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Decision Making in a Complex Environment
Katz IEMBA Class of 2006

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ANP Supported Decision

Should IT-Driven American companies outsource their IT functions, and if so, which type of outsourcing should they use?

Topic

Should IT-Driven American companies outsource their IT functions, and if so, which type of outsourcing should they use?

Objective

We will attempt to answer this complex question using ANP methods and the SuperDecisions software package.

Introduction

The core of our analysis uses the Analytical Network Process (ANP) to evaluate the whether or not it is a good decision for American companies with strong IT functions to use outsourcing or not. Furthermore, we explore the best type of oursourcing for these companies to use. We will compare the following alternatives in orderto choose the decision for these companies that will best allow them to remain competitive in the future and to expand their market positions.

Alternatives

- **Alternative 1**: The companyss IT functions will not be outsourced. This means all IT services and new development will be kept in-house

- **Alternative 2**: The company will utilize "onshore outsourcing." This means the company's IT functions will be completely outsourced to another company in the same country.

- **Alternative 3**: The company will use "offshore outsourcing." Its IT functions will be completely outsourced to a cost-competitive country (India for instance).

Examining these choices we note that the first decision would keep all IT functions in-house. The second would outsource IT functions to an outsourcer located within the United States. The last option would outsource IT functions to an outsourcer located outside the United States, and in this case we are assuming that outsourcer would be located in India.

We further specify "IT functions" as being composed of the areas 1) Call Center 2) IT Development 3) IT Support and Administration.

The evaluation will be carried out using the Benefits, Costs, Opportunities and Risks (BOCR) model in the *Super Decisions* software. Sub-network structures will be utilized. Finally, we will draw some conclusions based on our model.

Background – Outsourcing and Offshoring

Increasingly, business firms in the U.S., Europe, and other areas are outsourcing at least some of their operations. The globalization of competition is increasing competitive pressures and the need to consider options for enhancing efficiency. It is projected that more than 80% of the world's top 2,000 corporations will have established significant outsourcing operations overseas (offshoring) by the end of 2005. As of 2003, in the United States, it is estimated that about 315,000 jobs had been moved offshore. It is projected that this will increase to 3,320,000 jobs by 2015. However, it appears that the actual job loss from the overall job market is about 0.2% in any given year. Indeed, recent survey data indicates that most jobs that are outsourced are kept in the country and not shipped overseas.

The manufacturing sector has been moving some work to low labor cost areas. Firms may move to lower cost areas in their own country first or "outsource" certain functions, then with increasing competitive contexts and pressure to lower costs, will move "offshore" to such countries as China, India and the Philippines. Some major manufacturers (e.g., autos) are putting pressure on their parts suppliers to outsource for them.

As China and India have assumed more manufacturing jobs from other countries, former low cost producers like Mexico have been undercut in pricing. Employment in the maquiladoras had declined for several years and is only now beginning to pick up again. Mexico may be more costly but it benefits from a better quality labor force and close proximity to the US.

It is not an automatic decision to offshore manufacturing jobs just because of low labor costs. There are logistics problems, quality of labor force concerns, and the need for quick response in certain industries (e.g., fashion). Also, offshoring has risks in terms of political instability and currency fluctuations. Different types of distance (cultural, geographical, administrative and economic) create additional risks when offshoring to another country. These types of distance are explained by The CAGE Distance Framework (see article Harvard Business Review "Distance Still Matters, 2001)

We also note that "offshoring" is increasingly occurring with white collar jobs in the service sector as well. This is true in legal work, computer programming, telecommunications, banking, engineering, management consulting and other private services. For example, IBM made a decision to move the work of 4,730 programmers to India and China in 2004. GE Capital has 17,000 employees in India and other countries, Citigroup has 3,200 employees in India, and the list goes on.

A key reason for the movement of services offshore is not only the highly qualified and low cost workforces in some developing countries (e.g., India and

China), but the drastically declining costs of global communications. Skilled labor, low labor costs, and high quality/low cost communications systems = offshoring.

In the U.S., when a company opens a support center in India that handles requests from the U.S., in effect it is importing services. When a professional in the U.S. does work for a foreign company, this is an export of services. In 2003, the U.S. posted a $53.6 billion trade surplus in private services with the rest of the world.

This issue of "offshoring" also has major political implications. Legislation to discourage and/or control offshoring is being discussed at the national level and a number of states are considering anti-outsourcing laws. It was an issue in the recent U.S. Presidential campaign.

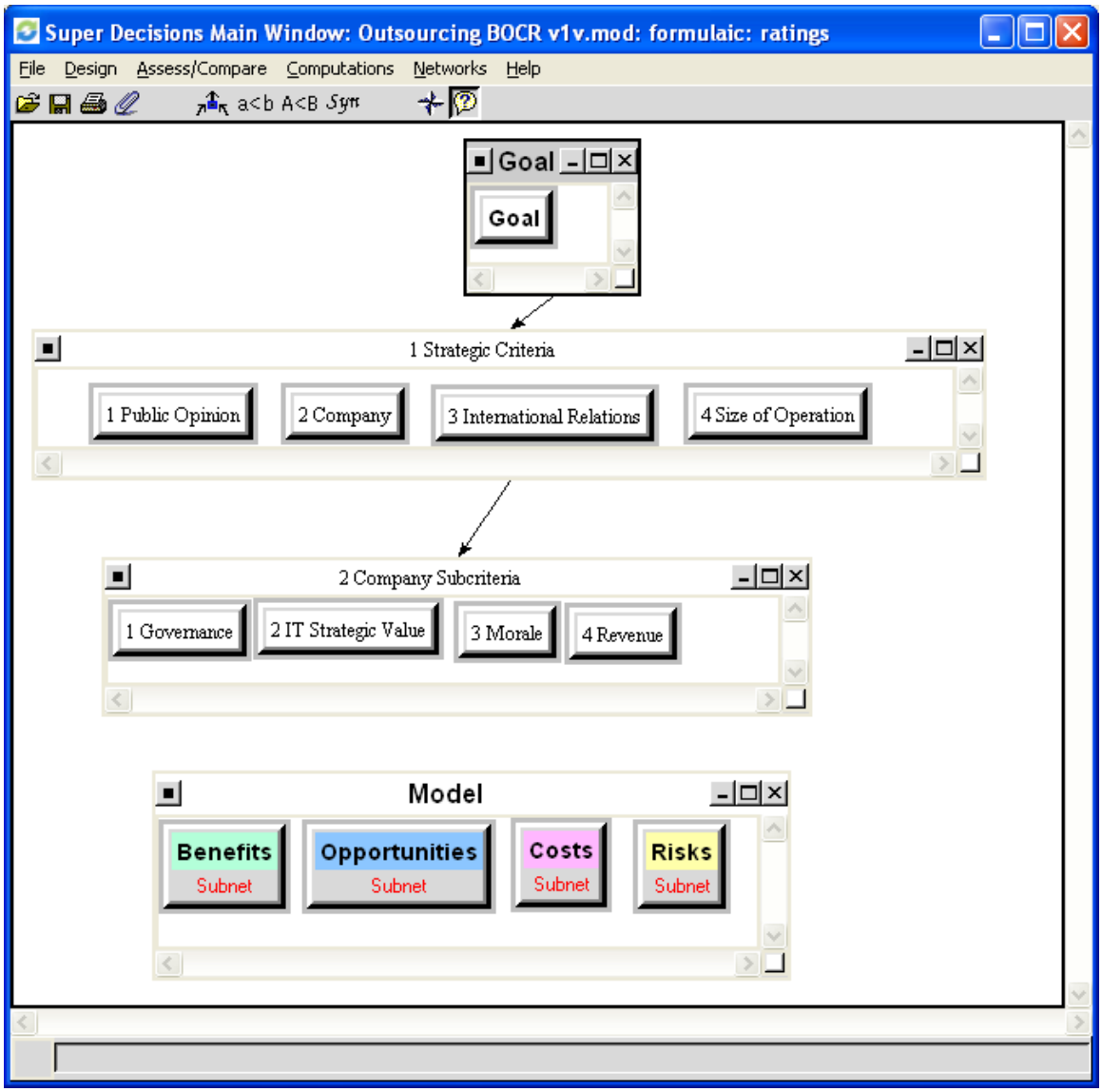
The Current Outlook for IT

Today, working as an IT executive or manager, it's highly likely that one will come under considerable pressure to cut costs in an attempt to maximize efficiencies. Just when one thinks they have achieved what is needed, they're asked to cut costs again. Unfortunately, the workload hasn't decreased. In fact, it's probably increased. Seeing no options, nowadays the choices to outsource or to offshore are being forced upon organizations in order to remain competitive.

The Model

We have created an ANP model to resolve our complex outsourcing decision. The overall decision making model is composed of 2 parts:

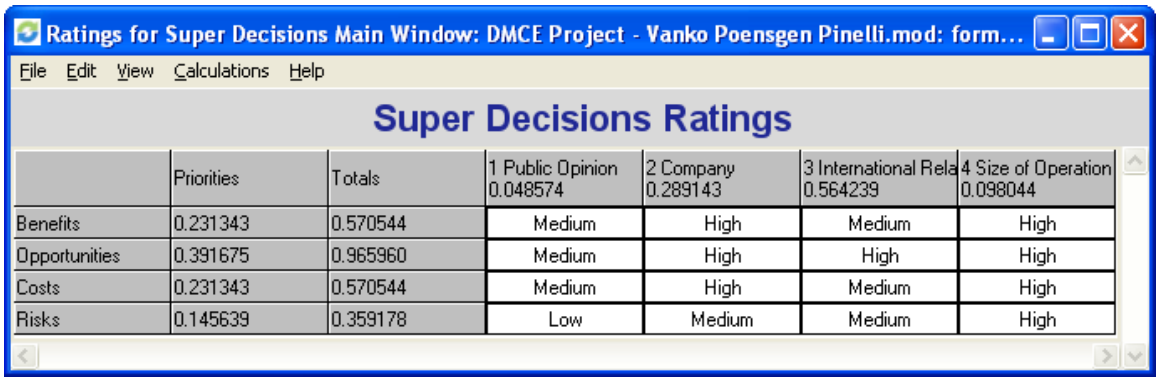
1. Model Priorities (calculated through ratings)
2. BOCR (Benefits-Opportunities-Costs-Risks) Criteria



1. Model Priorities (calculated through ratings)

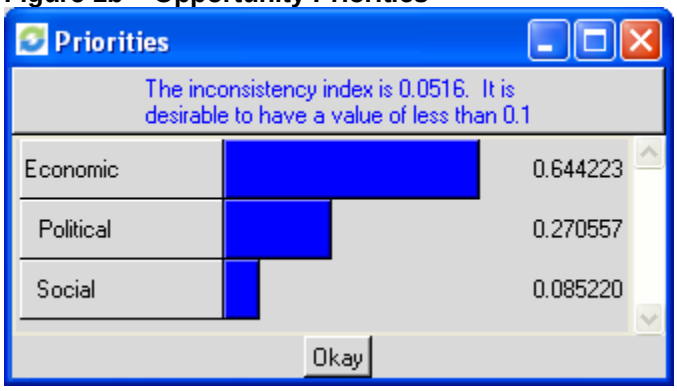
In order to establish ratings scales and to evaluate the priority of Benefits, Opportunities, Costs and Risks of the Decision Making Model, we developed a hierarchy of strategic value criteria and sub-criteria. The three criteria in our model are Public Opinion, Company Factors, International Relations and Size of Operation.

Figure 1 – BOCR (Benefits, Opportunities, Costs and Risks) Ratings & Priorities
Opportunities are one of the main drivers for companies that are thinking about outsourcing, especially economic opportunities.



	Priorities	Totals	1 Public Opinion 0.048574	2 Company 0.289143	3 International Rela 0.564239	4 Size of Operation 0.098044
Benefits	0.231343	0.570544	Medium	High	Medium	High
Opportunities	0.391675	0.965960	Medium	High	High	High
Costs	0.231343	0.570544	Medium	High	Medium	High
Risks	0.145639	0.359178	Low	Medium	Medium	High

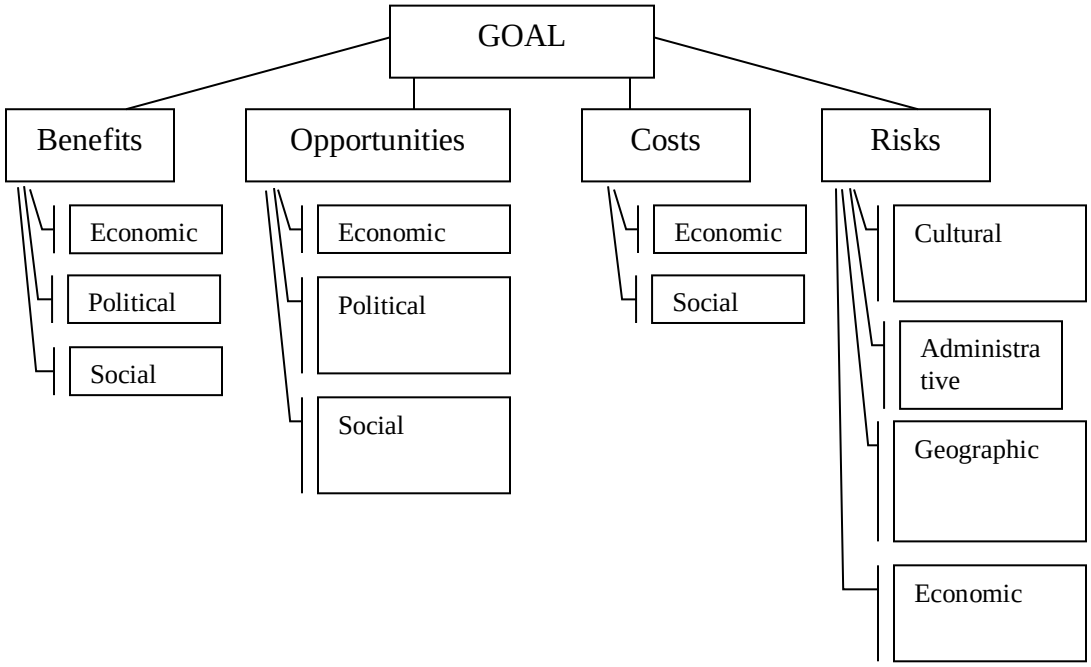
Figure 1b – Opportunity Priorities



2. BOCR (Benefits, Opportunities, Costs and Risks) Criteria

The overall BOCR network is illustrated in a tree hierarchy format in Figure 2. The top level is a cluster that contains the Goal node, which connected to the second-level clusters that contain the BOCR nodes: Benefits, Opportunities, Costs and Risks.

Figure 2



Definition of BOCR criteria and sub-criteria

The definition of criteria and sub-criteria of Benefits, Opportunities, Costs and Risks within the BOCR network are given in the following four tables.

Table 1 Definitions for the Benefits Model:

Control Criteria	Sub-criteria	Description
Economic	Company-Headcount reduction	Measures headcount reduction as a benefit to the company.
	Company-Lower wages Paid	Measures the reduced costs of wages as a benefit to the company (due to decreases in working hours).
	Company-Higher productivity	Measures higher productivity as a benefit to the company (doing the same work in less time).
	Government-Taxes	Measures government tax breaks applied to the alternatives.
	Government-Subsidies	Measures government subsidies applied to the alternatives.

	Government-Quotas	Measures government quotas on outsourcing applied to the alternatives.
Political	Customers-Service level	Measures the service level rendered to the customers
	Customers-Personalisation	Measures the possibility to adapt the product to the customers needs
	Customers-Lower price	Measures a possible way to reduce the price for the customer
	Government- subsidies	Measures the possibility to receive benefits form the government
	Government Job creation	Measures the possibility to create new jobs with the help of the government
	Shareholder –Roi	The Roi of invested money from the shareholders
	Shareholder Reduction of investments	The possibility to reduce the amount of invested capital from the shareholders
Social	Company image	Measures the effects that result from outsourcing
	Beneficial press coverage	Measures the influence of the press to the building of the opinion
	Connection with local communities	Measures the influence of organizations and unions to an outsourcing project

Table 2 Definitions for the Opportunities Model:

Control Criteria	Sub-criteria	Description
Economical	Increased Quality	Measures the increase of quality of the service to the customers
	Increased Market share	Measures the market share in comparence with the competitors
	Show of Innovation character	Measures the ability to innovate their products
	Competitive advantage	Competitive advantage resulting from added value in comparence with the competitors
	Increased customer satisfaction	Measures the growing of customer satisfaction due to the outsourcing
Political	Improved trade	Measures the increasing of trade relations in between the US and the selected country
	Political awareness	Measures the political influence and evaluating of the activities
	Improved country risk	Measures the country risk abroad the US

Social	Cultural awareness	Measures the cultural aspects that will influence the decision to go offshore
	Management expertise	Measures the qualification of the Management in charge of the activities

Table 3 Definitions for the Costs Model:

Control Criteria	Sub-criteria	Description
Economic	Organisational	
	Organisational Training	Measures the training necesitis of the employees
	Organisational Hiring	Measures the efforts to contract new employees
	Organisational Efficiency	Measures to achieve the goals of efficiency
	Organisational Equipment	Measures the need of additional equipment
	Government	Measures the benefits from the government in view of taxes
Social	Social-Morale	Measures the morale effects to the outsoruce decision
	Social-Motivation	Measures the motivation of the stakeholdersto realize an offshore
	Social-Public opinion	Measures the influence of the Public opinion to the decision

Table 4 Definitions for the Risks Model:

Control Criteria	Sub-criteria	Description
Administrative	Administrative Distance – Institutional weakness	Measures the differences in the way of organize the processes
	Administrative Distance – Government policy	Measures the difference in political goal in comparence with the two countries
	Administrative Distance- Political hostility	Measures the acceptance of the foreign country to the company
	Administrative Distance- Absence of colony ties	Measures the possibleproblems if there werere not historical relationships between both companies
	Strategic Risk – Strategic functions	Measures the probability of problems when outsourcing also strategic functions
Cultural	Cultural Distance- Difference in Language	Measures the effects resulting from differences of the language
	Cultural Distance- Difference in Religion	Measure the effects resulting from differences in religion

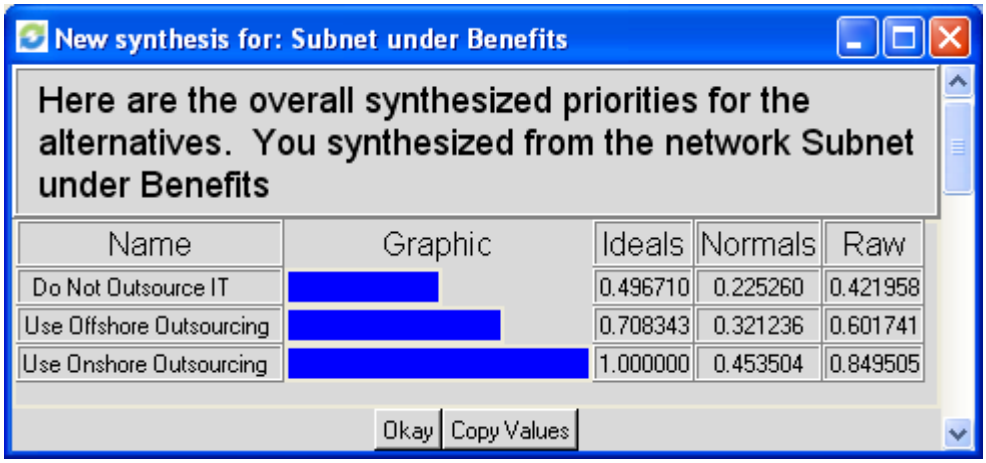
	Cultural Distance- Difference in Social Norms	Measures the differences resulting from other social norms and values
	Cultural Distance- Difference in Ethnicities	Measures the differences because of different ethnicities
Economic	Economic Distance – Difference in Consumers income	Measures the differences in the salaries of the consumers
	Economic Distance- Difference in Infrastructur	Measures the differences of infrastructure in between the two countrie
Geographic	Geographic Distance- Physical remoteness	Measures the effects resulting from the geographic distance and the possibility to remote
	Geographic Distance- Size of the country	Measures the effects resulting from the size of the country.
	Geographic Distance- Weak transportation of communication links	Measures the quality of existing communication means
	Geographic Distance- Differences in time zone	Measures the probability of problems caused by different time zone

Synthesized Results from Super Decision program

By doing synthesized, pairwise comparison, the SuperDecisions program was able to produce decision for each of our BOCR (Benefits, Opportunities, Costs, and Risks) categories. In addition, a synthesis of each BOCR category was done produce a final, consolidated decision.

The following table shows that outsourcing offers higher benefits over not-outsourcing, with onshore outsourcing offering more benefits than offshore outsourcing.

Table 6 Results of Benefits Model



In table 7 below, the opportunities model clearly shows that there are more opportunities to be gained by using offshore outsourcing. The other options, "do not outsource" and "use onshore outsourcing" are much less prefferred.

Table 7 Results of Opportunities Model

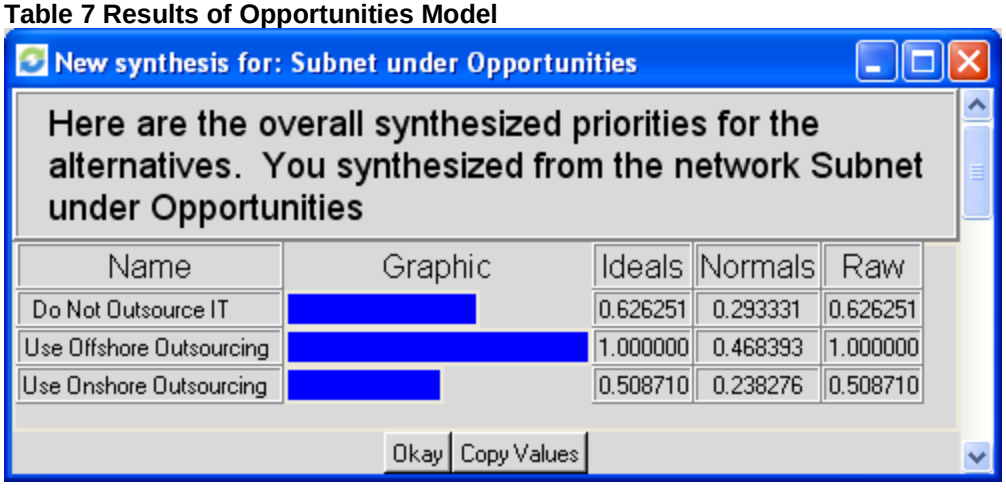


Table 8 Results of Costs Model

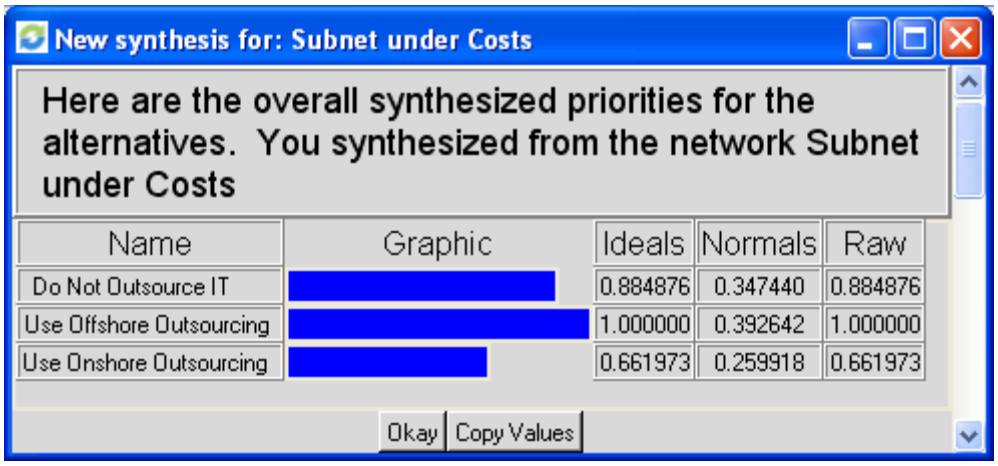
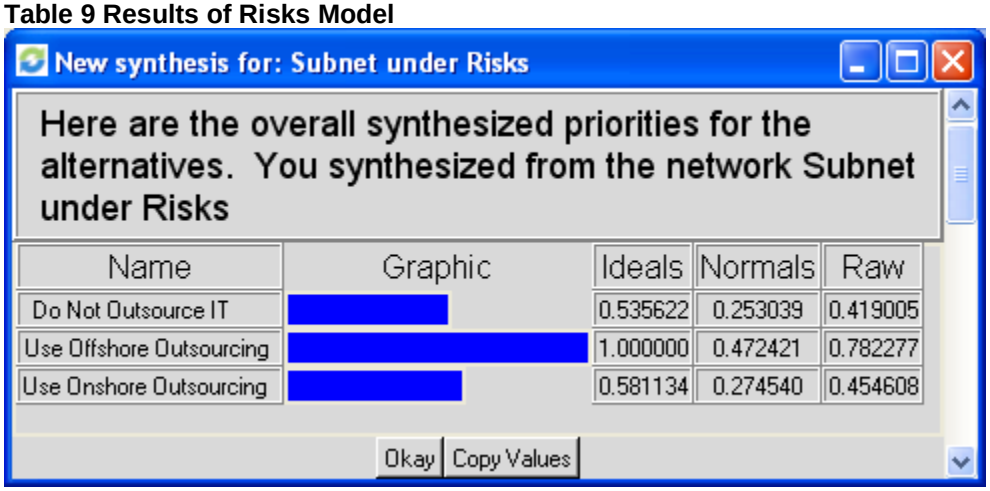
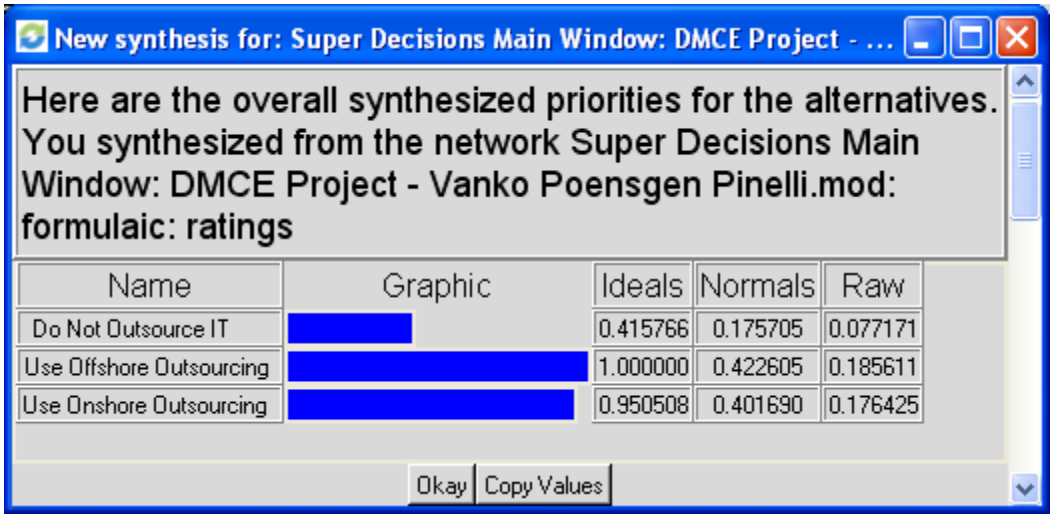


Table 9 Results of Risks Model



As seen in table 10 below, offshore outsourcing is the most interesting option, followed closely by onshore outsourcing and then the option not to outsouce. This assumes that the 3 alternatives are mutually exclusive; in other words, only one method can be chosen. However, if companies are able to create an outsourcing/non-outsourcing mix, then the best one would be composed of 42% offshore outsoucing, 40% onshore outsourcing and 18% of IT functions kept in the company.

Table 10 Final Results of the Whole Model



Sensitivity Analysis

We observed the following results from experimenting with the sensitivity of the model to changing BOCR priorities:

1. **Benefits**: When benefit priorities are relatively low, the alternative "Use Offshore Outsourcing" is the best choice. However, at priority level .197, both offshore and onshore outsourcing alternatives become equally desireable, and as benefit priorities gain importance, *"Use Onshore Outsourcing"* clearly becomes the alternative of choice.

2. **Opportunities**: Opportunity behaviors are nearly the opposite of benefit behaviors in reference to the two outsourcing options. When opportunity priorities are relatively low, the alternative "Use Onshore Outsourcing" is the best choice. However, at priority level .344, both onshore and offshore outsourcing alternatives become equally desireable, and as opportunity priorities gain importance, *"Use Offshore Outsourcing"* clearly becomes the alternative of choice.

Figure 1 – Variable Benefits

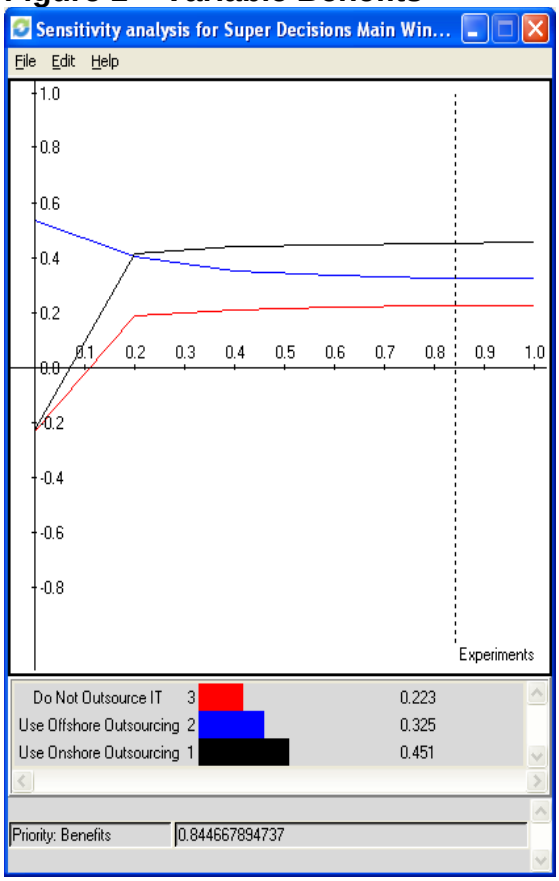
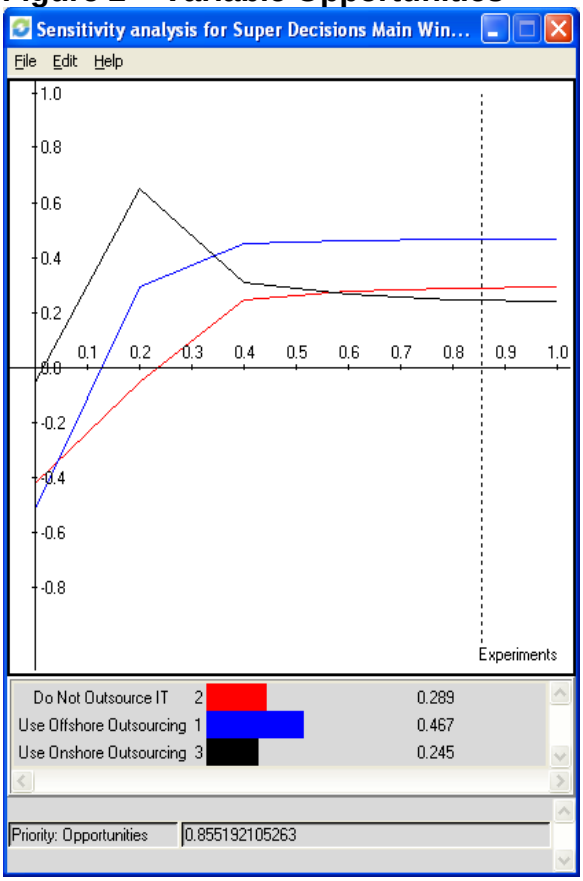


Figure 2 – Variable Opportunities



3. **Costs**: Until cost priorities reach .13, *"Use Offshore Outsourcing"* receives a slight preference over onshore outsourcing, and upon reaching .13, these two alternatives display equal preference. After that point, further increases to the cost priority favor the alternative *"Use Onshore Outsourcing"*. However, after cost priority increases beyond .347 all alternatives drop sharply in appeal and become negative.

4. **Risks**: When risks are either very low or very high, using offshore outsourcing has a slight appeal. However, as risks increase offshore outsourcing drops sharply in appeal, and the *"Use Onshore Outsourcing"* shows an advantage over the others. Once the risk priority becomes extremely high, for instance .9, then *"Do not Outsource IT"* becomes a better choice than the two outsourcing alternatives.

Figure 3 – Variable Cost

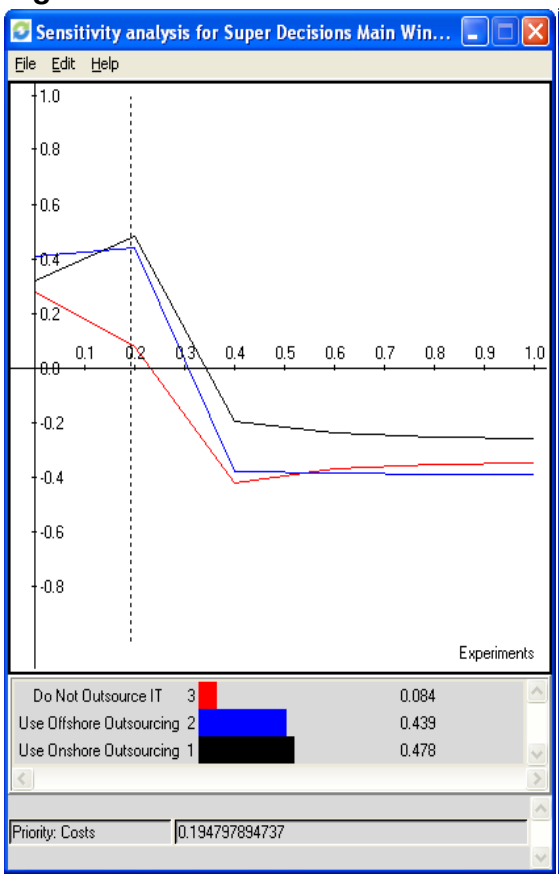
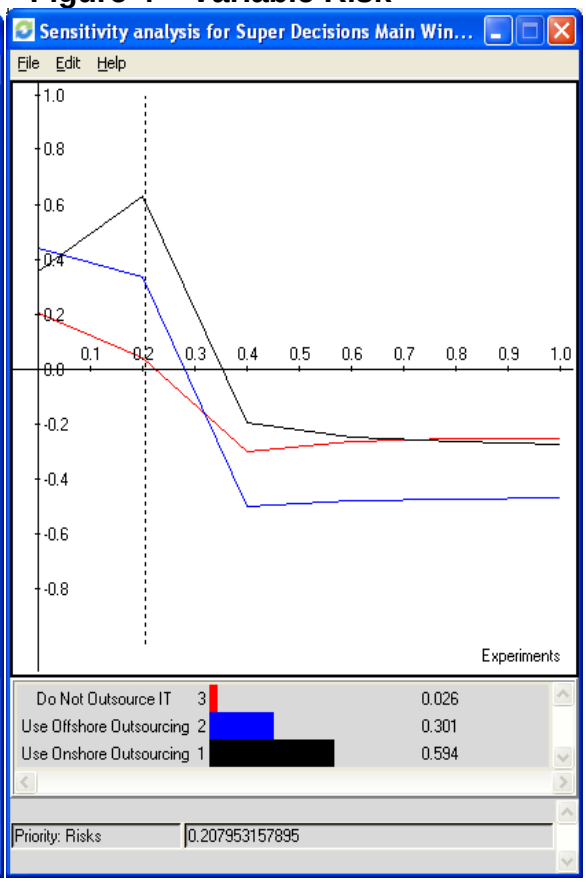


Figure 4 – Variable Risk



Conclusion

While the results of our whole model show that “using offshore outsourcing” may be the overall best alternative, results of our sensitivity analysis demonstrate that it would be wise for companies to carefully consider the costs and risks of outsourcing. If costs and/or risks are high, then the decision to use offshore outsourcing should not be taken, and the company should try to find a partner closer to them in order to decrease these costs and risks, or not to outsource at all. Evaluating these costs and risks in practice, however, is easier said than done. Outsourcing involves many “hidden costs” such as additional management needed for coordination with external partners, which can increase with the size of the operation. In addition, different types of distance (cultural, geographical, administrative and economic) can amplify risks dramatically and are often overlooked by companies. These types of distance are explained by The CAGE Distance Framework (see article Harvard Business Review “Distance Still Matters, 2001)

It is also noteworthy to mention the option of creating a “mixed portfolio.” In other words, different outsourcing options can be mixed with in-house solutions. For companies that have this option, analysis of the inflection points in our sensititvity graphs will assist in defining optimal levels of in-house, onshore outsourcing and offshore outsourcing.

Ameriacan companies today face many pressures to cut costs. In certain situations, we have shown that searching for the ultimate in cost saving “offshoring” may indeed be a way to reduce these pressures. However, we have shown that outsourcing is not a good fit for every company, and that all companies must carefully measure their priorities and balance their Benefits, Opportunities, Costs and Risks. Only by doing so can a company maximize its profits, which is the real objective of every business.