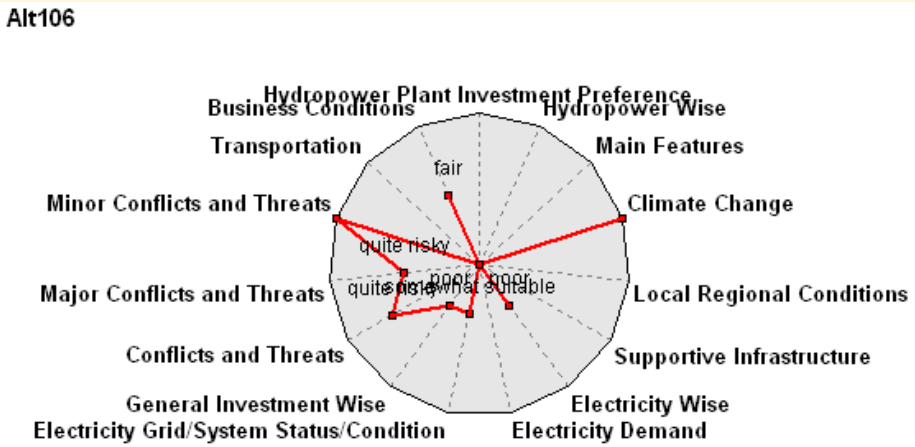
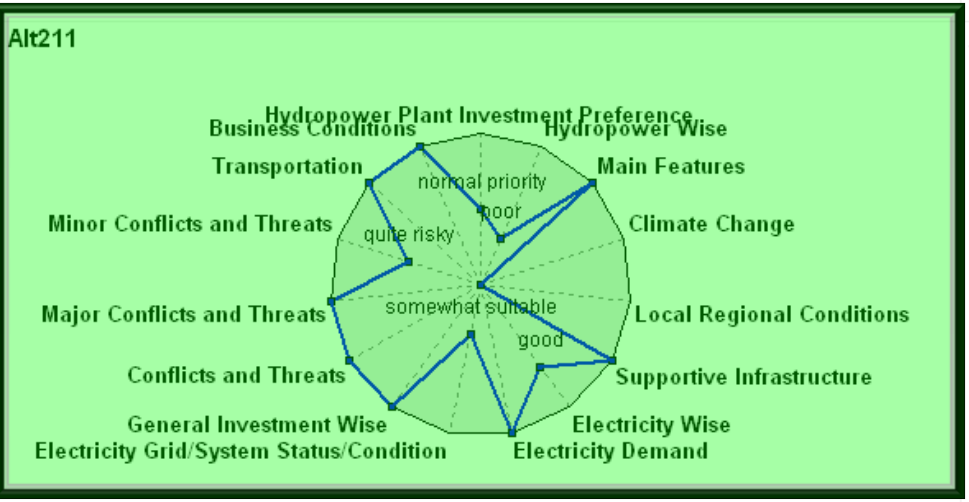
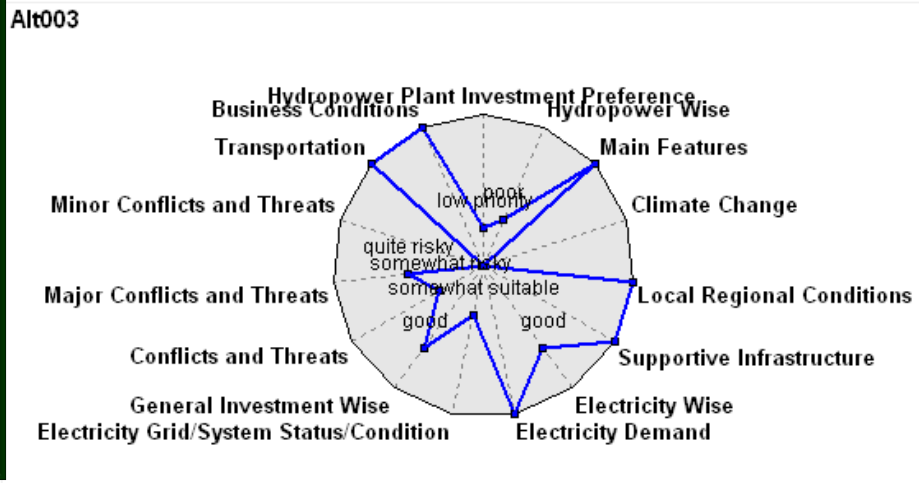
MODEL DEVELOPMENT, EXECUTION AND RESULTS









The chart of the evaluation of the DEXi model for the large private hydropower plant investment options cluster

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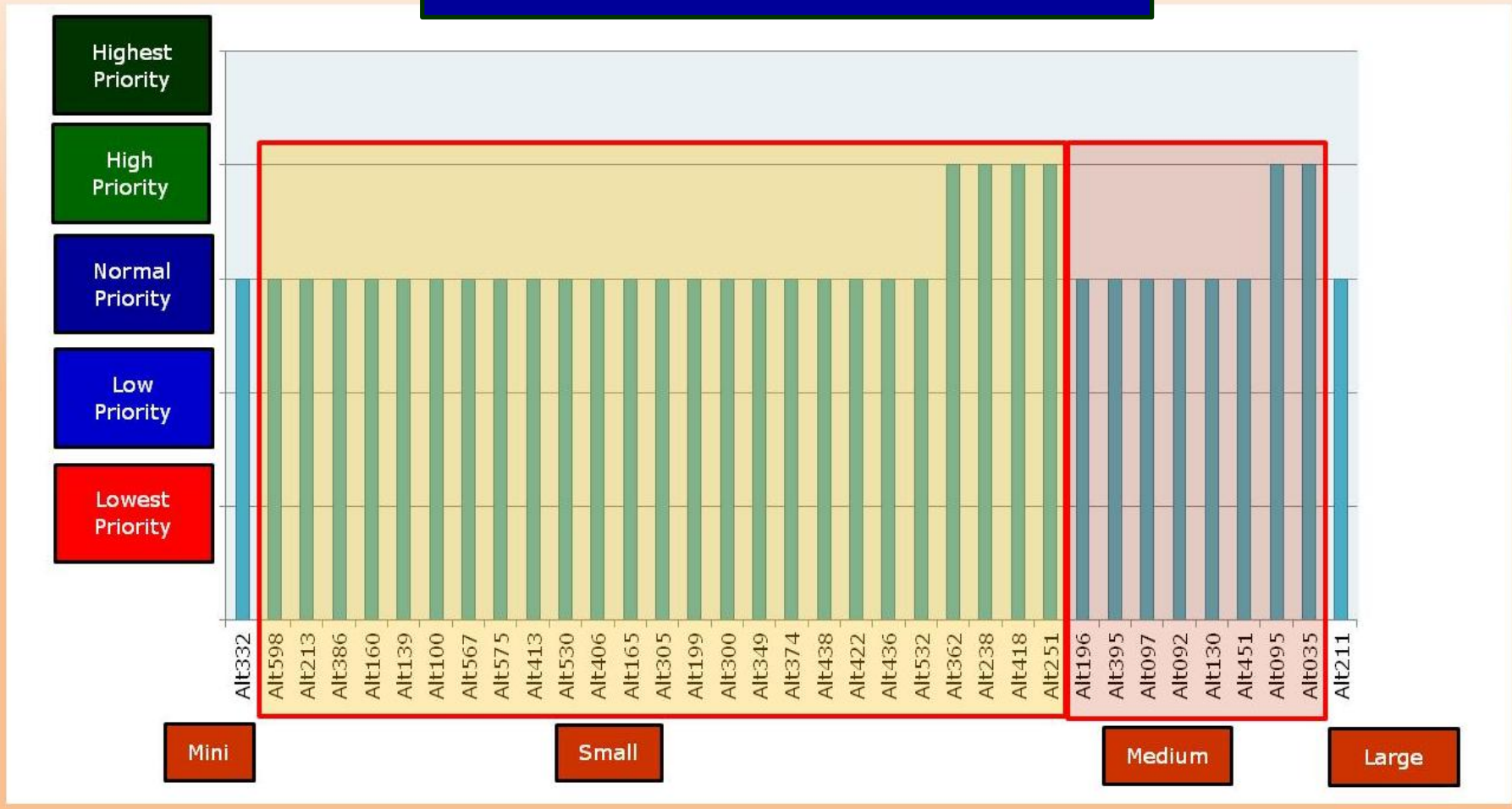
A QUALITATIVE MULTI-ATTRIBUTE MODEL FOR SELECTION OF PRIVATE HYDROPOWER PLANT INVESTMENTS IN TURKEY: BY FOUNDATION OF SEARCH RESULTS CLUSTERING ENGINE (Carrot²), HYDROPOWER PLANT CLUSTERING, DEXi AND DEXiTree

MODEL DEVELOPMENT, EXECUTION AND RESULTS

SELECTED OPTIONS BY VPI



The overall results of the analysis

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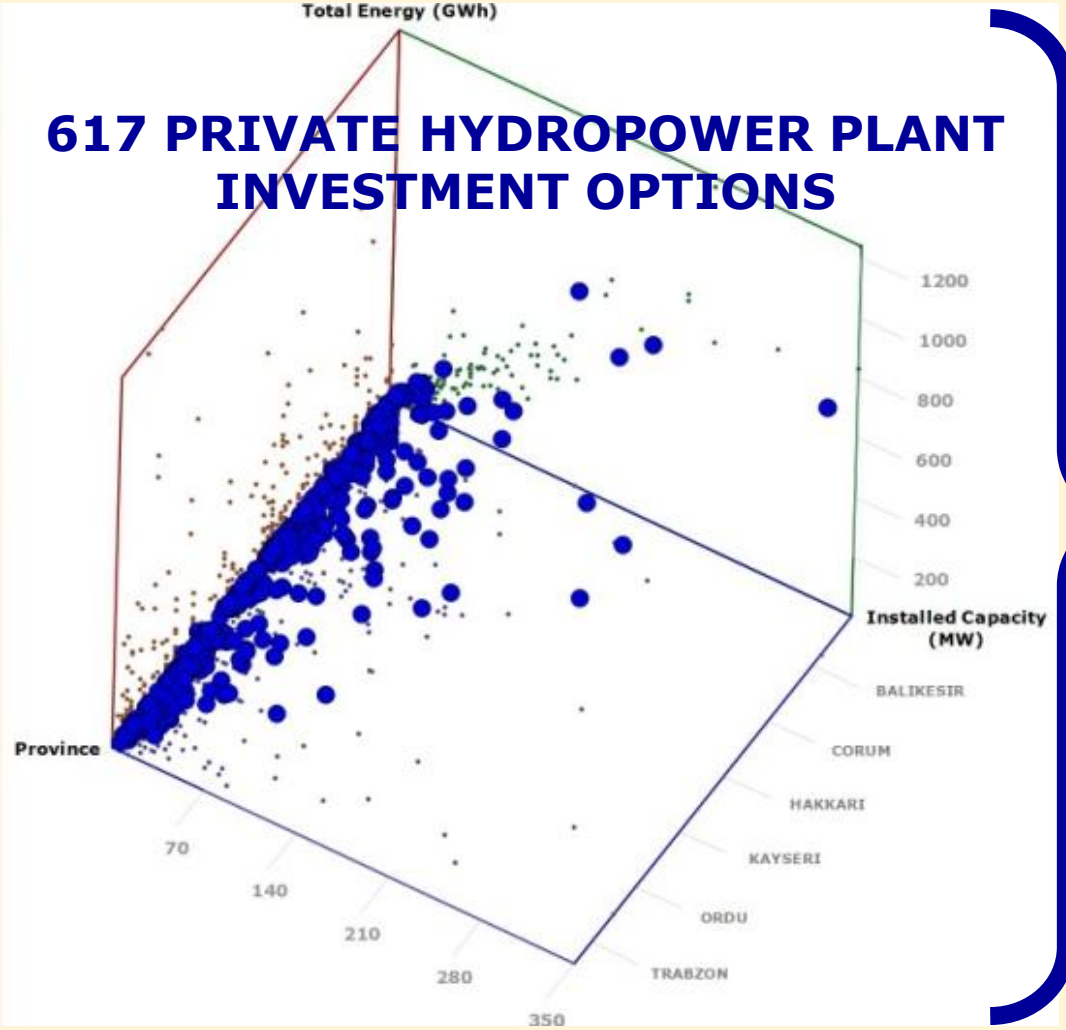
MODEL DEVELOPMENT, EXECUTION AND RESULTS



BEST OPTIONS FOR VPI	
Mini	Alt332
Small	Alt362
	Alt238
	Alt418
	Alt251
Medium	Alt095
	Alt035
Large	Alt211

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MODEL DEVELOPMENT, EXECUTION AND RESULTS

Preview

Page 1/1 100%

DEXi IJEM DEXi Model Cluster Large.dxi 30.03.2014 Page 1

Plus-Minus-1 analysis

Attribute	-1	Alt211	+1
Hydropower Plant Investment Preference		normal priority	
Total Energy Generation	lowest priority	*high*	]
Investment Cost		[high	
River Basin	lowest priority	*good*	]
Precipitation Change		[very dry	
Ambient Temperature Change		[very warm	
Natural Disasters/Hazards		*insensitive*	]
Community Attitude		[negative	
Protected Areas		[many	
Technological Infrastructure		*sufficient*	]
Scientific Infrastructure		*sufficient*	]
Electricity Demand Status/Situation		*high*	]
Electricity Demand Forecast/Prediction		*high*	]
Substation Status/Condition	lowest priority	probably suitable	
Distribution System Status/Condition		[unsuitable	
Transmission System Status/Condition	lowest priority	probably suitable	
War Situation	low priority	*no*	]
Terrorism Situation	low priority	*no*	]
Geopolitical Uncertainty Situation	low priority	*low*	]
Security Situation		[poor	
Free Travel Situation		*good*	]
Social Chaos Situation		*no*	]
Road Transportation	low priority	*good*	]
Railroad Transportation		[poor	
Air Transportation	low priority	*good*	]
Waterborne Transportation		*good*	]
Business Climate Status/Situation		*good*	]
Business Climate Prediction		*good*	]

The plus-minus-1 analysis for the Alt211

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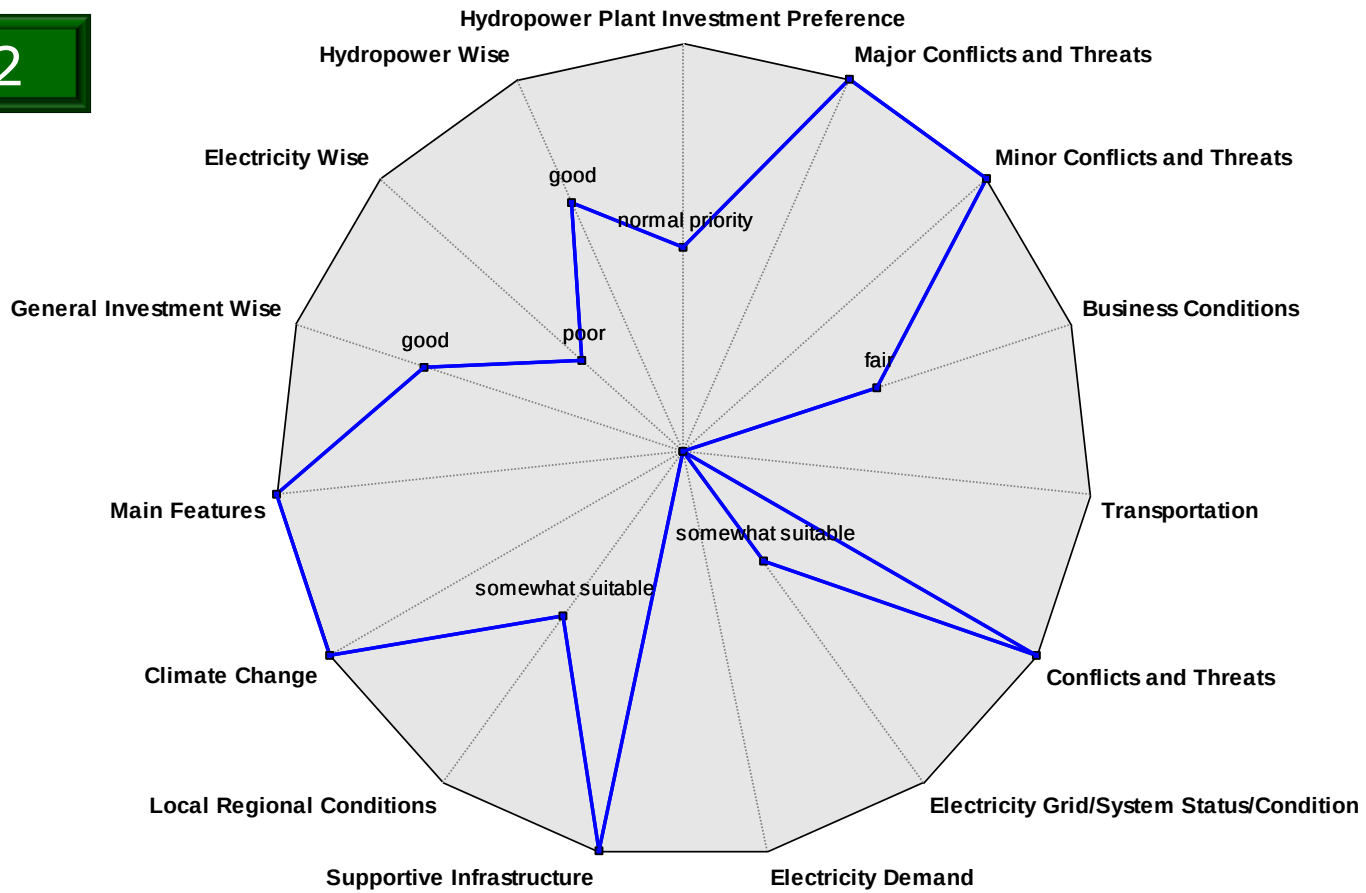
MODEL DEVELOPMENT, EXECUTION AND RESULTS

Mini Private Hydropower Plant Investments Cluster
0,1 MW < P ≤ 1 MW

Alt332



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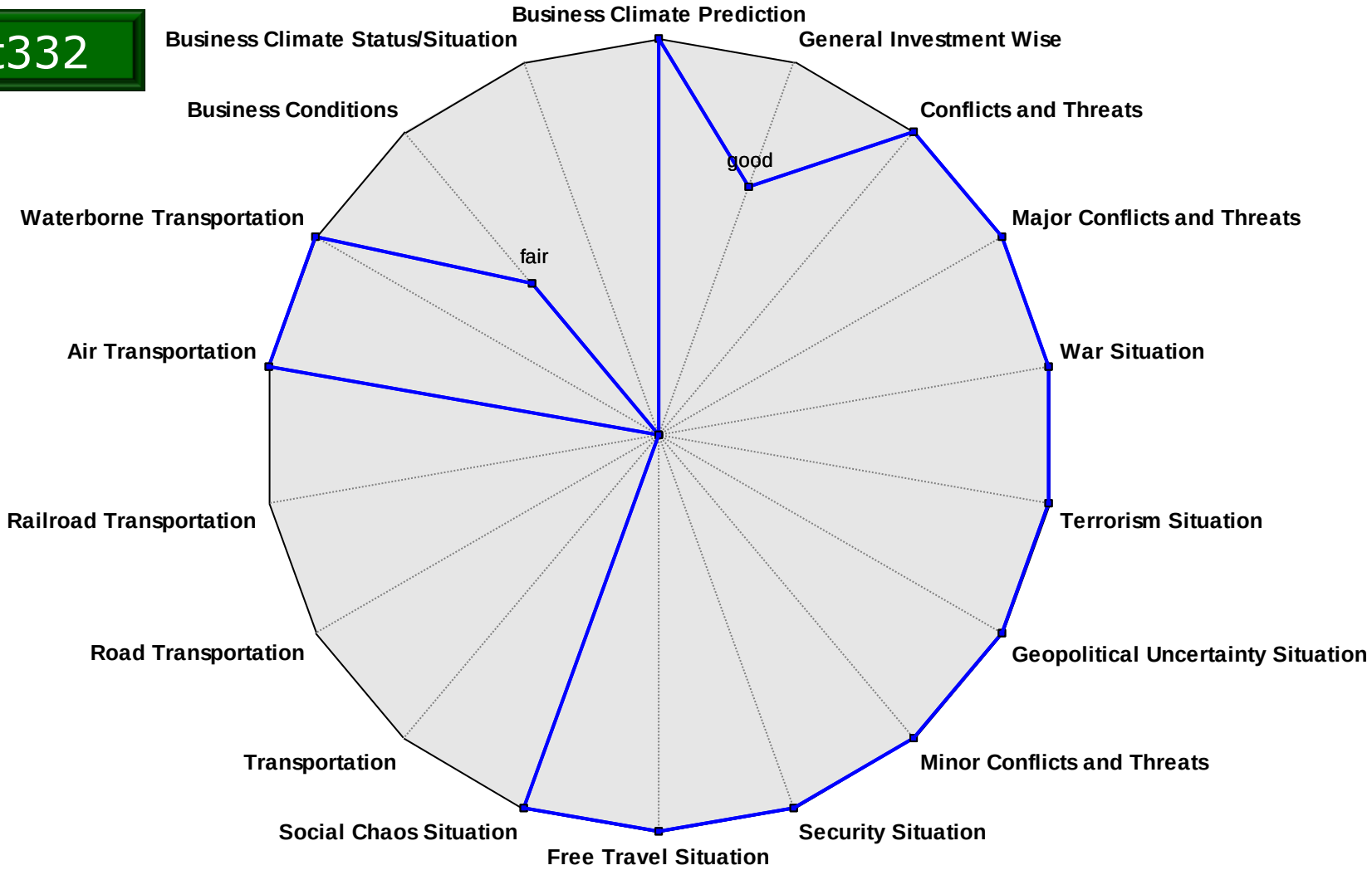
MODEL DEVELOPMENT, EXECUTION AND RESULTS

Alt332



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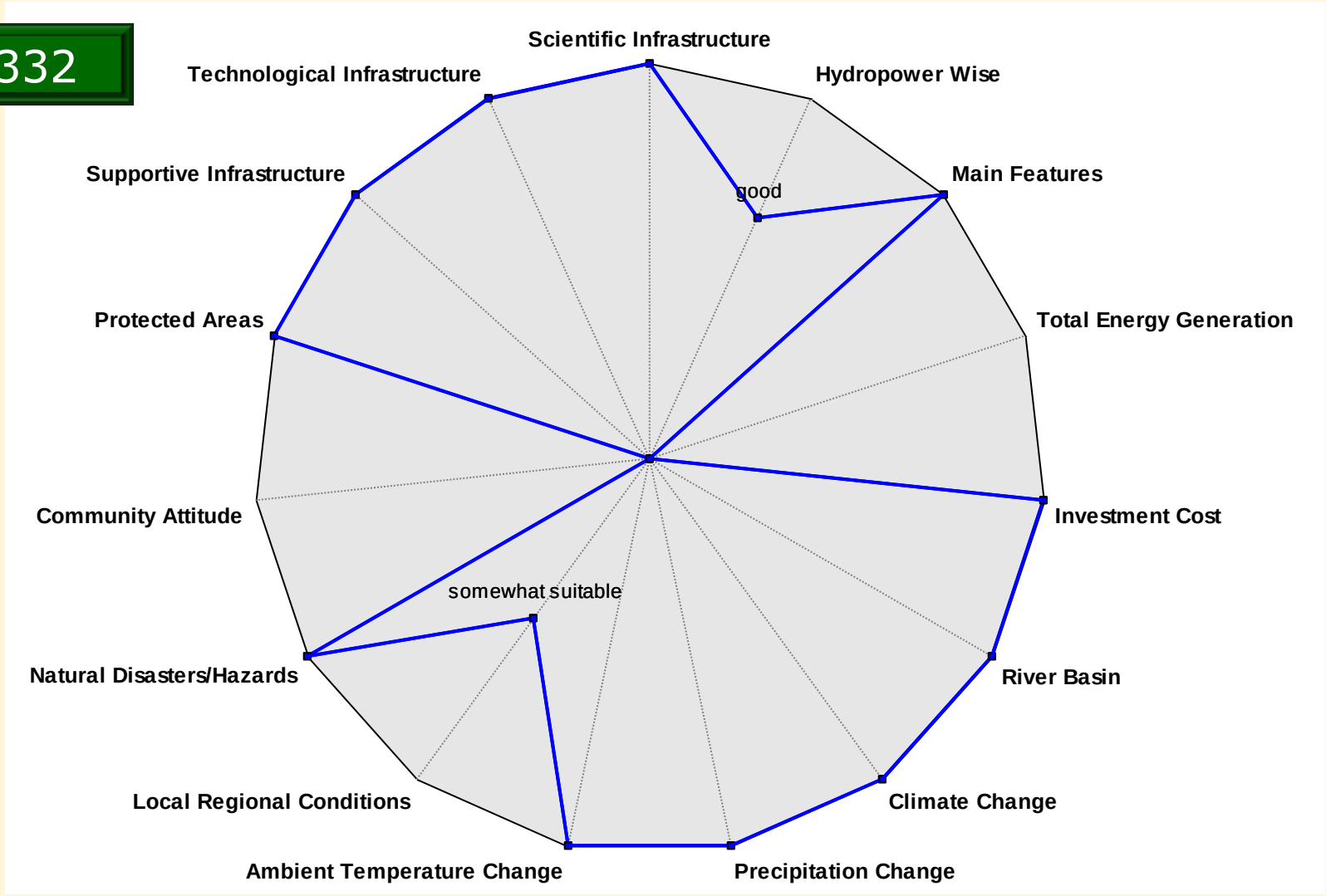
MODEL DEVELOPMENT, EXECUTION AND RESULTS

Alt332



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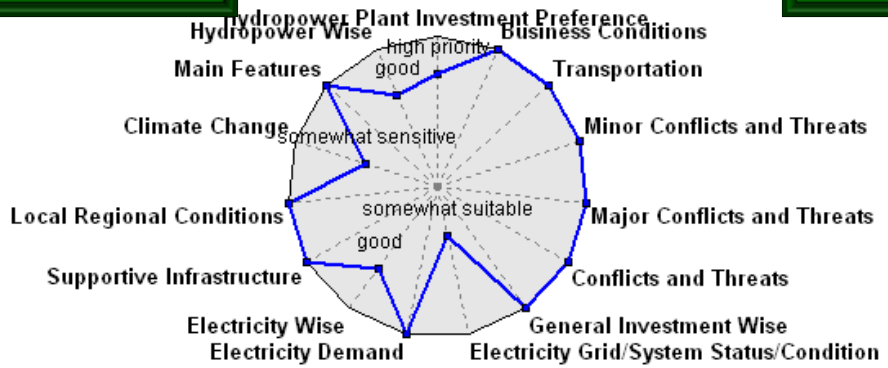
MODEL DEVELOPMENT, EXECUTION AND RESULTS

Small Private Hydropower Plant Investments Cluster
1 MW < P ≤ 10 MW

Alt362



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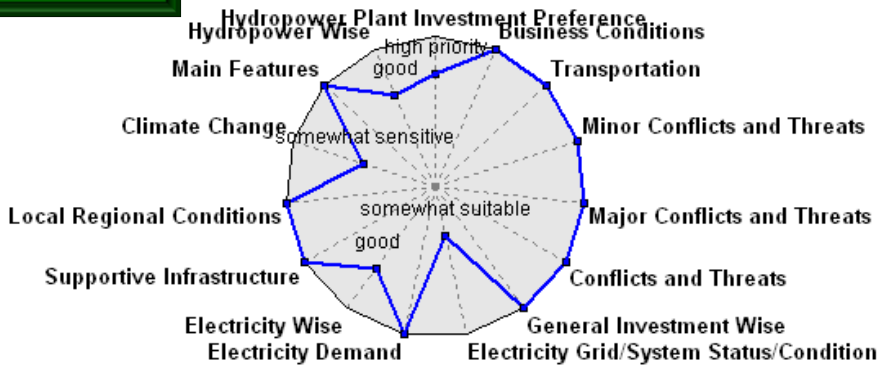

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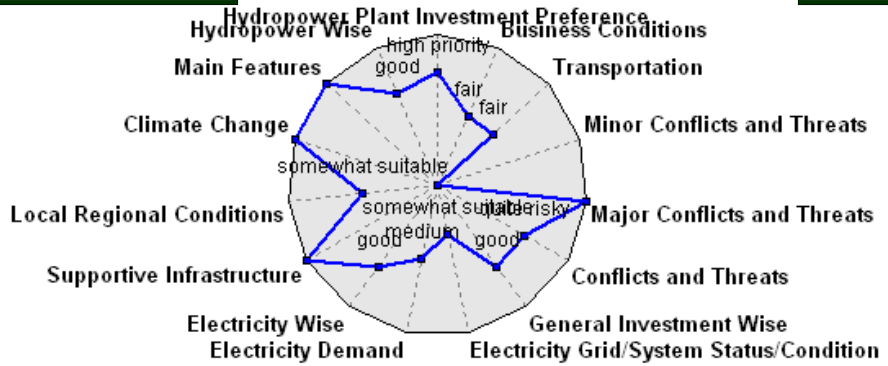

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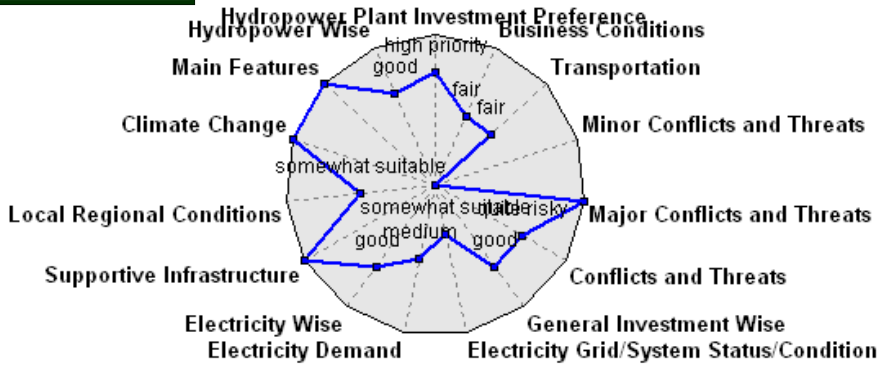

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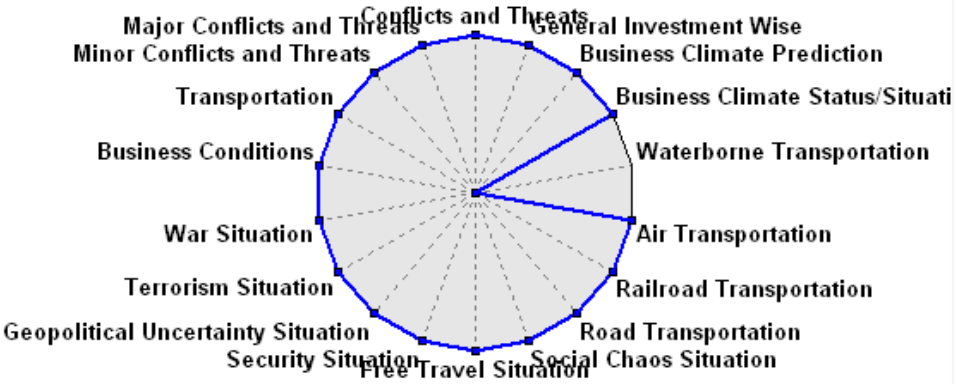
MODEL DEVELOPMENT, EXECUTION AND RESULTS

Alt362



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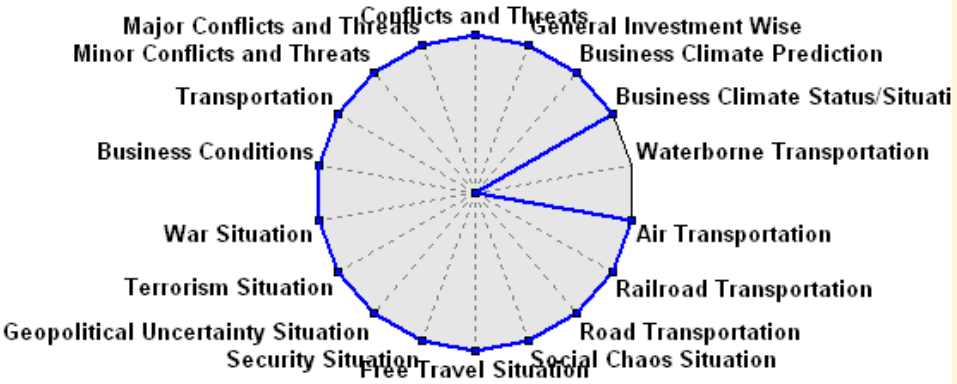

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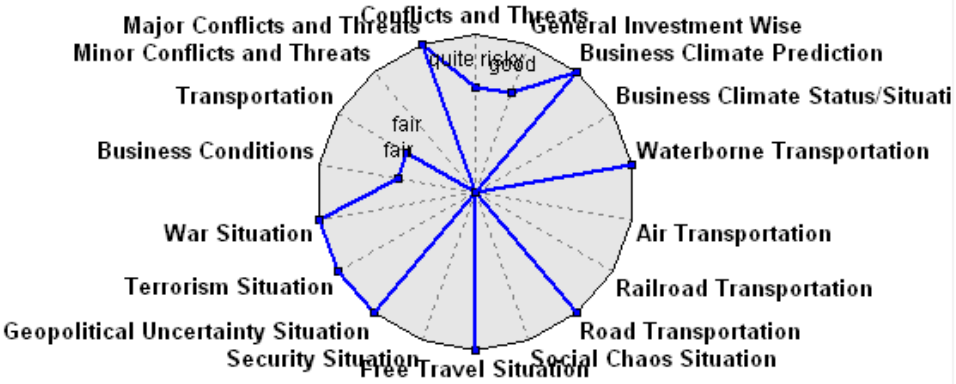

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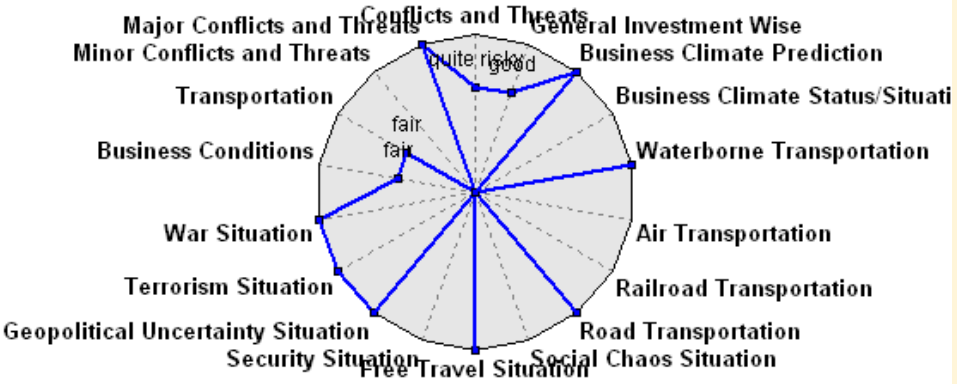

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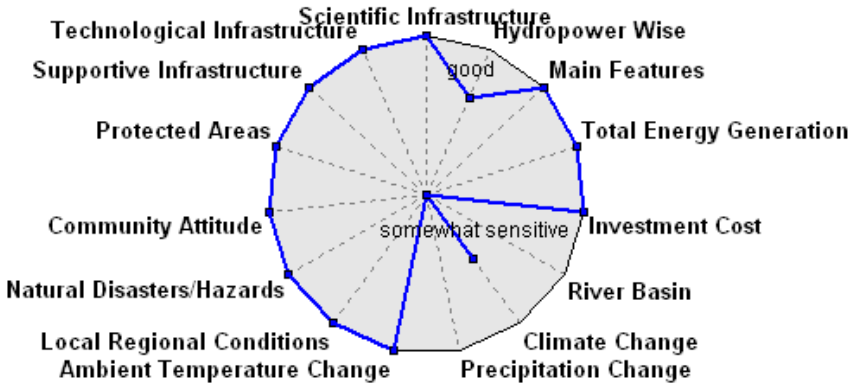
MODEL DEVELOPMENT, EXECUTION AND RESULTS

Alt362



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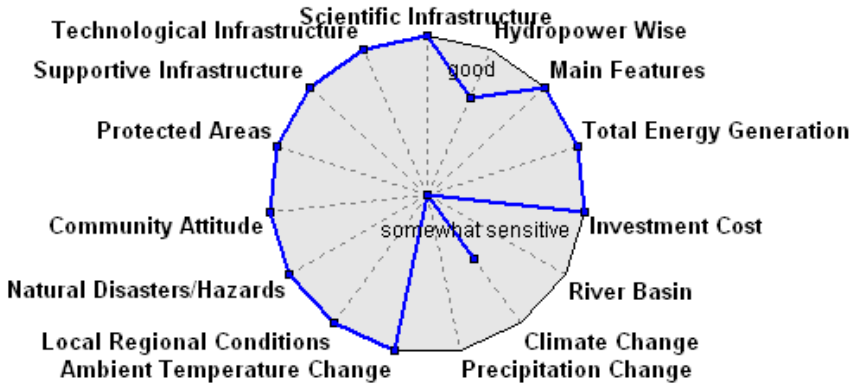

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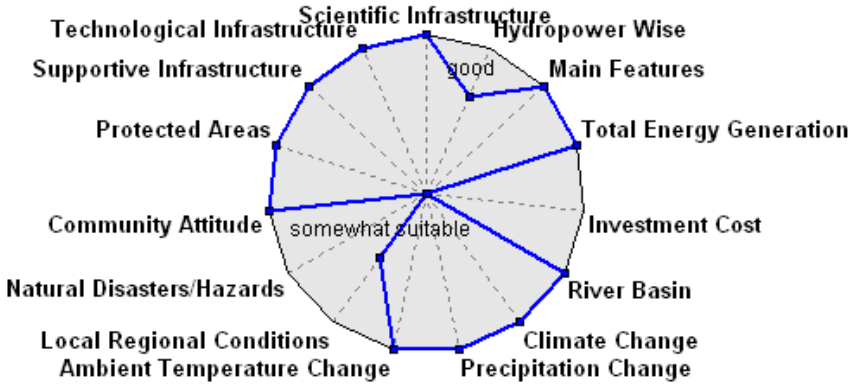

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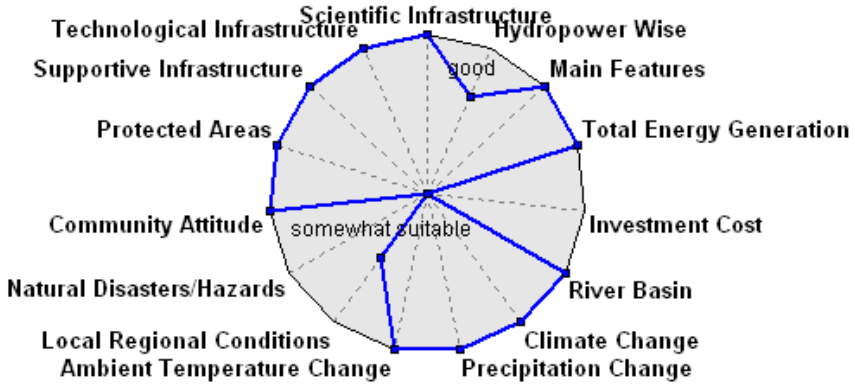

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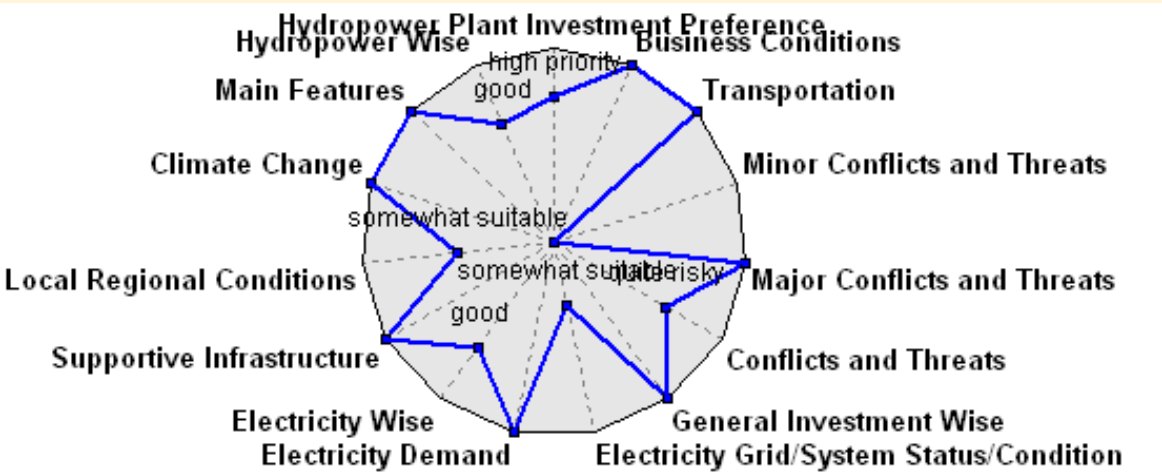
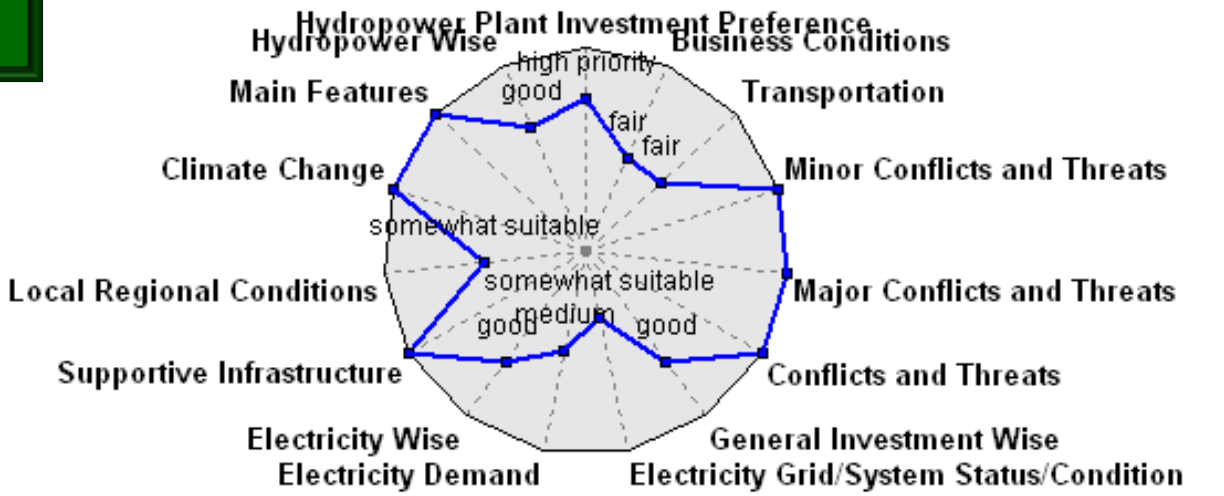
MODEL DEVELOPMENT, EXECUTION AND RESULTS

Medium Private Hydropower Plant Investments Cluster
10 MW < P ≤ 100 MW

Alt035



Alt095



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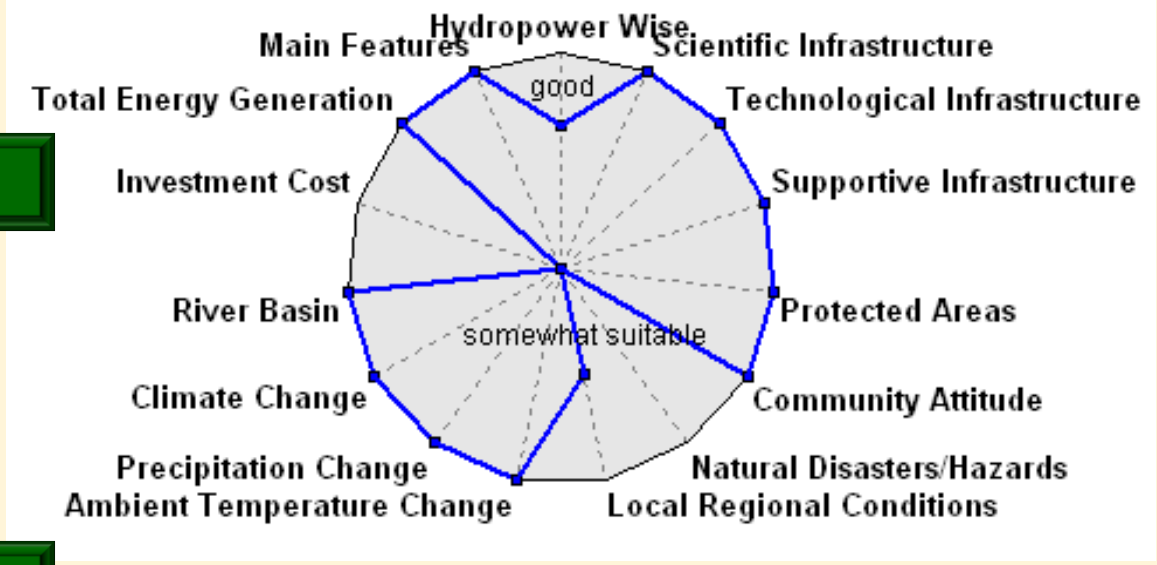
MODEL DEVELOPMENT, EXECUTION AND RESULTS

Alt035



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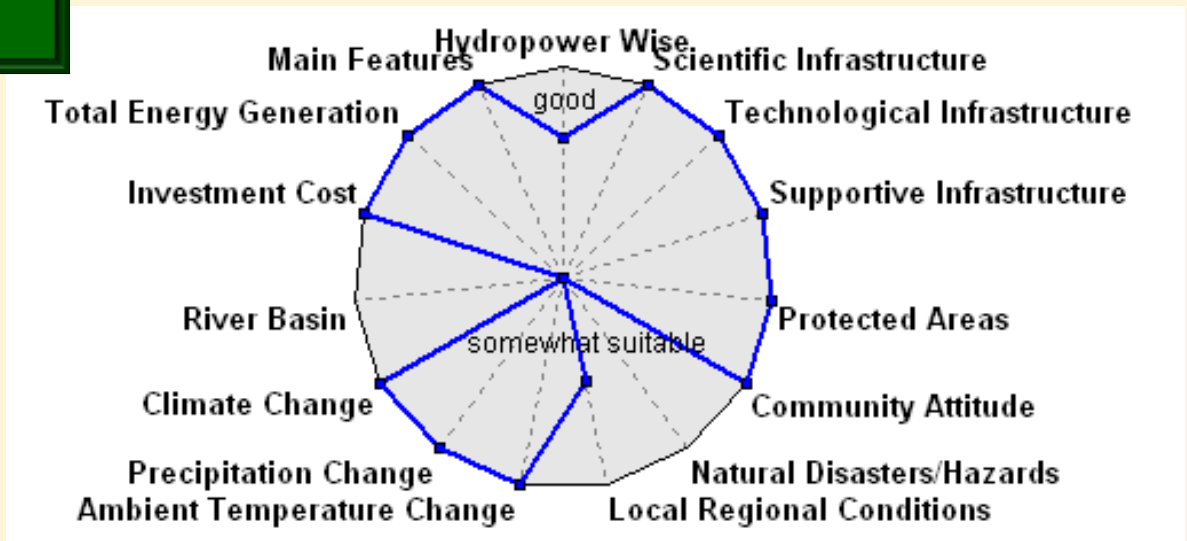

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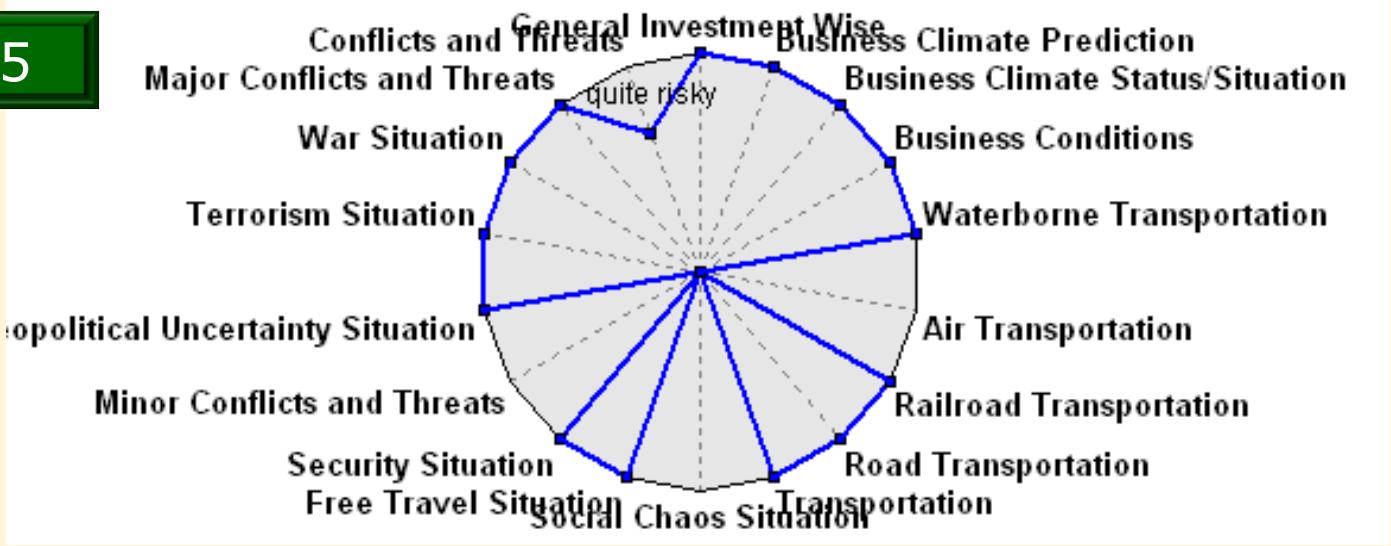
MODEL DEVELOPMENT, EXECUTION AND RESULTS

Alt035



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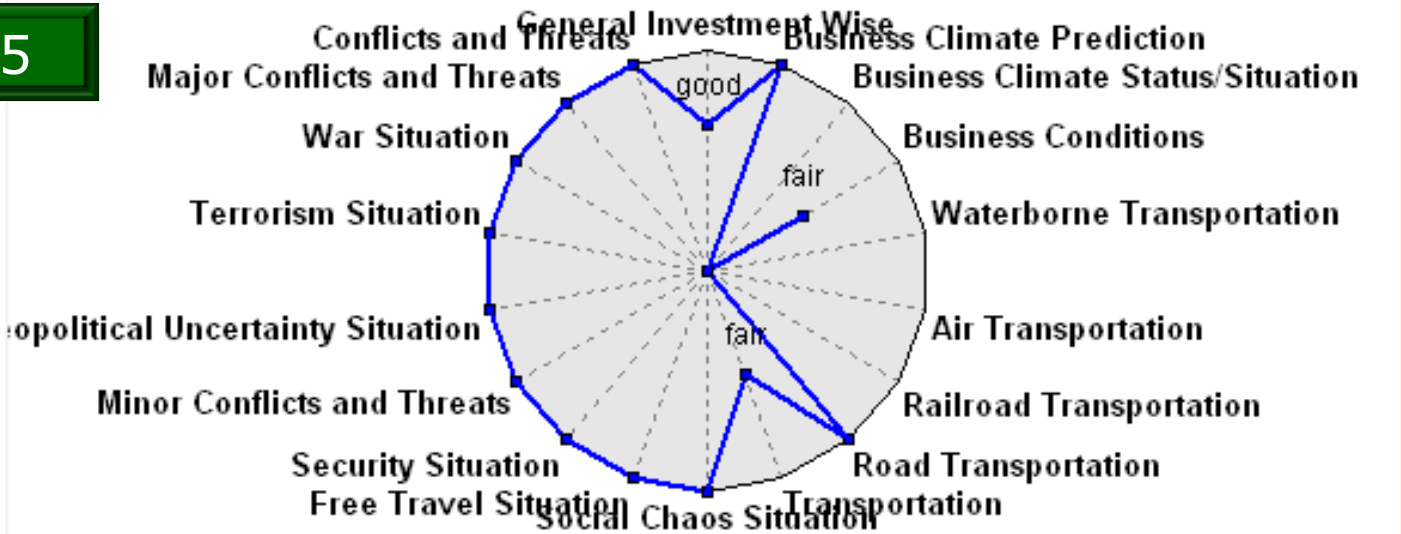

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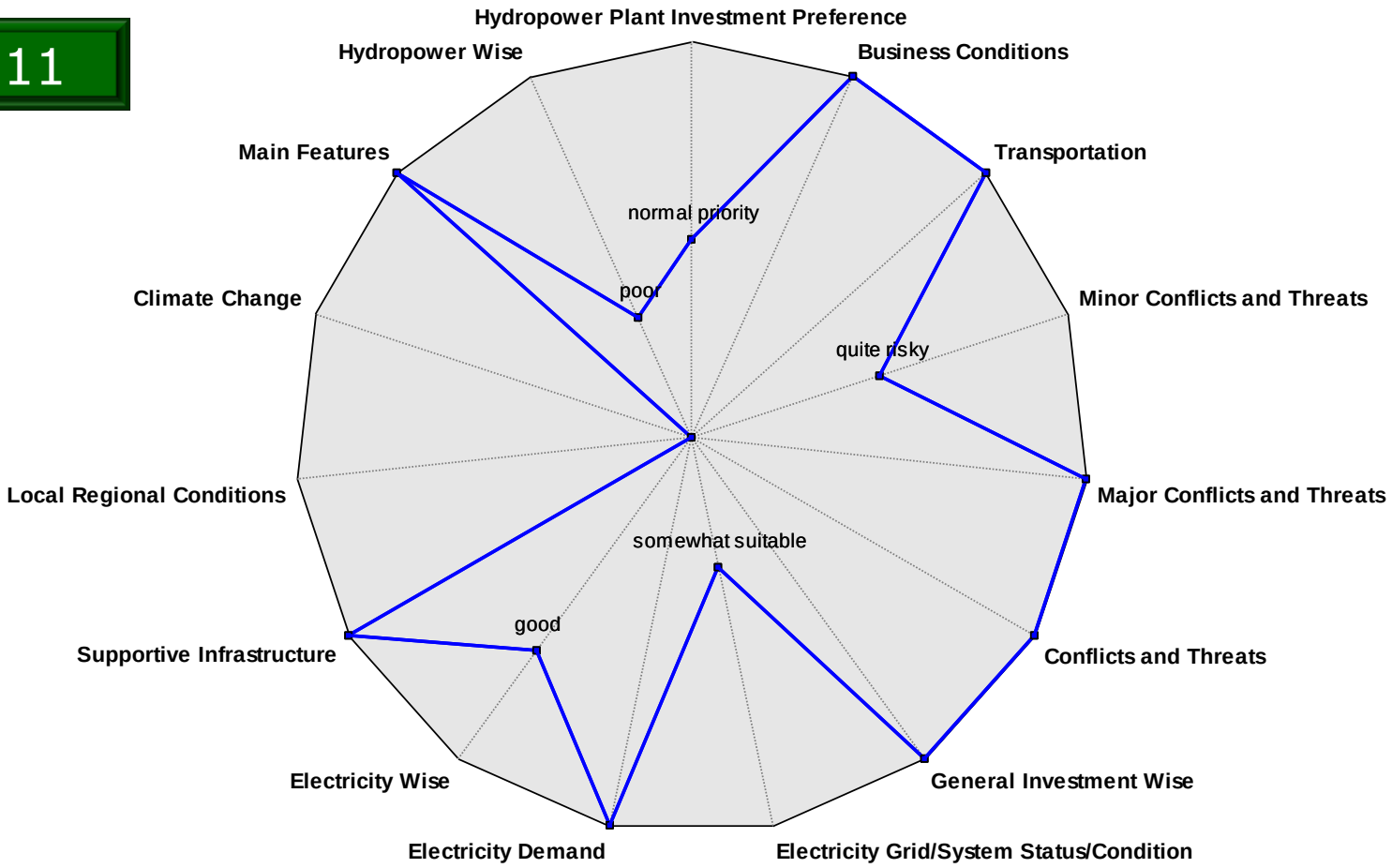
MODEL DEVELOPMENT, EXECUTION AND RESULTS

Large Private Hydropower Plant Investments Cluster
100 MW < P ≤ 1.000 MW

Alt211



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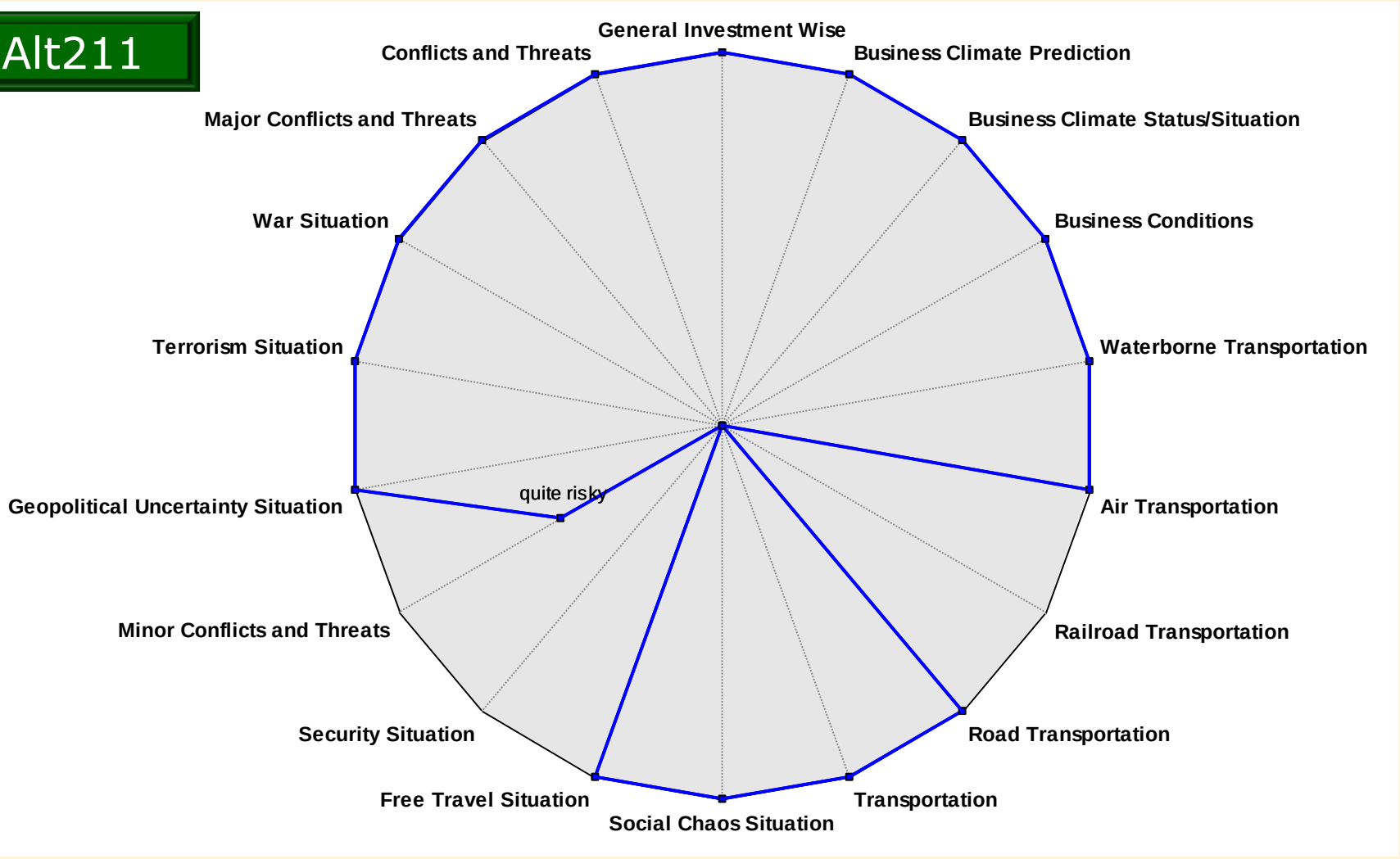
Alt211



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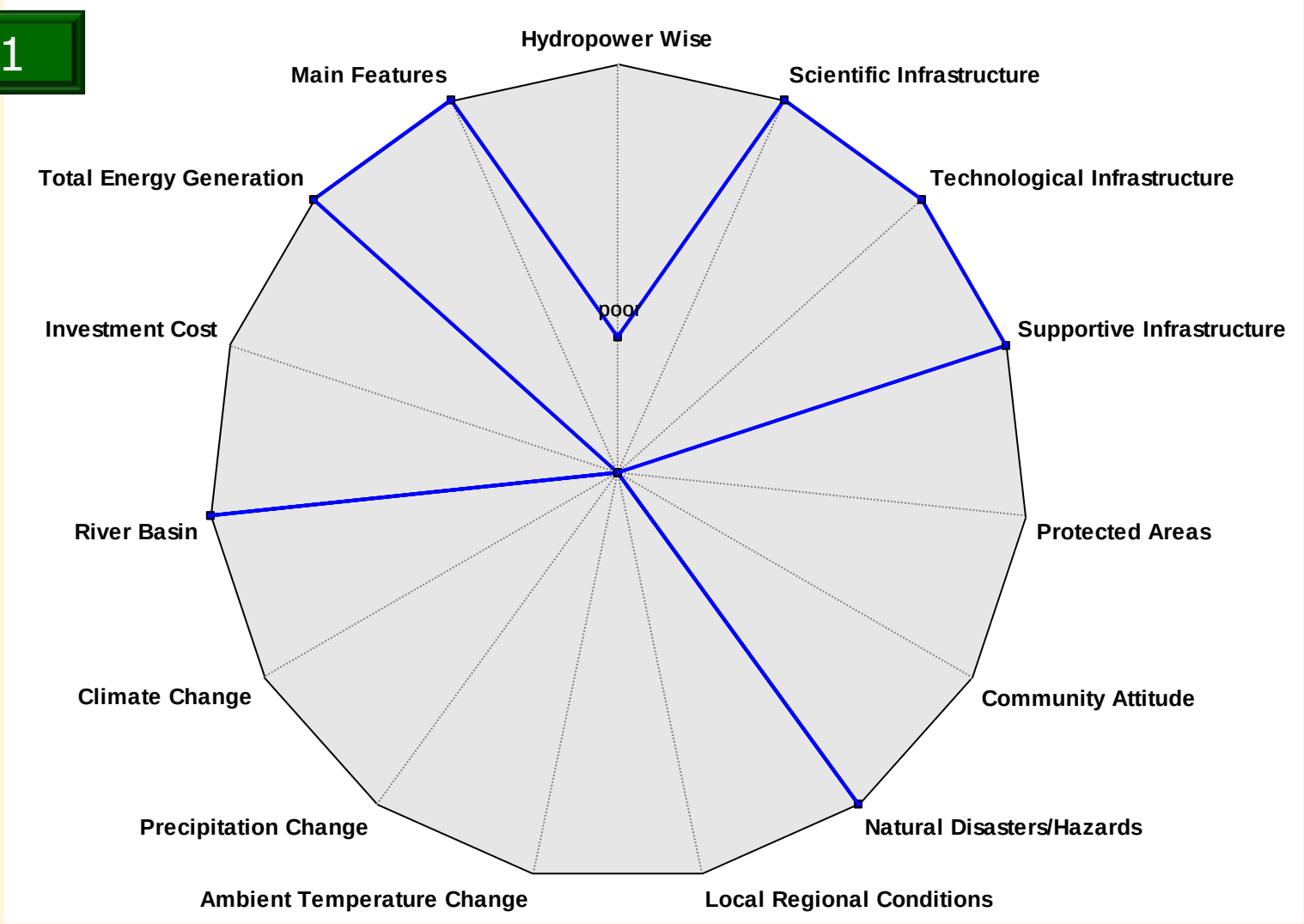
MODEL DEVELOPMENT, EXECUTION AND RESULTS

Alt211



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MODEL DEVELOPMENT, EXECUTION AND RESULTS

Alt035

Attribute	-1	Alt035	+1
Hydropower Plant Investment Preference		high priority	
Total Energy Generation	lowest priority	high	]
Investment Cost	[	high	
River Basin	lowest priority	good	]
Precipitation Change		dry	]
Ambient Temperature Change		warm	]
Natural Disasters/Hazards	[	sensitive	
Community Attitude	normal priority	not negative	]
Protected Areas	normal priority	few	]
Technological Infrastructure		sufficient	]
Scientific Infrastructure		sufficient	]
Electricity Demand Status/Situation		high	]
Electricity Demand Forecast/Prediction		high	]
Substation Status/Condition	low priority	probably suitable	
Distribution System Status/Condition		probably suitable	
Transmission System Status/Condition		probably suitable	
War Situation	normal priority	no	]
Terrorism Situation		no	]
Geopolitical Uncertainty Situation		low	]
Security Situation		good	]
Free Travel Situation		good	]
Social Chaos Situation	[	yes	
Road Transportation		good	]
Railroad Transportation		good	]
Air Transportation	[	poor	
Waterborne Transportation		good	]
Business Climate Status/Situation		good	]
Business Climate Prediction		good	]

Alt095

Attribute	-1	Alt095	+1
Hydropower Plant Investment Preference		high priority	
Total Energy Generation	lowest priority	high	]
Investment Cost	lowest priority	low	]
River Basin	[	poor	
Precipitation Change		dry	]
Ambient Temperature Change		warm	]
Natural Disasters/Hazards	[	sensitive	
Community Attitude	low priority	not negative	]
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Scientific Infrastructure		sufficient	]
Electricity Demand Status/Situation	[	low	
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Free Travel Situation		good	]
Social Chaos Situation		no	]
Road Transportation		good	]
Railroad Transportation	[	poor	
Air Transportation	[	poor	
Waterborne Transportation	[	poor	
Business Climate Status/Situation	[	poor	
Business Climate Prediction		good	]

The plus-minus-1 analysis for the best options of medium privtae hydropower plant investment options cluster

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FUTURE WORK

CASE STUDIES FOR MULTILATERAL DEVELOPMENT BANKS FOR INSTANCE:

- European Investment Bank
- Asian Development Bank
- European Bank for Reconstruction and Development
- Inter-American Development Bank Group
- World Bank
- African Development Bank
- Islamic Development Bank
- Caribbean Development Bank
- Latin America Development Bank
- Black Sea Trade and Development Bank

CASE STUDIES FOR COUNTRIES FOR INSTANCE:

- Georgia
- Hungary
- Lithuania
- Moldova
- Ukraine
- Poland

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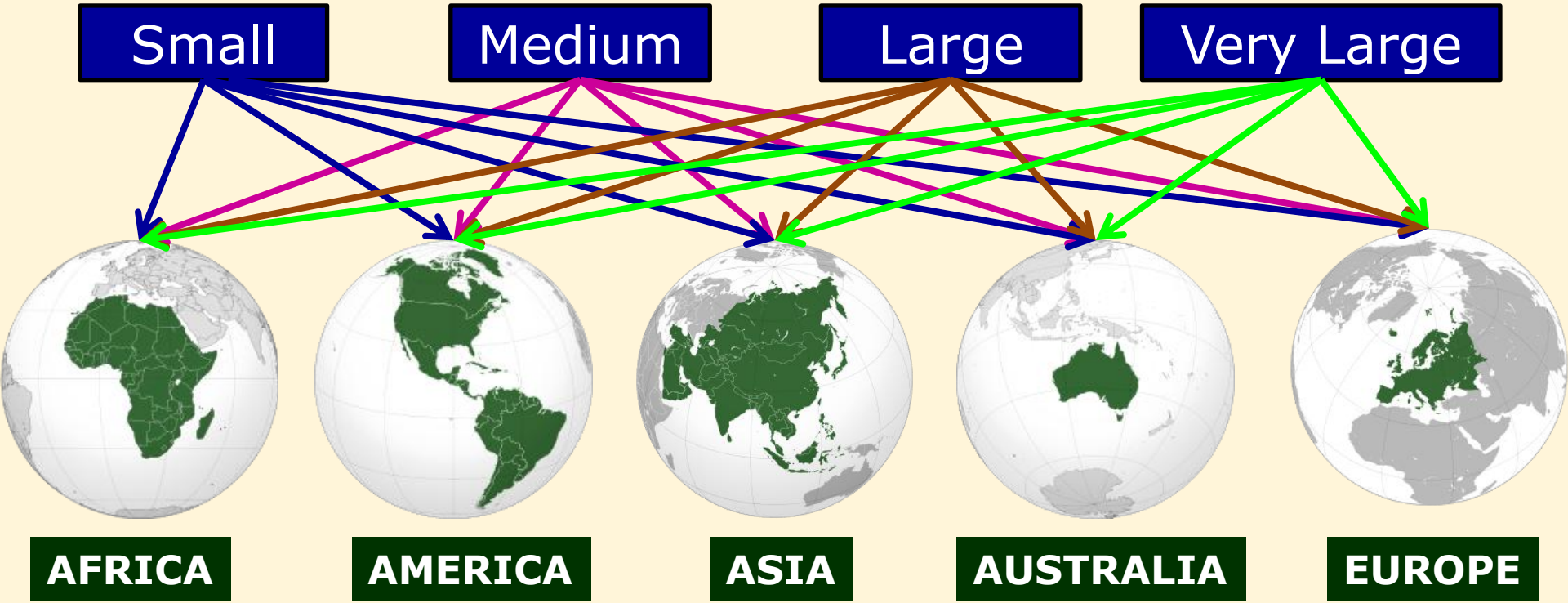
MODEL DEVELOPMENT, EXECUTION AND RESULTS

FIRST CONTINENTAL BASED CASE STUDIES FOR SMALL, MEDIUM, LARGE AND VERY LARGE HYDROPOWER CLUSTER BY ITSELF



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MODEL DEVELOPMENT, EXECUTION AND RESULTS

FINALLY WORLDWIDE CASE STUDIES FOR SMALL, MEDIUM, LARGE AND VERY LARGE HYDROPOWER CLUSTER BY ITSELF

Small | Medium | Large | Very Large

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