Technology Selection Procedure

A practical procedure for selecting technology solutions for corporate use

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Overview

This document defines a procedure for the selection of technologies, especially software packages or suites, to deploy for some purpose in a corporate context. This procedure is applicable when a cooperative group is working toward a common goal and perceives a need for a technological solution to facilitate their work. The procedure covers the process of selecting a technology solution as appropriate for the organization's use, but does not specify the process of deploying the solution. This procedure also does not apply to scenarios involving customization or development of new solutions.

The procedure defined herein is inspired by the Decision Analysis and Resolution (DAR) model for decisionmaking. The DAR is an abstract model for corporate decisionmaking which involves defining a goal for the decision, determining the criteria of success for the resolution, gathering alternative strategies for resolving the decision, evaluating the alternative strategies against the success criteria, and finally making a decision. This document defines a procedure which applies this model to the practical scenario of selecting a technology solution for a particular need within a corporation, and provides templates where appropriate.

Consider a situation where a corporation wishes to select a software package to fulfill a need in its day to day operations. In this scenario, we could apply the DAR model by following these seven steps:

1. **Declare the goal** for the software, including the needs the corporation is experiencing and the anticipated benefits of the solution.

2. **Gather suitability criteria** for the software by making an open call to relevant members of the corporation to add more.

3. **Formalize the gathered criteria** into a formal schedule listing Necessary Criteria, Preferred Criteria, and Follow-Up Concerns.

4. **Nominate solutions** which satisfy the criteria by means of a second open call to relevant membership.

5. **Build a matrix** of criteria and solutions, where each solution is marked as satisfying or failing each criterion.

6. **Make the decision** by testing solutions and choosing one for deployment.

7. **Review the solution** after an appropriate period of time to determine its suitability in accomplishing the stated goals.

In the following sections, we examine each step in turn and define templates for the relevant documents as appropriate.

While the DAR model can be applied to all kinds of decision types, it is easier to understand a general concept in terms of specific instances rather than universal abstractions. For the sake of clarity, this documented procedure is tailored to the particular decision type of the selection of a technology, and specifically, the selection of a software package or suite.

Throughout this document, references are made to the selection of a software package; however, the procedure can be adapted to other decision and technology types as needed.

It is anticipated that the full procedure should take two to four months to complete. This does not include the "breaking in" period after which a solution is deployed, prior to its review.

1 Declare the Goal

Less than a week

The decisionmaking process should begin with a clearly stated goal. This is the most important step. As with a rocket whose trajectory must be most carefully controlled at the beginning of its flight to minimize cumulative error as it travels to its distant destination, the group must establish a frame of reference for the destination and continually monitor their current position relative to it as they proceed through the decisionmaking process. The purpose of the goal statement is to establish that frame of reference.

The goal should make clear the context wherein a problem or deficiency is perceived and concisely describe the desired effects or benefits of a solution. A goal statement relates not to the solution or decision being sought after, but rather the business motivation for finding a solution in the first place. A strong goal statement focuses on the business benefits and long-term gains that the organization anticipates the outcome of the decision will yield.

The goal statement must not be any form of "The goal of the decision is to make a decision." For instance, when seeking a software package for some purpose, one would not write the goal statement as "To select an application for such-and-such."

The purpose of the statement is to establish a frame of reference for success; therefore, it must describe the *business objectives* that the solution is intended to obtain and enumerate ways the solution will *ameliorate difficulties or risks* in business operations. A statement of the form "The goal is to make a decision," regardless of what it says about the benefits of the resolution, establishes too narrow a frame of reference, being focused on the decision itself rather than the broader business concerns that render a change necessary in the first place. The focus of the goal statement must be on the business, not on the decision itself.

The structure of a Goal Statement is specific to each scenario, so it cannot easily be templatized. An example goal statement is provided here instead of a template.

> As we are evaluating the GBA's documentation storage and collaboration practices, we are considering new approaches that will improve the security, visibility, and control over who has access to GBA internal documents, as well as to limit the GBA's exposure to outages or policy changes from outside the corporation, all while ensuring that the solution chosen is friendly to and convenient for the GBA members who rely upon it for their day-to-day operations within the corporation.

Observe how the goal statement makes the business realities and anticipated benefits clear without any further context being necessary. An ideal goal statement will exhibit these qualities.

2 Gather Criteria

📅 *Two to three weeks*

Once the goal is defined, it is time to gather the criteria for suitability of a solution. Ideal criteria may be binary in nature, denoting a clear "yes" or "no" for the applicability of a given resolution strategy. Alternatively, criteria may be gradiential in nature, such that they establish a clear ranking of alternative categories. When applied to the specific problem of selecting a software package for a particular purpose, the criteria for success of the decision may be thought of as the requirements that the software must satisfy.

At this stage of the decisionmaking process, the criteria are not yet formally defined. To define a formal list of criteria, we first gather an informal list from a wide audience and then refine it. Review the goal statement, then begin by writing down as many criteria as come readily to mind, in order to get an initial set together and provide guidance for the wider audience.

Next, determine the audience from whom criteria should be sourced. This audience should be comprised of stakeholders in the final decision: the people who will use or be affected by the software package selected. Finally, send an open call to gather criteria from the stakeholders.

The call should begin with the goal statement. It then briefly describes the purpose and function of the sought-after solution; next, it gives direction for how criteria are to be submitted along with a deadline for submissions; and finally, it lists the initial set of criteria that have been gathered so far. A template for the call for criteria has been attached to this document to facilitate drafting the call. Click or double click this icon to access the file: 📌

3 Formalize Criteria

📅 *One week*

Once the deadline for criteria submission has passed, the criteria must be reviewed, consolidated, and formalized into a final Schedule of Criteria. Begin by reviewing the goal statement to ensure that the long term objectives are fresh in mind. Next, prioritize and sort the criteria into categories of *necessary* criteria, which a potential solution must satisfy in order to be considered as a candidate for selection; *preferred* criteria which it is desired that a solution will satisfy in order to be regarded favorably; and *follow-up concerns* which should be evaluated after a solution has been in deployment for a time to determine its suitability and effectiveness.

The Schedule of Criteria must include the goal statement followed by the categorized lists of criteria. Organize the criteria under category headings, ensuring that they are all clearly stated and readily understandable by readers who may be reviwing the document even after time has passed and may no longer remember the discussions. Criteria which are redundant or irrelevant may be discarded. The finalized schedule should be posted for review and archived for future reference.

Criterion Categories

The below category headings provide a template which may be populated to define the final schedule of criteria.

Goal Statement

Reproduce the goal statement at the top of the schedule.

Necessary Criteria

These are criteria which a potential solution must satisfy to be considered.

Preferred Criteria

*Solutions which satisfy these criteria will be regarded more favorably.*

Follow-Up Concerns

These will be evaluated after the solution has been in service for a time.

4   Nominate Solutions

📆 *Two to three weeks*

With the final schedule of criteria in hand, it is time to determine what solutions are available on the market to satisfy the criteria and achieve the goal. This begins by nominating solutions and compiling a list of nominations. Suitable nominations name candidate solutions, for example an open source project which can be downloaded and installed onto a server for use and would satisfy all necessary criteria. A software solution which requires code modifications to satisfy a necessary criterion would not be suitable for nomination.

Whatever solutions come readily to mind may be nominated up front, and then further nominations should be gathered in a second open call to the relevant membership. The call should briefly state the type of solution being searched for, making reference to the recent call for criteria; state the purpose of the call for nominations; and provide direction for nominations to be submitted, along with the deadline for submissions. The final schedule of criteria should be appended to the message as well. A template for the call for nominations is attached. Click or double click this icon to access the file:

5   Build Criterion Matrix

📆 *One to two weeks*

Once the period for nominations passes, the nominees must be examined for suitability. This process can be research intensive and some subjectivity is involved, but the effort invested here will not only expedite the arrival at a final decision, but also it provides greater confidence in the decision reached.

Construct a matrix as a table with a column for each Necessary and each Preferred criterion and a row for each nominated solution. Populate the table cells with a checkmark if the corresponding solution satisfies the corresponding criterion, or an X if it does not. Some investigation may be required to determine whether the solution satisfies the criteron or not. It may be helpful to contact the member who nominated the solution to learn if they know whether it satisfies the criterion. Solutions which fail a necessary criterion can be removed from the matrix and listed below it with a comment about which criterion it did not meet. An example of a criterion matrix is provided below.

	N1	N2	N3	P1	P2	P3	P4	P5
S1	✓	✓	✓	✓	✓	✓	✓	✗
S2	✓	✓	✓	✓	✗	✓	✓	✗
S3	✓	✓	✓	✓	✓	✓	✗	✓

6   Make the Decision

📅 *Two to four weeks*

It is now time to review the information gathered in consideration of the stated goal, and make a decision. While in some cases it may be suitable to simply choose the solution which satisfies the most compelling criteria, there are always other factors to consider as well such as cost (always bearing in mind that the greatest costs are seldom financial), ease of use, maintenance, and of course, subjective factors including the appeal a solution holds for members and whether one solution seems more likely than another to fulfill the stated goals or to better position the corporation for the future.

A technology solution is not successful, however, based on criteria and analysis alone. To be useful, a technology must also fit within the practices and workflows of the people within the company who will be using it. This introduces a human element which cannot be captured by a criterion matrix nor can it be predicted merely by considering which technology has the best features. Furthermore, the possibility does exist that no single solution can be found to provide for all of the needs of the organization, but rather the combination of multiple solutions is preferred. Throughout this phase of the procedure, multiple solutions may be under consideration in parallel, even if the text here refers only to one.

To integrate the new technology into the company's operations, some few managers within the organization will need to take responsibility for informing the rest of the group about the new solution and showing them how to use it. These managers must be willing to promote the technology within the company if it is to be successful, and thus they possess a veto power over the selection of a particular solution.

Begin by selecting managers who will be willing to test solutions and onboard the membership into the chosen solution. Ask these managers to consider what their requirements for the solution are, so that they will be willing to promote it within the company, and have them write these requirements for acceptability down. While these requirements are not a formal test, they are valuable for documentative and historical purposes, and once the final solution has been selected, the requirements should be archived for future reference.

While the managers are considering their requirements, select one or more solutions to test, and instantiate these solutions in a demonstrative capacity so the managers can see them in practice, interact with them, and evaluate their acceptability. Allow the managers to acquaint themselves with the available solutions and determine which they would prefer to promulgate within the company. If no acceptable solution is found, it may be necessary to select others for demonstration, or to return to step 4 and seek out additional nominations and analyze these new nominees against the suitability criteria.

When a final solution has been selected, reconfigure or reinstantiate the solution for production use rather than demonstration, and allow the managers to begin onboarding the membership into its operation. Mark a calendar a few months out for a time to review the solution after it has been in deployment, in step 7 of this procedure.

Congratulations! Having selected and adopted a new technological solution, you have now moved the corporation forward giving it a stronger footing than it had prior. Well done.

> Be cognizant that at any time during this phase or even after the procedure has been completed, a member may find a new solution which they wish to promote as an alternative for use within the corporation. If this should occur, the member is effectively making a retroactive nomination, and should be allowed to analyze the solution to construct a new row for the Criterion Matrix and instantiate the solution for demonstration. Once this occurs, this step of the procedure can be revisited and managers may be selected to review the archived requirements, make

alterations as necessary, and test the solution. If the new solution shows promise, it may be deployed for production use and introduced to the organization, either as a replacement for or an alternative to the existing solution. In this manner, new solutions can be adopted as time goes on and technology advances and new solutions come to light.

7   Review the Solution

One to two weeks

Now that the solution has been in service for a while and members have had time to get used to it, it's time to ask some questions. Locate the schedule of criteria and look at any follow-up concerns listed there, and also ask for general feedback from the members. Do they like the solution? Is it adequate to their needs? Also look for members who still utilize other alternatives rather than the chosen solution – would a different solution be able to serve them better? And most importantly, review whether the solution has fulfilled the stated goal.

If the solution is a success, then this procedure is completed. If the chosen solution has not satisfied the membership, however, or if it has failed to attain the stated goal, consider whether the solution can be better instrumented to meet the group's needs. If not, then it may be appropriate to revisit earlier steps in this procedure, whether to deploy a different solution from the nominations list, or to look for new solutions or ones that may have been missed in the first nomination process, or to refine the requirements based on the lessons learned. If any of these options should prove useful, take heart: in many cases, there is no way to learn what is required except to try and fail. The experience gained in trying and failing builds strength and is more valuable by far than finding a good solution on the first try.

However the situation shapes up, go forward in strength and confidence. Good luck!