

# A Decision Analysis Case for Teaching Data Relevancy

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**Abstract:** *This instructional case is designed to help students develop a working understanding of decision analysis concepts. Case requirements ask students to analyze a problematic decision scenario, prepare a revised decision analysis, and then effectively communicate the results of their analysis as a professional written memo. The case is appropriate for use in an upper-level cost accounting or MBA-level managerial accounting course.*

## LEARNING OBJECTIVES

The specific learning objectives for the case are to develop students' ability to:

1. Analyze a decision scenario and identify decision alternatives
2. Differentiate between relevant and irrelevant data and explain the significance of data relevancy for decision analysis purposes.
3. Differentiate between hard data and soft data and explain the significance of data quality for decision analysis purposes.
4. Identify qualitative considerations and explain the significance of qualitative data for decision analysis purposes.
5. Apply the incremental approach to prepare a decision analysis and evaluate decision alternatives.
6. Apply decision analysis concepts to prepare a logical argument and effectively communicate the results of an analysis in written form.

## CASE MATERIALS

### Case Abstract

This case is designed to help you develop a working understanding of decision analysis concepts and their use for managerial purposes. The case narrative describes a decision scenario and presents a problematic decision analysis. The case requirements ask you to apply decision analysis concepts to analyze the decision data, evaluate the use of the data in the analysis described in the case narrative, and then effectively communicate the results of your analysis and evaluation in the form of a professional written memo.

### Case Narrative

Miskatonic University is a small liberal arts university with an excellent academic reputation; the school is known for its unique course offerings and its well-respected programs in what the University refers to as the "Arts and Soft Sciences Area". The Arts and Soft Sciences area includes majors in the following areas: Anthropology, Creative Writing, Folklore, Mythology, Psychology, Sociology, and Philosophy. The College President is considering eliminating the Folklore major due to a substantial, recent area loss. The president has prepared an area report for the Folklore area for the most recent academic year; based on this report, the president has argued that the elimination of the folklore major will result in a cost savings of \$358,600 for the college. The president's area report along with the explanatory notes is presented below:

<b>University Area Report for Folklore Major</b>		
Tuition Revenue Generated by Folklore Majors <sup>1</sup>		\$289,440
Less Operating Expenses		
Faculty Salaries <sup>2</sup>	326,000	
General Office Expenses <sup>3</sup>	30,240	
Equipment Costs <sup>4</sup>	15,800	
Administrative & Support Personnel <sup>5</sup>	72,000	
Facility Costs <sup>6</sup>	204,000	(648,040)
		<u>(358,600)</u>
Area Loss		<u>(358,600)</u>

**Explanatory Notes**

<sup>1</sup> **Tuition revenue** is computed based on the number of student credit hours times the cost of tuition per credit hour; tuition fees are currently \$402 per credit hour and the folklore department currently has 24 students majoring in folklore, each taking an average of 30 credit hours per academic year. The tuition revenue number *excludes* student fees added in as part of tuition; these fees typically run about \$800 per student per academic year.

<sup>2</sup> **Faculty Salaries** include three tenured faculty members (one of whom acts as area chair) with combined salaries totaling \$168,000 (area chair salary \$68,000, other tenured faculty salaries are \$50,000 each), two tenure-track (not yet tenured) faculty with combined salaries totaling \$96,000 (both faculty members would normally go up for tenure during the next academic year), and three non-tenure track faculty members including two full-time instructors and one adjunct with combined salaries of \$62,000. If the Folklore major is dropped, the three tenured faculty members will be reassigned to the mythology area (to teach introductory folklore courses as general electives). One of the three tenured faculty members has indicated that she will leave if the major is dropped; the university has indicated that it will not replace this position if she leaves. The two tenure-track faculty members' positions and the three non-tenure track faculty members' positions will be terminated ending their employment with the University at the end of the current academic year.

<sup>3</sup> **General office expenses include** IT support provided by the college, office supplies, and photocopying costs; costs incurred for the current year totaled \$226,800. General office expenses were allocated to the Folklore Area based on number of full-time and part-time faculty as follows: Total General Office Expenses for School of Arts & Soft Sciences (\$226,800) divided by Total Number of Faculty for School of Arts and Soft Sciences (60) equals \$3,780 per faculty. The Folklore department has 8 faculty members; as such, it was assigned \$30,240 for the period. Additional information on use of general office resources follows:

- **IT support** totals \$202,000 yearly for IT personnel and IT equipment; \$82,000 of the IT costs are fixed; and the remaining \$120,000 are variable and vary directly with the number of support calls (the IT department has estimated that support calls cost them an average of \$ 0.12 per call minute). The IT department will continue to operate normally if the Folklore major is dropped although the volume of support calls will drop as the Folklore area relies heavily on online instructional technology for course support; it used a total of 210,000 support minutes last year.
- **Office supplies** total \$4,000 per year. The Folklore department uses minimal office supplies; it used approximately \$800 worth of college supplies as well as another \$1,000 which were purchased with its own monies out of a small fund maintained specifically for the Folklore area by a wealthy benefactor, an alumni and a prolific fantasy novel writer. The benefactor will likely withdraw these funds if the folklore department is eliminated.

- **Copying costs** for the college totaled \$20,800 for the academic year; the college has estimated that copies cost approximately \$0.10 per copy (\$0.08 per copy for toner and paper plus an additional \$0.02 allocated per copy to cover fixed maintenance and depreciation on the equipment). Since the Folklore department provides most of its course materials and gives most of its exams in electronic form, it consumed only 24,960 copies last year.

<sup>4</sup> **Equipment costs** include hardware costs for computers and/or peripherals (e.g., printers) and software costs for new software and/or software upgrades. Faculty computers and peripherals are leased by the University and are typically replaced on a two-year cycle (i.e. every other year). Half of the area's computers and printers (for four of the eight faculty members) were replaced during the current period at a cost of \$3,450 per faculty member; the remaining faculty member's computers and printers are scheduled to be replaced next year. New software and software upgrades are purchased on an as needed basis; new software and software upgrades were installed on all faculty computers at a cost of \$250 per computer during the current period; no software purchases or upgrades are planned for next year.

<sup>5</sup> **Salaries for administrative and support personnel** (\$72,000) include the salary for the administrative assistant (\$44,000) and stipends for part-time work-study students (\$28,000). If the folklore area is eliminated, the administrative assistant will be reassigned to the Dean's office at the same salary and the part-time work-study students will be eliminated.

<sup>6</sup> **Facilities costs** (\$204,000) consist of college building maintenance, depreciation, insurance, taxes, and utilities; building costs were allocated to the Folklore Area based on square footage of the space occupied.

#### ***Discussion Excerpts from a Recent College Faculty Meeting***

Dr. Propp, Chair of the Folklore area, argued, "I have surveyed the current folklore and mythology students. Some of the current folklore students have indicated that they will most likely just change majors but the rest have indicated that they will leave the University and seek folklore studies elsewhere; my estimate of the tuition revenue that will be lost (based on full-time folklore students who have indicated that they will go elsewhere) is \$168,840 next year alone. Moreover, this says nothing about the opportunity costs associated with losing potential new folklore and mythology students in the future. Additionally, we have just received a rather large endowment from a well-respected author of horror fiction; the endowment fund is earmarked for a new combined Folklore/Creative Writing Program that has been approved and is currently being developed. Preliminary enrollment estimates from the Dean's office suggest that enrollments are expected to increase in the School of Arts and Soft Sciences to the tune of \$120,600 per year in tuition revenue due to the new major. If we eliminate the Folklore major, how will we support the new major given the loss of faculty from that area? The two faculty members that would be up for tenure next year would have been key players in the course offerings for this new major; eliminating them would create course development and coverage problems. In any case, the new major will certainly have much less creditability without the Folklore major to back it; eliminating the Folklore major could jeopardize the new program and we could lose the endowment."

Dr. Campbell Chair of the mythology department argued, "I agree with Dr. Propp. Miskatonic is one of only a very few Universities to offer structured majors in folklore and mythology. Many students come to Miskatonic specifically to study folklore or mythology; and a few have elected to pursue double majors in both areas. Based on recruiting estimates from the Registrar's office and discussions with prospective students, I estimate that the University could lose as much as an additional \$108,540 next year in tuition revenue from increased enrollments due to expected growth of the folklore major. Moreover, many of the mythology students are concerned about the folklore courses that would normally be part of their required courses; if we eliminate the Folklore major, will these courses still be offered? If not, how will we

accommodate the need for folklore coursework within the Mythology major? Additionally, the Folklore area provides a number of general education and elective courses for other Arts and Soft Science majors and the Folklore minor has been very popular among students from other Soft Science areas *and* Hard Science areas as well; we have even had a few business majors elect to pursue a minor in folklore.”

The President retorted, “This data is pure speculation based on dubious assumptions. Such soft data makes for powerful rhetoric but is largely irrelevant. The simple fact is that we are losing money on the Folklore major each academic year. We are a small University and simply cannot afford to keep the major in play”.

Lara Croft, a new accounting professor attending the faculty meeting, commented flatly, “By my calculations, Mr. President, we cannot afford to *eliminate* the Folklore major. Your decision analysis is misleading because the segment report upon which you have based this analysis excludes relevant information and perhaps more importantly, includes irrelevant information. Moreover, you are completely ignoring the significant long range strategic concerns and qualitative considerations associated with eliminating the major. In this case, qualitative considerations are *more* germane to the long-run wellbeing of the university than immediately quantifiable considerations.”

### CASE REQUIREMENTS

1. What is the nature of the decision being considered in the scenario presented in the case narrative? That is, what are the alternatives and what are the key areas of concern? Briefly discuss.
2. (a) What does Lara Croft mean by *irrelevant data*? How do you differentiate between relevant data and irrelevant data? Why is this distinction important for the purpose of preparing a decision analysis?  
  
(b) Identify the key data elements described in the case narrative. For each data element you identify, indicate whether the data element is relevant or irrelevant to the decision analysis, and briefly explain why you classified the data element as relevant or irrelevant. Present your responses in table format.  
  
(c) Is Lara correct, is the President’s decision analysis misleading? Explain.
3. (a) Some of the concerns brought up at the recent faculty meeting were summarily dismissed and referred to as *soft data* by the president. What exactly is soft data (as opposed to hard data)? Does this mean that this data is automatically irrelevant to a decision analysis? Explain. What impact might the *quality* of soft data have on a decision analysis? Explain.  
  
(b) Identify the soft data associated with the decision scenario presented in the case narrative and explain why you identified it as soft data (as opposed to hard data). In your opinion, should this data be included in the decision analysis? Justify your answer.
4. (a) At the faculty meeting, Lara Croft accused the president of ignoring significant qualitative considerations. What does Lara Croft mean by *qualitative considerations*?  
  
(b) Identify the qualitative considerations associated with the decision scenario presented in the case narrative and explain the significance of these considerations for decision analysis purposes. Do you agree with Lara that qualitative considerations are *more* important than quantitative considerations? Explain.

5. Prepare a revised decision analysis using an *incremental approach* based *only* on what you consider to be *relevant* information; prepare your analysis to address the following question: By how much will operating income be expected to increase/decrease if the University decides to drop the Folklore major? Is Lara correct in asserting that "... the University cannot afford to eliminate the Folklore major"? Explain. Do you believe that an incremental approach is the best way to explain your conclusions to the president? Explain.
6. In a formal memo directed to the University President,
  - (a) Summarize (do not reiterate all of the details) your evaluation of the decision analysis report provided by the president.
  - (b) Construct a well-reasoned argument that presents a strong case for *keeping* the Folklore major. Limit your logical argument to three or four key points. **NOTE:** Your memo must be presented in professional memo format and should express your ideas succinctly, communicate your points clearly, and follow proper English spelling, grammar, sentence structure, and punctuation.

*Teaching Note/Instructor Manual available from the Journal of Business Cases & Applications.*