Lesson Proper for Week 7

Comparing Options Using a Weighted Decision Matrix

A basic decision matrix consists of establishing a set of criteria for options that are scored and summed to gain a total score that can be ranked.

A weighted decision matrix operates in the same way as the basic decision matrix but introduces the concept of weighting the criteria in order of importance. The more important a criterion, the higher the weighting it should be given. Each of the potential options is scored and then multiplied by the weighting given to each of the criteria to produce a result.

A **weighted decision matrix** therefore allows decision makers to structure and solve their problem by:

1. **Specifying** and **prioritizing** their needs with a list a criteria; then
2. **Evaluate, rating** and **comparing** the different solutions; and
3. **Selecting** the best matching solution.

A decision matrix is basically an array presenting on one axis a list of **alternatives**, also called options or solutions that are evaluated regarding, on the axis, a list of **criteria**, which are weighted depending on their respective importance in the final decision to be taken.

Weighted Decision Matrix Sample

The example in Figure 7.1 shows a weighted decision matrix that compared three options for a web development (SJS Enterprise) project. This method is specifically useful when choosing purchase alternatives and comparing them against specific desirable system requirements.

Financial Considerations

In many new project endeavors, we need to find out if our project is financially feasible. We do that by using net present value (NPV), rate of return (ROI) and payback analysis.

Weighted Decision Matrix for Game Delivery Project

Criteria	Weight	SJS Enterprises	Game Access	DVD Link
Educational	15%	90	0	0
Sports-related	15%	90	90	90
Secure payment area with the ability to use PayPal, bank payments, cheque, school payment systems as a payment source	10%	90	50	50
Live Support	15%	90	0	0
Search Option	5%	50	50	50
Games available for all platforms currently on the market including school learning systems	10%	60	30	30
Longer Rental Periods (1 to 2weeks)	5%	40	20	40

Sidebar with categories such as most popular, multiplayer and just released	5%	50	50	20
Registered customers must be able to order the videos, track delivery, return of videos and be able to provide reviews of videos	10%	50	30	30
Age/grade appropriate section (can isolate certain games to certain ages or grade levels)	10%	70	5	0
Weighted Project Scores	100%	56	14.5	12.5

Weighted Score by Project

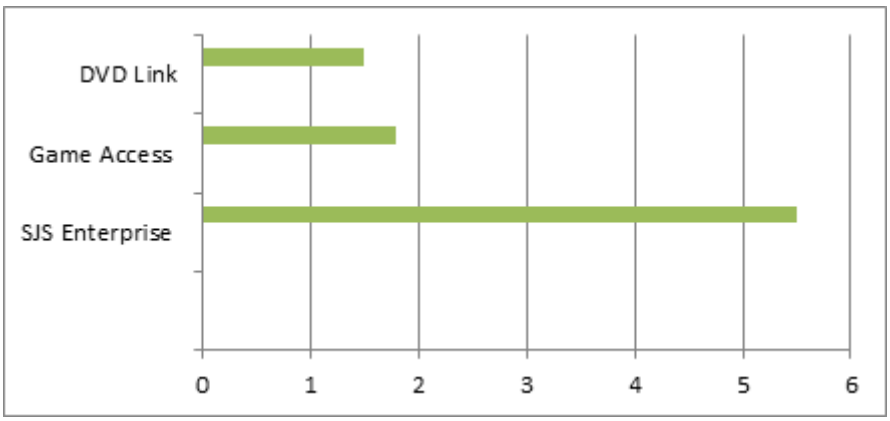

Figure 7.1 Weighted Decision Matrix for game Delivery Project

NPV

A peso earned today is worth more than a peso earned one or more years from now. The NPV of a time series of cash flows. Both incoming and outgoing, is defined as the sum of the present values (PVs) of the individual cash flows of the same entity.

In the case when all future cash flows are incoming and the only outflow of cash is the purchase price, the NPV is simply the PV of future cash flows minus the purchase price (which is its own PV). NPV is a standard method for using the time value of money to appraise long-term projects.

Each cash inflows/outflow is discounted back to its present value (PV). Then they are summed. Therefore NPV is the sum of all terms.

$$\frac{R_t}{(1+i)^t}$$

where:

t is the time of the cash flow

i is the discount rate (the rate of return that could be earned on an investment in the financial markets with similar risk; the opportunity cost of capital)

Rt is the net cash flow (i.e., cah inflow – cash outflow, at time t).

NPV is an indicator of how much value an investment or project adds to the firm. With a particular project, if NPV is a positive value, the project is in the status of positive cash inflow in the time t. if NPV is a negative value; the project is in the status of discounted cash outflow in the time t. sometimes risky projects with a positive NPV could be accepted.

Return of Investment (ROI)

Return of Investment is a performance measure used to evaluate the efficiency of an investment or to compare the efficiency of a number of different investments. It is one way of considering profits in relation to capital invested.

Payback Period

Payback analysis is important in determining the amount of time it will take for a project to recoup its investments. This is the point at which the benefits start to outweigh the costs. The best way to see that is by charting the cumulative benefits and costs.

Project Charter

A project charter, project definition, or project statement is a statement of the scope, objectives, and participants in the project. It provides a preliminary delineation of roles and responsibilities, outlines the project objectives, identifies the main stakeholders, and define the authority of the project manager. It serves as a reference of authority for the future of the project.

Purpose of the Project Charter

The purpose of a project charter is to:

- Provide an understanding of the project, the reason it is being conducted and its justification
- Establish early on in the project the general scope
- Establish the project manager and his or her authority level. A note of who will review and approve the project charter must be included.

Simple Example of Project Charter

a. **Identification Section**

List the project name, the date of the current version of the project charter, the sponsor's name and authority and the project manager's name.

Example:

Project Name: Rice University Computer Store Creation

Project Sponsor: Jane Ungam, Facilities Manager

Date: June 12, 2020

Revision: 1

Project Manager: Fred Rubens

b. **Overview of the Project**

Provide a simple but precise statement of the project.

Example:

Rice University is planning to create a store to sell computer supplies.

c. **Objective**

State the objectives of the project clearly and ensure they contain a measure of how to assess whether they have been achieved. The statement should be realistic and should follow the **SMART** protocol:

- **Specific** (get into the details)
- **Measurable** (use quantitative language so that you know when you are finished)
- **Acceptable** (to stakeholders)
- **Realistic** (given project constraints)
- **Time based** (deadlines, not durations)

Example:

The objective of this project is to implement a campus store that is ready to sell computer supplies such as memory sticks, mouse pads, and cables, when class starts in August 2020, with enough inventories to last through the two weeks of classes.

d. **Scope**

Specify the scope of the project by identifying the domain or range of requirements.

Example:

The scope of Rice's school supplies store project includes the activities listed below:

- Determine what supplies will be sold in the store.
- Establish competitive prices for the customer supplies.
- Source and secure supply vendors.
- Establish marketing, procurement, operations, and any other necessary departments, schools, centers and institutes.

It is equally important to include in the scope what is not included in the project.

Example:

- Development of any other school store departments
- Store design or construction

e. **Major Milestone**

List all major milestones needed to ensure project completion successfully.

- All vendors selected
- Contracts or orders completed with all vendors
- Supplies delivered to the store
- Pricing determined

f. **Major Deliverables**

List and describe the major deliverables that will return from the project.

- Supplies procured
- Operations, procurement, marketing, and other teams established
- Store supplies stocked and displayed
- Store staffing completed, including work schedules
- Store operations policies, including hours of operations, established

g. **Assumptions**

Outline the assumptions made in creating the project. An assumption is a fact you are unsure of but can either confirm at a later time or are simply stating so that the project can proceed as if the statement were true.

Example:

- Only computer supplies will be sold in the store.
- Customer will be the Rice University student body and faculty.
- Rice University students will manage the project and be responsible for ongoing operations.
- A store sponsor from the university faculty or staff will be assigned to mentor students and provide oversight.
- Store hours of operation will be approved by the Rice University students or store sponsor.
- Supplier deliveries will be arranged or the store sponsor will pick them up with students.
- Students will be empowered to contact vendors for order placement and inquiries via telephone.

h. **Constraints**

Define any and all constraints on the project or those working on the project. This is an important part of the project charter. A constraint is anything that limits the range of solutions or approaches.

Example:

- Student availability to meet for project planning is limited to school hours.
- Software is not available for project planning and control.

i. **Business Opportunity (Benefits)**

Provide a concise statement of the business need or opportunity that led to the creation of the project. Why was it created? What are the benefits? How does the project contribute to organizational objectives?

Example:

The goal of this project is to provide income for the Rice Student Center while supplying necessary items to students and faculty at competitive prices. The school store will be a convenience to students since necessary supplies will be available on campus. This will help students learn to manage their personal supplies.

j. **Preliminary Cost to the Project**

Provide a statement indicating how the cost of the project will be defined and controlled.

Example:

The procurement team will assemble a proposal based on expected costs for review by the Dean of Undergraduate Studies.

k. **Project Risks**

A risk is anything uncertain that may occur that will reduce or decrease the chances of project success.

Example:

1. There is a state election coming and the new government may change the taxation rules for private unive
retail outlets.

2. The cloud is changing student demand for media such as flash drives in somewhat unpredictable ways. If this happens faster than we forecast, we may be building a store that students don't need.

3. Deliveries of store shelves, etc. will be delayed if a major storm occurs.

l. **Project Charter Acceptance**

Provide the names, titles, and signature lines of the individuals who will sign off on the project charter.

m. **Project Stakeholders**

Provide the key stakeholders and team members by function, name and role.

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