**Evaluate Solution**

The project organization will oftentimes evaluate the project in terms of delivering results within the time frame and budget specified. Such evaluations typically include listing of what has been learned and what can be improved with the next projects. A business analyst evaluates a solution from the perspective of what value the solution brings to the business.

Note that the evaluation is not about the implementation of the solution. It is not about functionalities implemented or if the users have received the necessary training. It is about evaluating the impact on the business. The evaluation concerns if and to which extent the objectives have been fulfilled. This is an important step because if the solution does not produce the gains that motivated the investment to begin with, the solution has very little value. In fact, the money invested could have been better spent on other projects that could give better value. Furthermore, the business will still be suffering if the problems identified are not resolved.

As the objective with evaluating a solution is to see how it has created value for the business, it can only be performed after the solution has been implemented. However, it is not wise to wait until everything is built to evaluate the solution. Therefore, evaluation does not take place only after the solution is implemented but can also be done while the project is ongoing. In fact, it might be crucial to ensure that a solution will deliver value before it is implemented. For instance, a prototype or a proof of concept can be implemented to verify that the intended solution will work in a value creating manner. With a prototype or a proof of concept, one can see a limited version of a solution and learn more about how it works. In the same manner, pilot installations or beta versions offer limited implementations of the final solution, allowing the analyst to evaluate the solution with better certainty.

In this chapter, we focus on evaluation when the solution is implemented. As input to this stage of the process, the analyst has the objectives of what the intended value of the solution. Furthermore, having considered the entire life-cycle, the analyst has ensured that the required data for evaluation is extractable. Evaluation of a solution can traditionally include the following aspects. First of all, the analyst need to determine the best way to assess the performance of a solution and analyze the results. This is a continuation of the work that has been performed in earlier stages where the objectives were defined and goals set. Secondly, the analyst might wish to assess the limitations, both within the solution and within the company, that might limit the full realization of the value of the solution. Finally, the analyst will perhaps take a closer look to identify and recommend actions that can increase the value delivered.
Measure and Analyze Solution Performance

Before any analysis can be made, there needs to be defined performance measures. In some cases, the solution might have built-in performance measures. Some solutions come with dashboards that allow for monitoring performance based on different aspects. However, if that is lacking, the analyst will have to collaborate with stakeholders to find relevant measures. As mentioned previously, this should not be done at this stage but rather prior to the implementation of the solution. In essence, performance measure is either quantitative or qualitative as we have discussed previously.

Part of the work is to collect the relevant data that is required for measuring the performance. If the analyst does not think of this aspect earlier, then there might be a risk that the data is not accessible when it is time to measure the performance. In defining and collecting the data, the analyst will need to consider the volume or sample size. If the available data is too small, the results will most likely be inconclusive as it is based on a weak foundation. Therefore, larger sets of data are more reliable but on the other hand, it might be difficult to get hold of or it might slow down the processing. As in many other cases, the golden middle way is best. Another perspective to consider is the frequency and timing of the data. For instance, if data is collected for the past 3 months, will the measurements be reliable? It will depend, for example, on the context and industry. If the solution is within a context that has seasonal variation, looking at 3 months might be misleading. Furthermore, some solutions require some time before their value is noticeable. The reasonable time before value can be expected varies between solutions. As such, the time perspective is relevant consideration when collecting data. Finally, the “currency” of the data matters as well. In principle, the newer the data, the better. Running performance on old data might also be misleading as the environment change, and perhaps a number of internal process have been modified over the years and this might have an effect.

Once the measures are clear and the data required collected, it is time to analyze the performance. As mentioned before, when having a target or predefined goal, the analysis is done against the metrics developed and defined in previous steps. For instance, a problem of slow process in regards to processing orders has been defined. It was found that 200 orders were being processed per day in the department. However, the inflow of orders was increasing and soon it was estimated that there would be 400 orders per day. One option was perhaps to double the staff but such an alternative would be costly and would not resolve the problem properly. The best solution was to implement an information system that supports automated method for processing orders. The metrics identified were perhaps to manage 400 orders per day. In addition, another benefit expected was lowering the costs of order processing. The benefits can be summarized as follows.

1. Manage 400 orders per day (scalable solution)
2. Reduce costs by
   a. Less waste (10 % reduction)
   b. Less staff (50 % reduction) for 400 orders
3. Shorter time per order processing (20% reduction)

In order to evaluate a solution, it is necessary to know the values of the metrics for the current state. These values are already elicited. It is also necessary to know within what time frame the metrics can be evaluated. For instance, the objective of managing 400 orders might not happen overnight with the implementation of the solution. It is perhaps reasonable to achieve this objective within 1 year from the implementation. The increased efficiency from reduced costs might take 6 months to be fully realized, as staff needs to become familiar with the new processes. Furthermore, it might take some 6 months for the some of the staff to find other positions within or outside the company (reducing staff by 50%).

Assess Solution and Enterprise Limitations

The goals might be fully, partially, or not at all fulfilled. If the goals are fully fulfilled, it is a success. However, if they are partially fulfilled or not at all, there might be a limitation that hampers the realization of the value. Such situations must be analyzed. Most commonly, such limitations are either within the solution itself or within the enterprise in which the solution is implemented. In such cases, we are looking at problem analysis to find the root causes for unfulfilled value realization.

The first step might be to take a closer look to identify possible internal solution component dependencies. Oftentimes, solutions consist of several dependent components that work together to make it work. If one of the components are not working properly or if two components don't work well together, the value delivery of the solution might be compromised. The value being produced might be limited by the “weakest” or the least effective component. In essence, it is important to understand why the solution is not delivering the expected value. The reason might not be in the solution but in the enterprise. As mentioned previously, the solution itself might be perfect but there are other aspects (as discussed with POPIT) that must work together to enable value delivery. Perhaps certain units of the enterprise are not using the new solution as it should be used, perhaps they have not received training yet, or they have other issues restricting them. In short, the problem might be within the solution or within the context the solution is implemented in.

Once the problem is identified, the work with finding alternative solutions begin. In finding alternatives, it is important to assess the impact of the problem and alternative solutions. Is the problem of such magnitude that it must be addressed or could it be postponed without any significant impact? What is the level priority? If a solution to the problem is prioritized and implemented, what impact will it have? Are there any risks associated with the solutions or with not doing anything? These and related questions will be important to consider before moving on. In summary, there are three directions that can be taken, to do nothing, to change something or to retire the solution.
• Do nothing - if the impact or the value of a change is low, and the cost of doing something will exceed the value, or if risks associated with doing something are high, then it is probably best to simply do nothing and let it be as it is.

• Organizational change - it might happen that the solution is good enough but for various reasons, the solution is not well received by the organization. For instance, a solution might require new skills, eliminate jobs, introduce new issues or any other organizational barriers. In such cases, the solution does not necessarily need to be changed but focus should be directed towards organizational issues.

• Change the solution - it might be so that the solution is unnecessarily complex for instance in its user interface or has too many steps that do not add value. Perhaps some functionality is lacking or further capabilities were identified that would make the solution better. In such cases, it might be good to enhance or prune the solution for the purpose to simplifying the solution so it is more easily understood or make it more complete.

• Retire the solution - it might be so that the solution was simply not good enough or that changes in the environment rendered the solution redundant. In such rare cases, perhaps the best option is to retire the solution.

Continuous Monitoring

Evaluation of a solution is not a one-time event. The time frame for a specific metric might be set for one year but that is not the same as evaluating that metric after one year. The metric should be evaluated regularly at appropriate intervals such as weeks or months depending on what is being measured. By following the development of the benefits the solution is bringing, the analyst can quickly respond to a variety of cases.

• If there are no improvements after one or two intervals, the analyst can examine as to the reason.
  o If it is a question of delay, the analyst can identify the reasons and initiate measures can be taken to remove them.
  o If it is a question of no benefits being produced, there is something wrong. Either the solution is inefficient or something in the implementation (for instance the business unit that received the solution) that is missing. The analyst can examine and either salvage the situation or add what is missing.

• If the progress is going as expected, the analyst can examine the situation to see if there are any improvements or measures that can be taken to improve the benefits or speed up the realization of benefits.

• If the progress is going better than expected, the analyst can investigate as to what factors are contributing to it. Perhaps there is learning to be made or measures can be taken to even further the improvement.

In essence, evaluation of the solution aim at securing and measuring that the intended impact is achieved. If the impact is not achieved, the work of the analyst is not over. As
the objective is to have an impact, the analyst has to find and resolve the issue. If the solution delivered the intended impact, the analyst can rest assured of a job well done and begin with the next change.