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Decision Making in Complex Environment BQOM 2521 Spring 2016

Final Assignment April 19, 2016

Should R&D and Manufacturing Operations be Centralized *or* Decentralized in Multinational Corporations?

1. Background

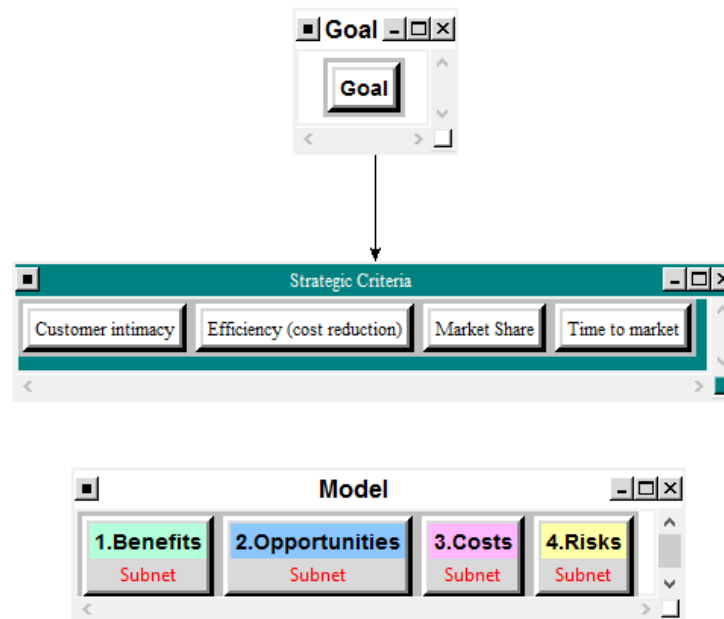
Manufacturing multinational corporations (MNCs) typically grow through acquisitions rather than organic growth. Organic growth sometime takes huge long term investments and associated with high risks. In comparison, acquisition can be made faster and could be relatively easily aligned with business strategy of the corporation in order to grow in a certain region or certain type of business. However, operating multiple locations may NOT always be most cost effective, especially for R&D laboratories which are very expensive to operate.

There are certain tangible advantages of de-centralized organizations for example, close to customer, faster service, brand recognition etc. Alternatively, there are several tangible and many intangible disadvantages of decentralized operations including higher operating cost of many locations, duplication of efforts, many layer of organizational bureaucracies etc.

2. Intention

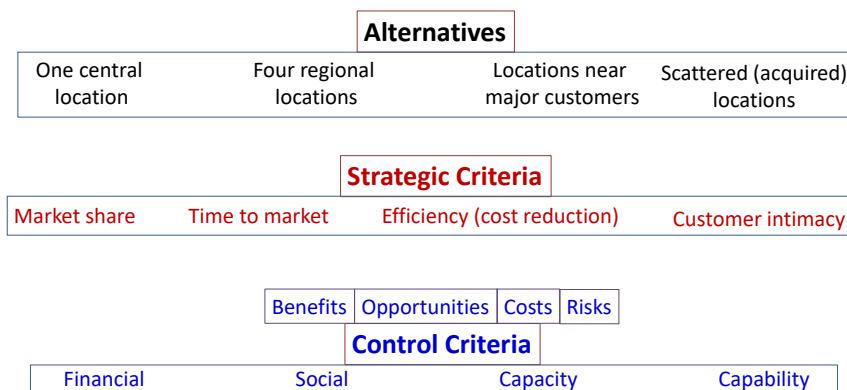
This report will examine benefits (B), opportunities (O), costs (C) and risks (R) of operating an organization from one central location versus three additional alternatives of four regional locations, locations next to key customers and acquired (scattered) locations.

After the model is constructed, strategic criteria of customer efficiency, efficiency (cost reduction), market share and time to market was introduced which are some of the major decisive criteria that MNCs weigh-in while making strategic decision of consolidation of multiple locations.



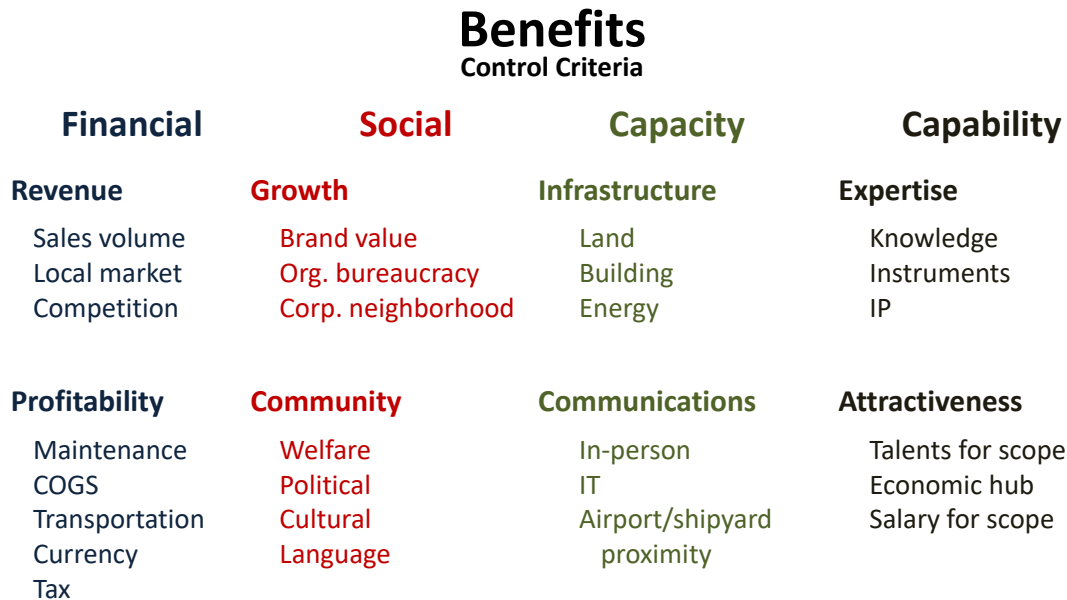
The figure below describes the simplistic view of higher level structure of the BOCR model designed for this study. In depth description of each of the control criteria is presented in the following sections.

Centralized vs. Decentralized



3. Benefits

There are multiple benefits of operating an organization with each of the alternatives described above. The benefits in general is described in the figure below.



Strategic decisions are typically based on return on shareholders investments in an organization. A sustainable return depends on financial health of the company. However, social involvement of an organization is key for long term success in the market. Similarly, organization's capacity and capability to grow along with ever changing business dynamics are key factors that analysts highlight for shareholders to make educated decision to invest in an organization for profitable return in investment.

3.1. Financial

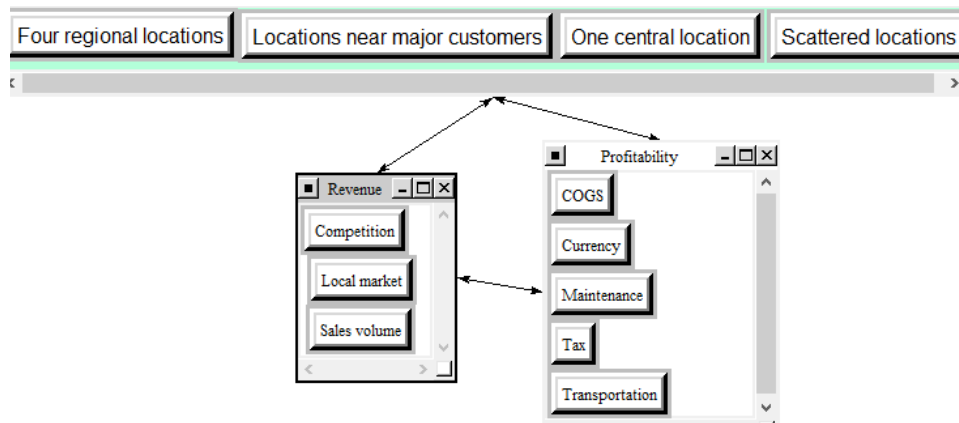
3.1.1. Revenue

- **Sales volume:** The sales volume may be affected based on geographic location of the manufacturing facilities of n organization.
- **Local market:** Proximity to the local market may help gain business.
- **Competition:** Global and regional competition affect the volume of the business due to proximity with the customer on top of technical and cost difference of the products.

3.1.2. Profitability

- **Maintenance:** Maintenance cost of facilities in multiple locations vs. one central location determine the profit margin.
- **COGS:** Similarly, cost of goods sold (COGS) of products manufactured in multiple locations vs. one central location affect overall profitability of the products.
- **Transportation:** Transportation of final products from manufacturing locations to customer locations bears a big chunk of profitability.
- **Currency:** Local currency and exchange-rate plays a big role in different countries in profitability. Typically a balance distribution of geographic location of facilities in countries with local currency of higher and lower exchange rate compared to dollar (assuming US based company) helps corporation sustain the economic storms.
- **Tax:** Tax rates are typically very different in different countries which affect the profitability of products made in different countries.

The connection among various clusters and nodes are presented in figure below:



After pairwise comparison, the priorities of the alternatives are given below:

Name	Graphic	Ideals	Normal
Four regional locations	<div style="width: 35.8325%; background-color: blue;"></div>	0.358325	0.145763
Locations near major customers	<div style="width: 36.0590%; background-color: blue;"></div>	0.360590	0.146685
One central location	<div style="width: 100%; background-color: blue;"></div>	1.000000	0.406790
Scattered locations	<div style="width: 73.9353%; background-color: blue;"></div>	0.739353	0.300762

3.2. Social

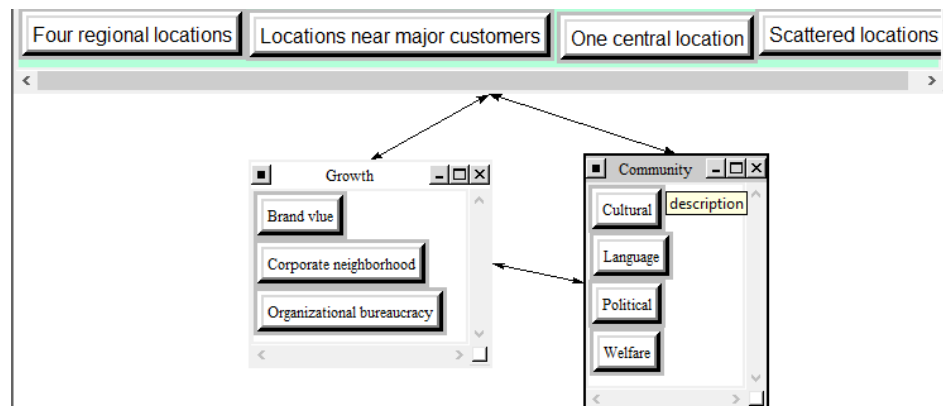
3.2.1. Growth

- **Brand value:** The brand value of the products and/or company is key for long term success of an organization. The brand value changes based on local and/or global presence of the facility.
- **Organizational bureaucracy:** Multiple locations generate multiple reporting structures which sometime help products go to market faster; however, sometime slow down the process of product development and commercialization time.
- **Corporate neighborhood:** Sometime presence of different corporations around a facility may help brings more business to the organization.

3.2.2. Community

- **Welfare:** Corporations' involvement in the welfare of the local community affects the business volume and profitability.
- **Political:** In some countries political decisions affect continual operations of business.
- **Cultural:** In many countries, local culture dominates customer's decisions to buy products.
- **Language:** Language is key is in many country to favor business decision.

The connection among various clusters and nodes are presented in figure below:



After pairwise comparison, the priorities of the alternatives are given below:

Name	Graphic	Ideals	Normal
Four regional locations	<div></div>	0.390159	0.205852
Locations near major customers	<div></div>	0.333553	0.175986
One central location	<div></div>	0.171624	0.090551
Scattered locations	<div></div>	1.000000	0.527611

3.3. Capacity

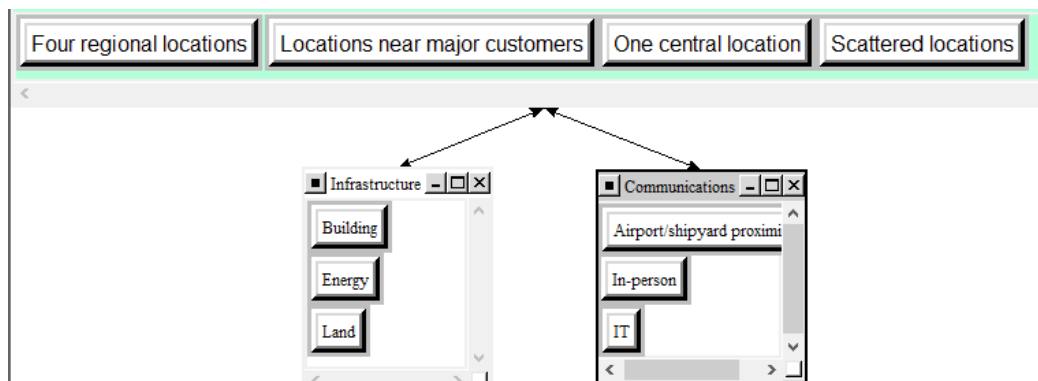
3.3.1. Infrastructure

- **Land:** Land space is important for capability to expand the facility.
- **Building:** Building space, layout and infrastructure sometime offers competitive advantage.
- **Energy:** Energy cost and availability varies at different localities offering corporation's long term viability to continue business at a particular location.

3.3.2. Communication

- **In-person:** In many situation, in-person interaction differentiates a company from a competitor to win a business.
- **IT:** Maintenance of state of the art information technology facility at different locations (especially from one countries to another) could be expensive and may affect sales and profitability.
- **Airport/shipyard proximity:** For chemical industries in particular, shipment of hazardous goods is expensive and sometime takes longer depending on mode of transportation from location to locations.

The connection among various clusters and nodes are presented in figure below:



After pairwise comparison, the priorities of the alternatives are given below:

Name	Graphic	Ideals	Normal
Four regional locations	<div></div>	0.503781	0.228720
Locations near major customers	<div></div>	0.361786	0.164253
One central location	<div></div>	1.000000	0.454006
Scattered locations	<div></div>	0.337048	0.153022

3.4. Capability

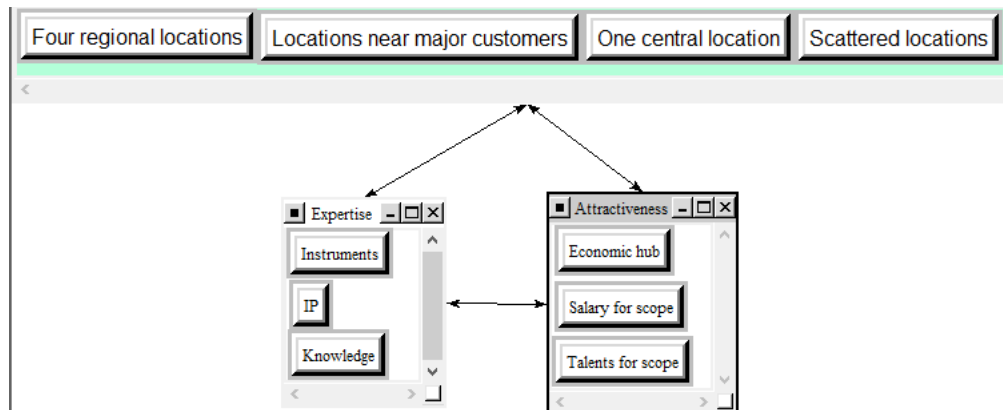
3.4.1. Expertise

- **Knowledge:** Acquisition offers advantages of retaining knowledge of local employees which could be challenging to relocate for centralization.
- **Infrastructure:** A capability unique to function is a competitive advantage for many business which sometime could be too expensive to relocate.
- **IP:** Generation and secure maintenance of IP could be challenging at different locations.

3.4.2. Attractiveness

- **Talents for scope:** Securing proper talents for specific function sometime could be challenging depending on the geographic location.
- **Economic hub:** Presence of the location of a corporation in an existing economic hub can secure additional business opportunities and logistic advantage (e.g., permit etc.).
- **Salary for scope:** Securing proper talent for specific job which can offer only specific salary could be challenging at different location (e.g., a low salary job at area like Boston/San Francisco is difficult to find a proper talent).


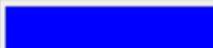


The connection among various clusters and nodes are presented in figure below:



After pairwise comparison, the priorities of the alternatives are given below:

Name	Graphic	Ideals	Normal
Four regional locations	<div></div>	0.440702	0.186462
Locations near major customers	<div></div>	0.465628	0.197008
One central location	<div></div>	1.000000	0.423102
Scattered locations	<div></div>	0.457164	0.193427

3.5. Synthesis of Benefits: After pairwise comparison and synthesis of each of the four control criteria, finally the Benefit was synthesized and the following result was obtained. One central location has some benefits over scattered (acquired) locations.

Name	Graphic	Ideals	Normals
Four regional locations		0.533786	0.189801
Locations near major customers		0.479741	0.170584
One central location		1.000000	0.355575
Scattered locations		0.798823	0.284041

4. Opportunities

There are opportunities that can arise from operating an organization with the alternatives of one central location, location near major customers, four regional locations and scattered (acquired) locations. The opportunities in general is described in the figure below.



4.1. Financial

4.1.1. Revenue

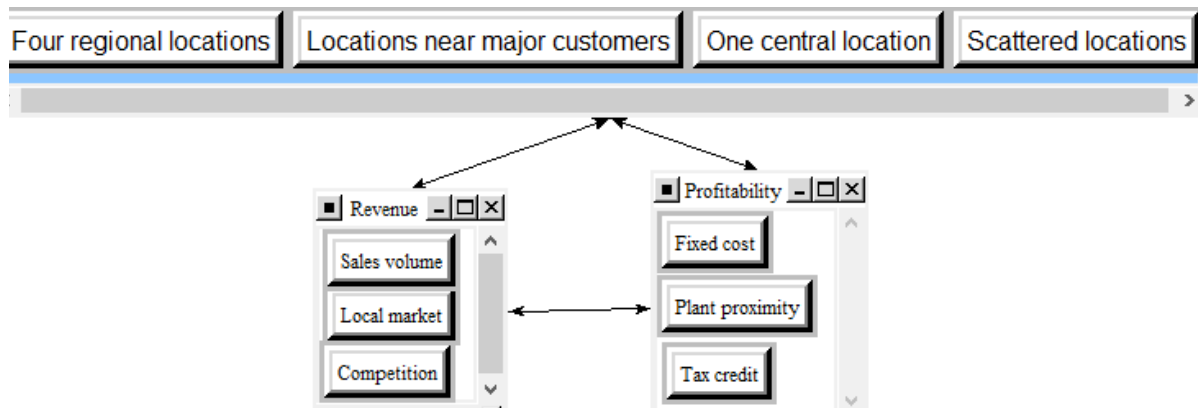
- **Sales volume:** Described in 3.1.1.
- **Local market:** Described in 3.1.1.

- **Competition:** Described in 3.1.1.

4.1.2. Profitability

- **Plant proximity:** Sometime a customer may build a new location based on existing location of a supplier which can be a huge strategic advantage.
- **Fixed cost:** Fixed cost of running a business at one location vs. multiple locations affects profitability.
- **Tax credit:** Local governments offer tax credits especially for R&D organizations at certain locations.

The connection among various clusters and nodes are presented in figure below:



After pairwise comparison, the priorities of the alternatives are given below:

Name	Graphic	Ideals	Normal
Four regional locations	<div style="width: 25%; background-color: blue;"></div>	0.517722	0.176387
Locations near major customers	<div style="width: 50%; background-color: blue;"></div>	0.885097	0.301552
One central location	<div style="width: 35%; background-color: blue;"></div>	0.532322	0.181362
Scattered locations	<div style="width: 75%; background-color: blue;"></div>	1.000000	0.340699

4.2. Social

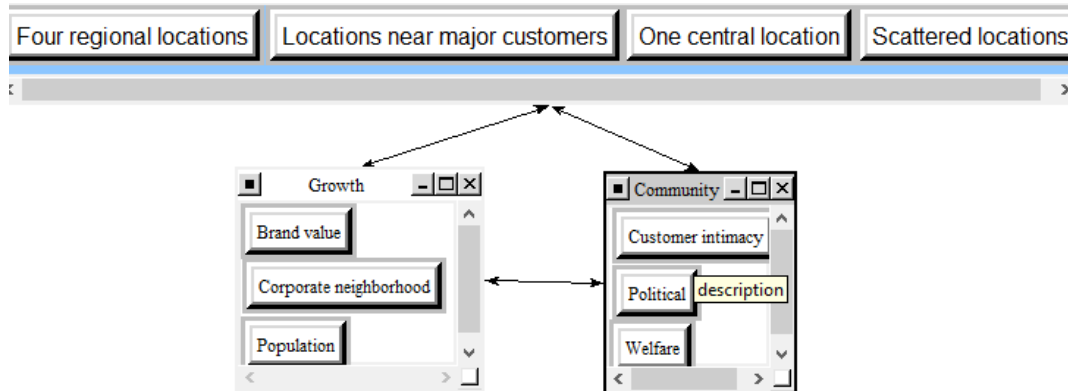
4.2.1. Growth

- **Population:** Population growth in certain locations creates opportunity for future business expansion.
- **Brand value:** Described in 3.2.1.
- **Corporate neighborhood:** Described in 3.2.1.

4.2.2. Community

- **Welfare:** Described in 3.2.2.
- **Political:** Described in 3.2.2.
- **Customer intimacy:** Having a facility near a customer offer relationship beyond simple business transactions.

The connection among various clusters and nodes are presented in figure below:



After pairwise comparison, the priorities of the alternatives are given below:

Name	Graphic	Ideals	Normals
Four regional locations	<div style="width: 20%; background-color: blue;"></div>	0.426772	0.202803
Locations near major customers	<div style="width: 40%; background-color: blue;"></div>	0.533632	0.253583
One central location	<div style="width: 10%; background-color: blue;"></div>	0.143962	0.068411
Scattered locations	<div style="width: 80%; background-color: blue;"></div>	1.000000	0.475202

4.3. Capacity

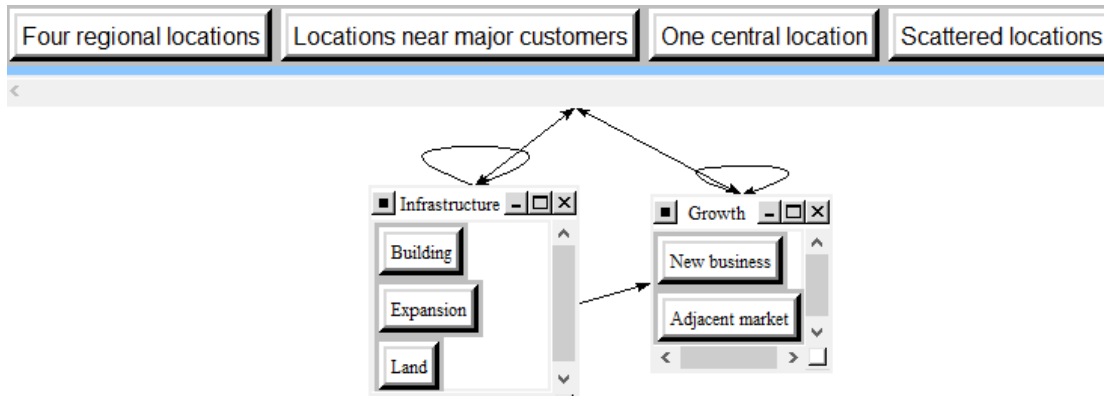
4.3.1. Infrastructure

- **Land:** Described in 3.3.1.
- **Building:** Described in 3.3.1.
- **Expansion:** Depending on the projection of the future business growth, capacity of physical expansion of a facility at a certain location affects corporation's sales and profitability.

4.3.2. Growth

- **New business:** Opportunities of new business may arise because of proximity of customer locations.
- **Adjacent market:** Many time corporation re-invent itself through business in ancillary market due to close proximity with customers or relevant business organizations.

The connection among various clusters and nodes are presented in figure below:



After pairwise comparison, the priorities of the alternatives are given below:

Name	Graphic	Ideals	Normals
Four regional locations	<div style="width: 38.5748%; background-color: blue;"></div>	0.385748	0.166830
Locations near major customers	<div style="width: 52.4013%; background-color: blue;"></div>	0.524013	0.226627
One central location	<div style="width: 40.2466%; background-color: blue;"></div>	0.402466	0.174060
Scattered locations	<div style="width: 100.0000%; background-color: blue;"></div>	1.000000	0.432483

4.4. Capability

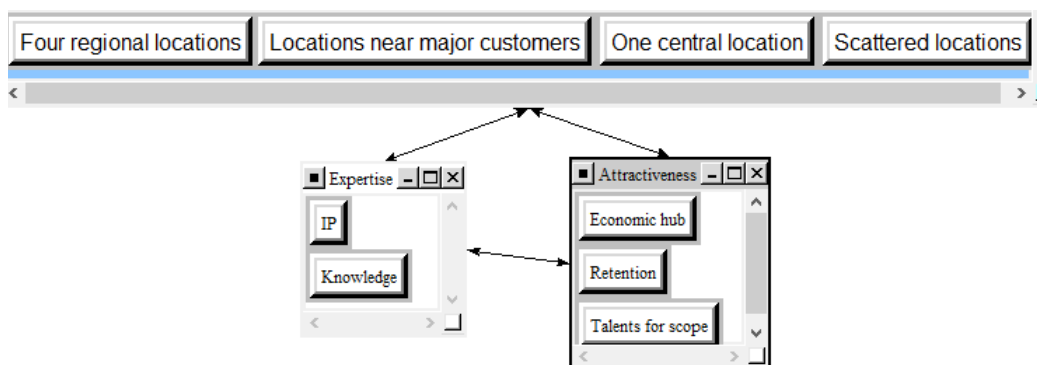
4.4.1. Expertise

- **Knowledge:** Described in 3.4.1.
- **IP:** Described in 3.4.1.





4.4.2. Attractiveness

- **Talents for scope:** Described in 3.4.2.
- **Economic hub:** Described in 3.4.2.
- **Retention:** Future consolidation sometime brings challenge of retention of top talents.


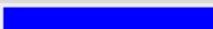
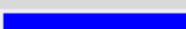

The connection among various clusters and nodes are presented in figure below:



After pairwise comparison, the priorities of the alternatives are given below:

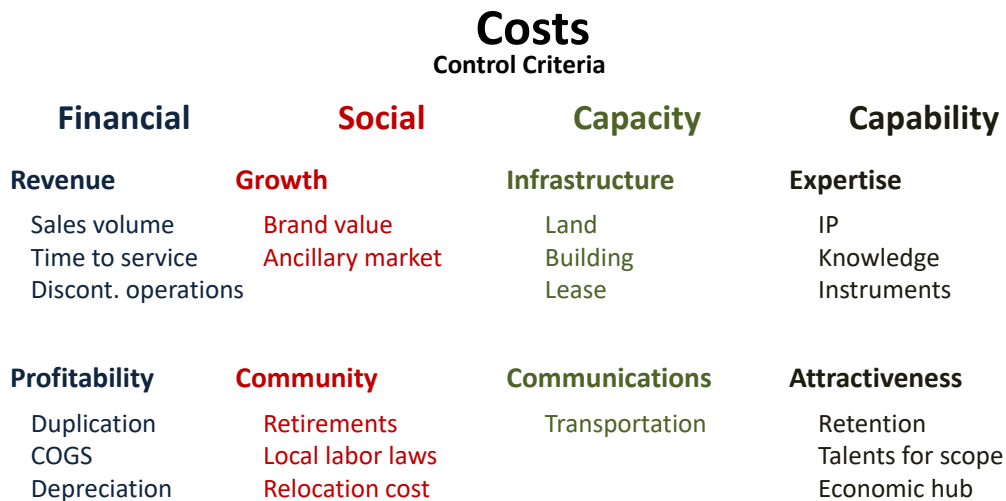
Name	Graphic	Ideals	Normal
Four regional locations		0.389387	0.170401
Locations near major customers		0.407466	0.178313
One central location		1.000000	0.437615
Scattered locations		0.488261	0.213670

4.5. Synthesis of Opportunities: After pairwise comparison and synthesis of each of the four control criteria, finally the Opportunity was synthesized and the following result was obtained. Scattered (acquired) locations has some advantages in future opportunities over other alternatives.

Name	Graphic	Ideals	Normal
Four regional locations		0.492976	0.178443
Locations near major customers		0.673748	0.243877
One central location		0.595928	0.215709
Scattered locations		1.000000	0.361971

5. Costs

There are costs associated with operating an organization with the alternatives of one central location, location near major customers, four regional locations and scattered (acquired) locations. The costs in general is described in the figure below.



5.1. Financial

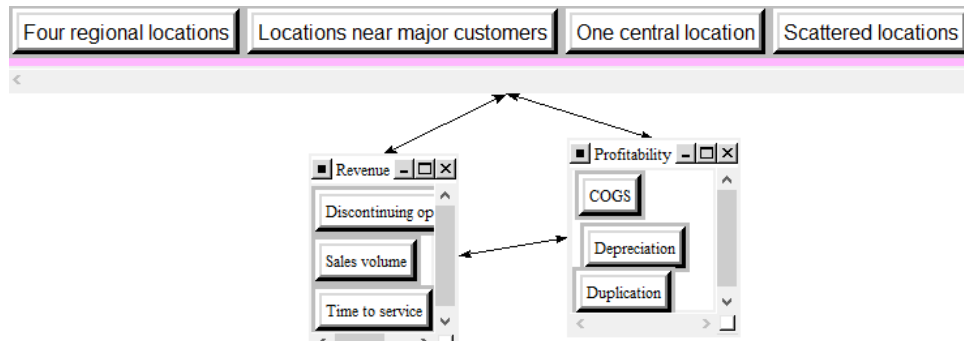
5.1.1. Revenue

- **Sales volume:** Described in 3.1.1.
- **Time to service:** Sometime Corporation may gain or lose a customer depending on how fast the product/service can be offered.
- **Discontinuing operations:** Discontinuing of operations at a certain location due to consolidation carries lot of associated cost.

5.1.2. Profitability

- **Duplication:** Multiple location have a cost of unavoidable duplication of efforts.
- **COGS:** Described in 3.1.2.
- **Depreciation:** Multiple properties at different locations have more depreciation cost than having one central location.

The connection among various clusters and nodes are presented in figure below:



After pairwise comparison, the priorities of the alternatives are given below:

Name	Graphic	Ideals	Normal
Four regional locations	<div></div>	0.514123	0.208053
Locations near major customers	<div></div>	0.513297	0.207718
One central location	<div></div>	1.000000	0.404675
Scattered locations	<div></div>	0.443699	0.179554

5.2. Social

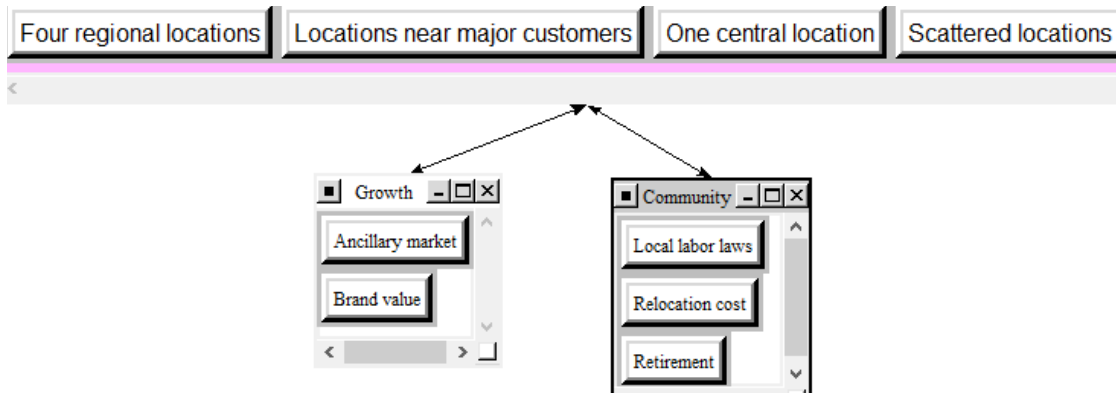
5.2.1. Growth

- **Brand value:** Described in 3.2.1.
- **Ancillary market:** Described in 4.3.2.

5.2.2. Community

- **Retirement:** Age (demography) of employees varies significantly at developed vs. developing countries.
- **Local labor laws:** Local labor laws sometime creates a huge factor for closure or consolidation efforts (e.g., France – difficult to close).
- **Relocation cost:** A socio-economic relocation cost of employee may cost economic challenge for consolidation.

The connection among various clusters and nodes are presented in figure below:



After pairwise comparison, the priorities of the alternatives are given below:

Name	Graphic	Ideals	Normal
Four regional locations	<div style="width: 25%; background-color: blue;"></div>	0.547877	0.191254
Locations near major customers	<div style="width: 30%; background-color: blue;"></div>	0.581449	0.202973
One central location	<div style="width: 100%; background-color: blue;"></div>	1.000000	0.349082
Scattered locations	<div style="width: 75%; background-color: blue;"></div>	0.735330	0.256690

5.3. Capacity

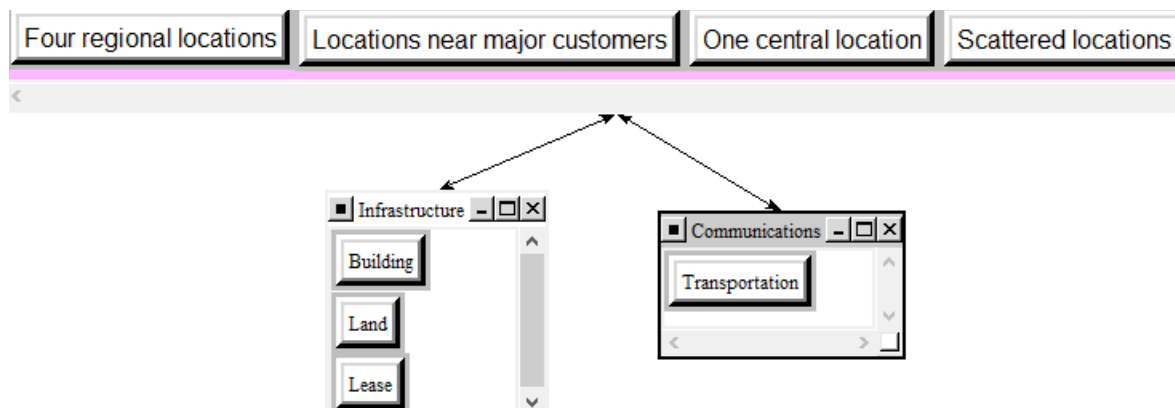
5.3.1. Infrastructure

- **Land:** Described in 3.3.1.
- **Building:** Described in 3.3.1.
- **Lease:** Sometime the buildings are in lease which can expire. Renewing of long term lease must align with strategic decision.


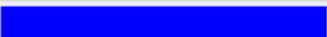
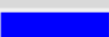

5.3.2. Communication

- **Transportation:** Described in 3.3.2.

The connection among various clusters and nodes are presented in figure below:



After pairwise comparison, the priorities of the alternatives are given below:

Name	Graphic	Ideals	Normal
Four regional locations		0.335790	0.150176
Locations near major customers		1.000000	0.447232
One central location		0.331880	0.148427
Scattered locations		0.568307	0.254165

5.4. Capability

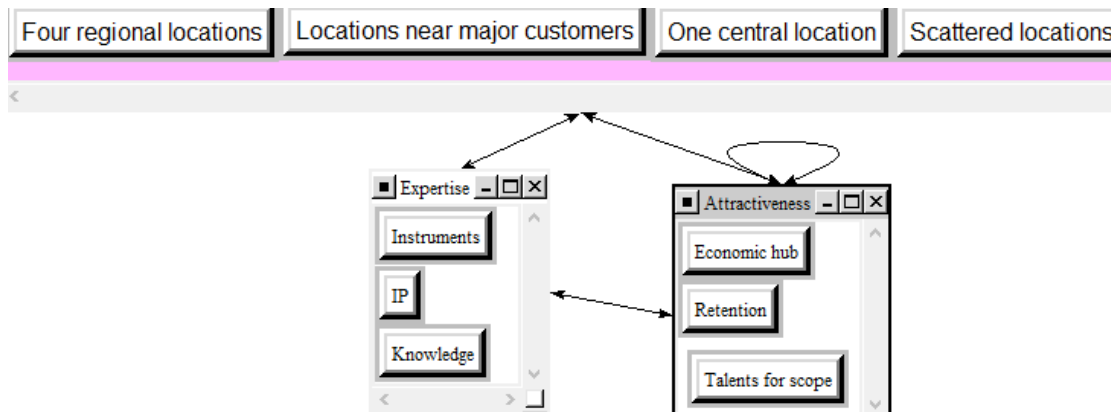
5.4.1. Expertise

- **Knowledge:** Described in 3.4.1.
- **IP:** Described in 3.4.1.
- **Instruments:** Running facilities in multiple location costs expenses of purchasing similar equipment/tools.





5.4.2. Attractiveness

- **Talents for scope:** Described in 3.4.2.
- **Economic hub:** Described in 3.4.2.
- **Retention:** Described in 3.4.2.



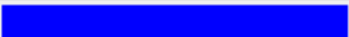

The connection among various clusters and nodes are presented in figure below:



After pairwise comparison, the priorities of the alternatives are given below:

Name	Graphic	Ideals	Normal
Four regional locations		0.475365	0.200345
Locations near major customers		0.375961	0.158451
One central location		1.000000	0.421455
Scattered locations		0.521407	0.219749

5.5. Synthesis of Costs: After pairwise comparison and synthesis of each of the four control criteria, finally the Costs was synthesized and the following result was obtained. Running business at one central location is costliest over other alternatives.

Name	Graphic	Ideals	Normals
Four regional locations		0.562192	0.188361
Locations near major customers		0.741535	0.248450
One central location		1.000000	0.335048
Scattered locations		0.680920	0.228141

6. Risks

There are risks that can arise from operating an organization with the alternatives of one central location, location near major customers, four regional locations and scattered (acquired) locations. The risks in general is described in the figure below.



6.1. Financial

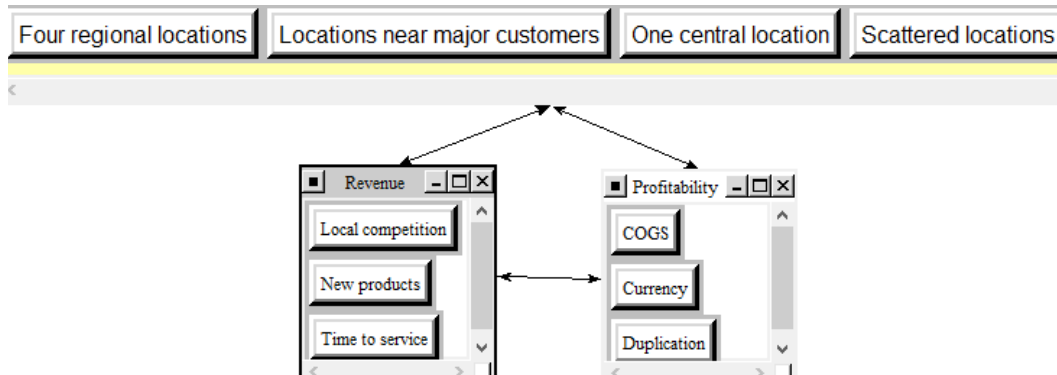
6.1.1. Revenue

- **Time to service:** Described in 5.1.1.
- **Local competition:** Described in 3.1.1.
- **New products:** Facilities near customers sometime brings innovations of new products developments.

6.1.2. Profitability

- **Duplication:** Described in 5.1.2.
- **COGS:** Described in 3.1.2.
- **Currency:** Described in 3.1.2.

The connection among various clusters and nodes are presented in figure below:



After pairwise comparison, the priorities of the alternatives are given below:

Name	Graphic	Ideals	Normal:
Four regional locations	<div style="width: 50%; background-color: blue;"></div>	0.506238	0.193309
Locations near major customers	<div style="width: 60%; background-color: blue;"></div>	0.556356	0.212446
One central location	<div style="width: 100%; background-color: blue;"></div>	1.000000	0.381853
Scattered locations	<div style="width: 55%; background-color: blue;"></div>	0.556213	0.212392

6.2. Social

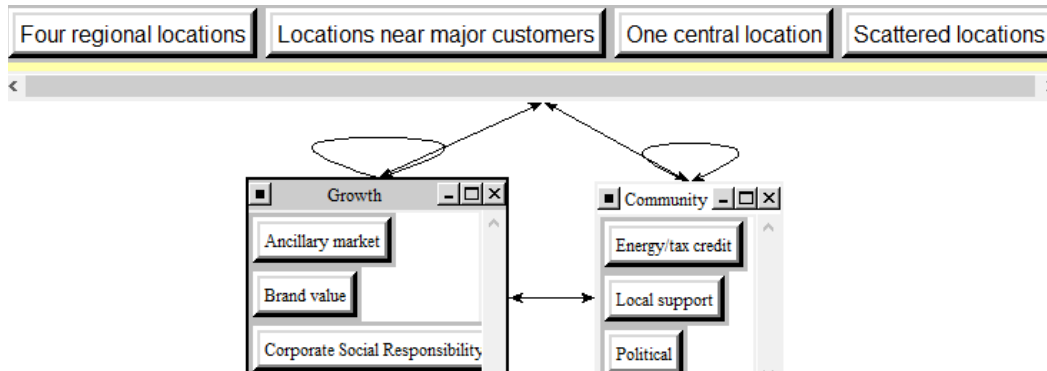
6.2.1. Growth

- **Corporate social responsibility (CSR):** Presence of corporation at multiple locations brings welfare to the society though CSR.
- **Brand value:** Described in 3.2.1.
- **Ancillary market:** Described in 4.3.2.

6.2.2. Community

- **Local support:** Local support help to grow organization significantly.
- **Political:** Described in 3.2.2.
- **Energy/tax credit:** Described in 4.1.2.

The connection among various clusters and nodes are presented in figure below:



After pairwise comparison, the priorities of the alternatives are given below:

Name	Graphic	Ideals	Normal
Four regional locations	<div style="width: 31.7035%;"></div>	0.317035	0.139035
Locations near major customers	<div style="width: 71.9579%;"></div>	0.719579	0.315570
One central location	<div style="width: 24.3640%;"></div>	0.243640	0.106848
Scattered locations	<div style="width: 100%;"></div>	1.000000	0.438548

6.3. Capacity

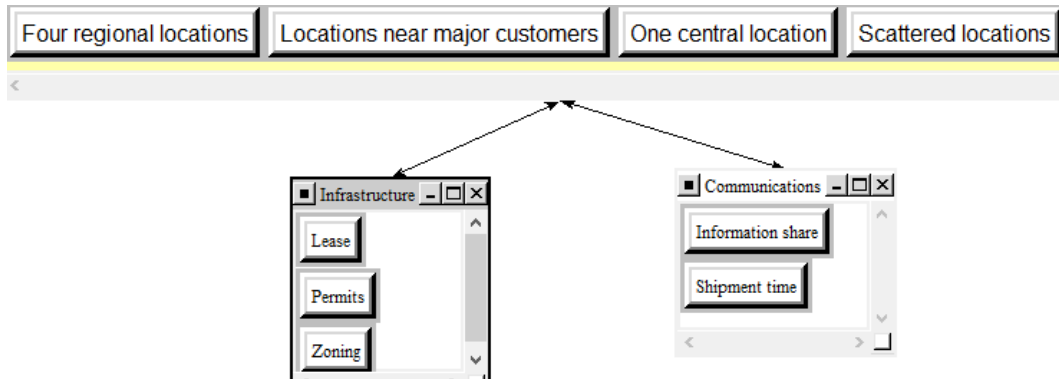
6.3.1. Infrastructure

- **Zoning:** Local government sometime changes the zoning (e.g., residential, economic etc.) which must be aligned with strategic decision.
- **Lease:** Described in 5.3.1.
- **Permit:** Running specific function sometime needs special permit which can be offered only in certain locations.

6.3.2. Communications

- **Information share:** Sharing information among employee in different location helps reduce the cycle time of product development and in problem solving.
- **Shipment time:** Described in 5.1.1.

The connection among various clusters and nodes are presented in figure below:



After pairwise comparison, the priorities of the alternatives are given below:

Name	Graphic	Ideals	Normal
Four regional locations	<div style="width: 68.3159%;"></div>	0.683159	0.244009
Locations near major customers	<div style="width: 63.0136%;"></div>	0.630136	0.225070
One central location	<div style="width: 100.0000%;"></div>	1.000000	0.357177
Scattered locations	<div style="width: 48.6437%;"></div>	0.486437	0.173744

6.4. Capability

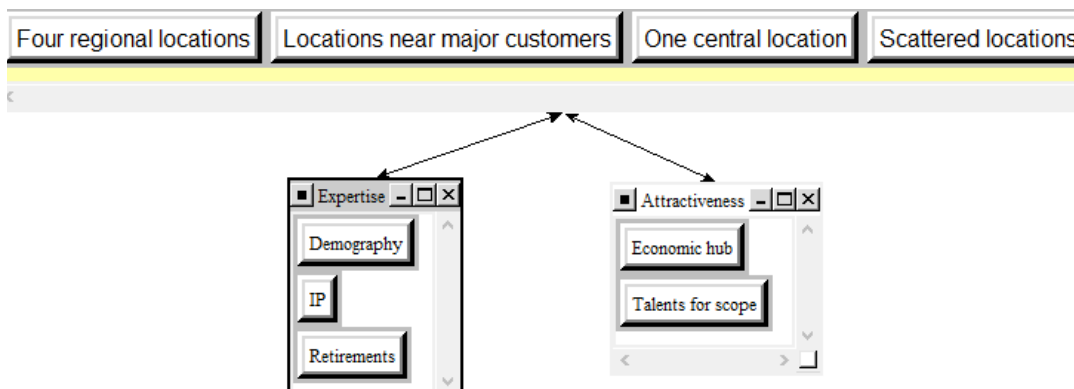
6.4.1. Expertise

- **Retirement:** Described in 5.2.2.
- **Demography:** Future demography changes plays strategic advantage in decision of consolidation of locations at different places.
- **IP:** Described in 3.4.1.





6.4.2. Attractiveness

- **Talents for scope:** Described in 3.4.2.
- **Economic hub:** Described in 3.4.2.

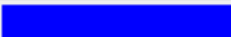
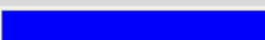
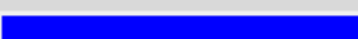

The connection among various clusters and nodes are presented in figure below:



After pairwise comparison, the priorities of the alternatives are given below:

Name	Graphic	Ideals	Normal
Four regional locations		0.589818	0.208884
Locations near major customers		0.502701	0.178032
One central location		1.000000	0.354150
Scattered locations		0.731141	0.258934

6.5. Synthesis of Risks: After pairwise comparison and synthesis of each of the four control criteria, finally the Risks was synthesized and the following result was obtained. One central location is riskiest over other alternatives.





Name	Graphic	Ideals	Normal
Four regional locations		0.646265	0.199217
Locations near major customers		0.742614	0.228917
One central location		1.000000	0.308259
Scattered locations		0.855148	0.263607

7. Ratings

The Super Decision ratings model was created from the strategic criteria. The ratings were very important, important, somewhat important and not important. Based on the ratings, the priorities of benefit, opportunities, costs and risks were assigned as follows:

Super Decisions Ratings						
	Priorities	Totals	Customer intimacy 0.238241	Efficiency (cost red) 0.093214	Market Share 0.506519	Time to market 0.162026
1.Benefits	0.367570	0.960583	Very important	Important	Very important	Very important
2.Opportunities	0.296994	0.776146	Important	Somewhat important	Very important	Very important
3.Costs	0.180035	0.470493	Very important	Very important	Somewhat important	Somewhat important
4.Risks	0.155401	0.406114	Very important	Somewhat important	Somewhat important	Somewhat important



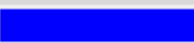

It appears that benefits has maximum priority and risks has least priority.

1.Benefits		0.367570
2.Opportunities		0.296994
3.Costs		0.180035
4.Risks		0.155401





8. Synthesis of the BOCR model

Finally the entire BOCR model was synthesized using Super Decision Matrix. Both the additive and the multiplicative models produced similar results: advantage of scattered (acquired) locations of running business over other alternatives. Detail conclusion in section 10.

8.1. Additive formula:

Name	Graphic	Ideals	Normals	Raw
Four regional locations		0.416768	0.173107	0.117503
Locations near major customers		0.388505	0.161367	0.109534
One central location		0.602304	0.250170	0.169812
Scattered locations		1.000000	0.415355	0.281938

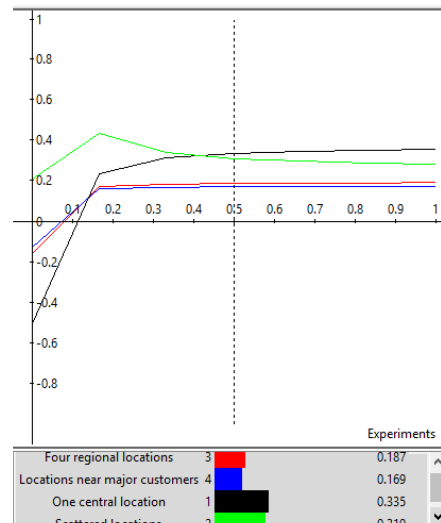
8.2. Multiplicative formula:

Name	Graphic	Ideals	Normals	Raw
Four regional locations		0.527940	0.220878	0.741424
Locations near major customers		0.427854	0.179005	0.600866
One central location		0.434390	0.181739	0.610045
Scattered locations		1.000000	0.418378	1.404371

Alternatives/Ideal values	Benefit 0.37	Opportunity 0.30	Cost 0.18	Risks 0.16
Four regional locations	0.53	0.49	0.56	0.65
Locations near major customers	0.48	0.67	0.74	0.74
One central location	1.00	0.60	1.00	1.00
Scattered locations	0.80	1.00	0.68	0.86

9. Sensitivity analysis

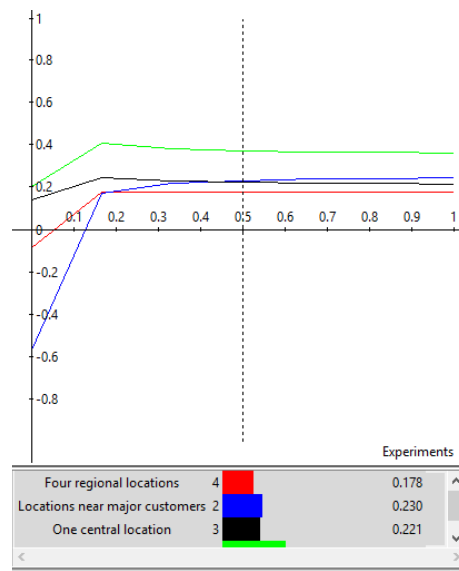
9.1. Benefits:



Scattered (acquired) and one central location are the least sensitive. Locations near major customers are most sensitive.

Input Value	Priority: 1.Benefits	Four regional locations	Locations near major customers	One central location	Scattered locations
0.00	0.00	-0.16	-0.13	-0.51	0.21
0.17	0.17	0.17	0.16	0.23	0.44
0.33	0.33	0.18	0.17	0.31	0.34
0.50	0.50	0.19	0.17	0.34	0.31
0.67	0.67	0.19	0.17	0.35	0.30
0.83	0.83	0.19	0.17	0.35	0.29
1.00	1.00	0.19	0.17	0.36	0.28

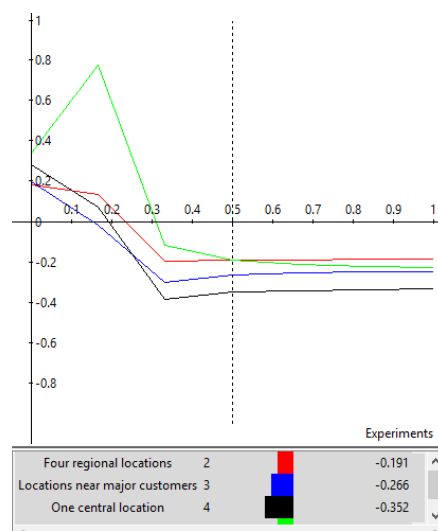
9.2. Opportunity:



Scattered (acquired) is least sensitive for opportunity. Four regional location is most sensitive.

Input Value	Priority: 2.Opportunity	Four regional locations	Locations near major customers	One central location	Scattered locations
0.00	0.00	-0.09	-0.57	0.14	0.20
0.17	0.17	0.17	0.17	0.25	0.41
0.33	0.33	0.18	0.22	0.23	0.38
0.50	0.50	0.18	0.23	0.22	0.37
0.67	0.67	0.18	0.24	0.22	0.37
0.83	0.83	0.18	0.24	0.22	0.36
1.00	1.00	0.18	0.24	0.22	0.36

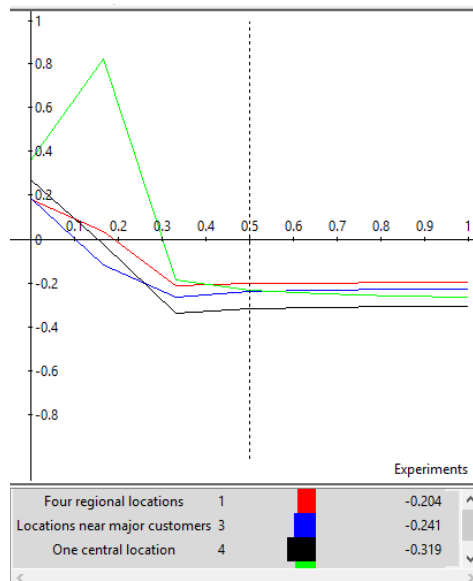
9.3. Costs:



Scattered (acquired) locations is most sensitive from cost perspective.

Input Value	Priority: 3.Costs	Four regional locations	Locations near major customers	One central location	Scattered locations
0.00	0.00	0.18	0.20	0.28	0.34
0.17	0.17	0.14	-0.02	0.07	0.77
0.33	0.33	-0.20	-0.30	-0.39	-0.12
0.50	0.50	-0.19	-0.27	-0.35	-0.19
0.67	0.67	-0.19	-0.26	-0.34	-0.21
0.83	0.83	-0.19	-0.25	-0.34	-0.22
1.00	1.00	-0.19	-0.25	-0.34	-0.23

9.4. Risks:



Just like costs, scattered (acquired) locations is most sensitive from risk perspective as well.

Input Value	Priority: 4.Risks	Four regional locations	Locations near major customers	One central location	Scattered locations
0.00	0.00	0.18	0.19	0.27	0.36
0.17	0.17	0.03	-0.12	-0.02	0.83
0.33	0.33	-0.21	-0.26	-0.34	-0.19
0.50	0.50	-0.20	-0.24	-0.32	-0.24
0.67	0.67	-0.20	-0.23	-0.31	-0.25
0.83	0.83	-0.20	-0.23	-0.31	-0.26
1.00	1.00	-0.20	-0.23	-0.31	-0.26

10. Conclusions:

From both the synthesized model and sensitivity analysis it appears that scattered locations (locations of acquisition) is the best alternative for multinational corporations. Same conclusion was obtained using both additive and multiplicative formulas. The result makes sense from the perspective of the importance of the location of the original companies

which the large corporation acquired. The original relatively small/medium (or could be large too) organizations were operating in their original locations for many strategic advantages. Consolidation of facilities from all these locations after acquisitions into a global central or other alternative locations may not necessarily make the corporation profitable.

11. References

- 11.1. [R&D Structure: Centralization vs. Decentralization by Omid Fadaeimanesh Carleton University.](#)
- 11.2. [Centralization or decentralization of innovation management: what Google, 3M, IBM and P&G teach us](#)
- 11.3. [The Advantages of Decentralized Manufacturing by Rick Suttle, Demand Media](#)
- 11.4. [How many facilities? Centralized vs. decentralized manufacture by Natasha Davie](#)